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Circular Economy in Textile and Apparel Industry

The role of consumers in the shift from linear to circular economy

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TIIVISTELMÄ:

Tekstiili- ja vaateteollisuus on yksi saastuttavimmista teollisuuden aloista. Se saastuttaa enemmän kuin globaali lento- ja laivaliikenne yhteensä. Teollisuuden alan ominaisiin piirteisiin kuuluu merkittävät hiilidioksidipäästöt sekä luonnonvarojen ylikulutus. Tällä hetkellä tekstiili- ja vaateteollisuus nojaa vahvasti pikamuotiin, joka perustuu ajatukseen, että vaatteita tehdään nopealla aikataululla ja uusia mallistoja tulee jatkuvasti lisää, jolloin vaatteet usein päätyvät lyhyessä ajassa kaatopaikalle. Globaalin kulutuksen on arvioitu nousevan 63% vuoteen 2030 mennessä, jolloin maapallon resurssit eivät enää riitä vastaamaan kulutukseen. Resurssien loppuminen voidaan ehkäistä siirtymällä lineaarisesta talousmallista kiertotalousmalliin.

Kiertotalousmallissa ajatuksena on pitää raaka-aineet käytössä mahdollisimman pitkään ja luoda pitkäkestoista arvoa, jolloin myös saaste vähenee ja uusia resursseja tarvitaan entistä vähemmän. Tämä tutkielma keskittyy kiertotalouteen tekstiili- ja vaateteollisuuden kontekstissa, jolloin kyse on käytettyjen tekstiilien ja vaatteiden ostamisesta, myymisestä, vuokraamisesta sekä kierrättämisestä. Kuluttajilla on tärkeä rooli siirryttäessä lineaarisesta talousmallista kiertotalousmalliin tekstiili- ja vaateteollisuudessa. Kuluttajien merkittävyys kiteytyy heidän vaikutusvaltaansa työntää yrityksiä kohti kiertotalousmalleja. Lisäksi kuluttajilla on erilaisia rooleja kiertotaloudessa kuten ostaja, myyjä ja korjaaja. On erilaisia tekijöitä, jotka vaikuttavat kuluttajien ostokäyttäytymiseen ja kannustavia toimia, joilla kuluttajat saadaan osallistumaan kiertotalouteen.

Teoria käsittää katsauksen kiertotalouteen niin yleisellä tasolla kuin tekstiili- ja vaateteollisuuden kontekstissakin. Lisäksi kuluttajien eri rooleja käsitellään samoin kuin tekijöitä, jotka vaikuttavat kuluttajien ostokäyttäytymiseen ja kannustavia toimia, joilla kuluttajat saadaan osallistumaan kiertotalouteen. Empiirinen osio tutkii eksperttien näkemyksiä kuluttajien roolista ja tavoista saada heidät osallistumaan kiertotalouteen. Lisäksi kuluttajien näkemyksiä tekijöistä, jotka vaikuttavat heidän ostopäätöksiinsä ja halukkuuteensa osallistua kiertotalouteen käsitellään.

Tutkimuksen tulokset näyttävät, että kuluttajilla on erilaisia rooleja kiertotaloudessa ja he ovat tärkeä osa siirtymässä kohti kiertotalousmallia eri rooliensa kautta sekä johtuen heidän vaikutusvallastaan saada muutosta aikaan omien kulutusvalintojensa kautta ja vaikuttamalla yritysten toimintaan. Tutkimus tuotti monia tapoja saada kuluttajat osallistumaan kiertotalouteen, mutta neljä tapaa nousi eniten pinnalle. Nämä neljä tapaa ovat kiertotalousmallien paketoiminen houkutteleviksi konsepteiksi, tekemällä niistä helpompia vaihtoehtoja kuluttajille, niiden normalisointi ja säädökset.

AVAINSANAT: Kiertotalous, tekstiili- ja vaateteollisuus, lineaarinen talous

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Abbreviations

CE	Circular economy
T&A industry	Textile and apparel industry

1 Introduction

This chapter introduces the background of the topic as well as research questions and objectives. In addition, the delimitations of the study are discussed, and the thesis structure presented.

1.1 Background of the topic

Textile and apparel industry (T&A industry) is the third biggest manufacturing industry in the world. The biggest manufacturing industries are automotive and technology industries (House of Common Environmental Audit Committee 2019). T&A industry is also one of the most polluting industries with significant environmental footprint. In addition, it is known for overconsumption where the ever-growing pile of new apparel eventually ends up in a landfill. (Dory 2018.) Ellen MacArthur Foundation (2016) has estimated that over 500 billion dollars of value is wasted annually because of this underuse of apparel and the fact that people are not recycling enough. By the year 2030 global clothing consumption is estimated to rise 63% and by the year 2050 three planets would be needed to have the natural resources needed to supply the consumption of humans (Environmental Audit Committee 2019).

It has become apparent that the linear economy model that is currently commonly used does not have enough opportunities to implement sustainable development practices effectively. At the same time circular economy (CE) model is attracting more and more attention. (McKinsey 2016.) In CE model the linear processes are replaced by cyclic ones where the utility and value of products is maintained as high as possible at all times. (Sustainability Guide 2018). CE processes include for instance recycling, remanufacturing, sharing models and product life extension. Consumer participation is vital for CE because without public participation recycling and resource conservation for example cannot be achieved (Li & Yu 2011). Therefore, CE depends upon more active participation of consumers (Sijtsema, Snoek, van Haaster-de Winter & Dagevos 2019).

Because consumers' participation is so important for CE model to work, it is relevant to focus on consumer behavior. Even though during the recent years, consumers have taken sustainability into consideration more than before when it comes to clothing, it often does not translate to their purchasing decisions and actions (Auger & Devinney 2007). The importance of consumer participation for the development and functioning of CE is in contrast with the low level of consumer awareness and acceptance of circular offerings (Sijtsema et al. 2019). The lack of consumer participation is one of the main barriers in the transition from linear business model to circular one (Kirchherr et al. 2018) and thus it is topical to understand factors affecting consumers purchasing behavior in textile and apparel industry and how the transition to CE model would be successful.

Circular economy and sustainable consumption is relatively new field of research (Blomsma & Brennan 2017). CE has formed to be in a key role in the transition to more sustainable economic models, but yet the concept of CE still remains unclear (Jesus & Mendoca 2018). Even though the role of consumer engagement in CE has been researched to some extent, there is nevertheless need for further observations (Camacho-Otero et al. 2018). CE has been studied much less from consumption perspective compared to production perspective both in theory and in practice even though multiple studies have emphasized the importance of consumers in the further evolving of CE (Sijtsema et al. 2019). In addition, the existing studies are mainly focusing on hypothetical scenarios rather than real-life insights (Qu, Yu, Chen, Chu & Tian 2016).

1.2 Research question and objectives

The purpose of this thesis is to analyze circular economy as an economy model and to examine the role of consumer participation in this model. In addition, the ways to get consumers to participate in CE are examined and analyzed. This is all done from the perspective of textile and apparel industry. Therefore, the main research question is:

What are the consumers' roles in circular economy in textile and apparel industry and how consumers can be encouraged to participate in circular economy instead of linear economy?

Two theoretical objectives and one empirical objective are determined to support answering the research question.

Theoretical objectives:

- 1. Define the concept of circular economy (CE) and identify the specific characteristics of it in the context of textile and apparel industry.*
- 2. Examine the factors affecting consumers' decision of participating in circular economy.*

Empirical objective:

- 3. Explore the roles of consumers in circular economy and how they can be encouraged to participate in circular economy.*

This thesis is only focusing on the textile and apparel industry and does not take into consideration other industries which does narrow the research. The reason behind this narrowing is to have more in depth observations rather than a general bigger picture of the topic. The examining of the concept of circular economy is done mainly from the perspective of cradle-to-cradle school of thought by Braungart, McDonough and Bollinger (2007). In addition, the examination of the circular economy model is done by mostly focusing on the consumers' role in it in order to keep it relevant for the research question.

The empirical part of this thesis provides two different perspectives as both experts and consumers are interviewed. However, all the consumers are millennials which limits the consumer point of view. In addition, even though all the circular fashion models are

represented in the expert interviews, the study only includes four different experts' perspective, and all of these experts are Finnish which narrows the expert perspective.

1.3 Thesis structure

The thesis structure consists of five main chapters. Firstly, the introduction chapter presents the background and justification for the topic in addition to research question and delimitations. Next comes the literature review which dives into circular economy in the textile and apparel industry as well as into consumers' role in it. In this chapters the concepts are defined, and relevant theories presented. The next chapter focuses on the methodology of the research and introduces the method and design of the research, data collection as well as validity and reliability of the research. Chapter four presents the empirical findings. Lastly, the final chapter concentrates on discussion and conclusions and includes discussion of the empirical findings linking them to theory and presents key findings of the thesis as well as giving suggestion for future research and managerial implications.

2 Circular economy in textile and apparel industry

This chapter will introduce the concept of circular economy (CE) and link it to the textile and apparel industry while considering the issues the industry is facing. The chapter is divided to four themes and begins by discussing the origin and definition of CE as well as practical aspects of its implementation. Following this, the characteristics of the textile and clothing industry is presented, and the lifecycle of a garments is analyzed. Next, these two themes are combined to present models to close the loop and the concept of circular fashion is analyzed. The last theme focuses on consumers' role in CE in textile and apparel industry and lastly these themes are combined into theoretical framework.

2.1 Defining circular economy

It has been debated where the term “circular economy” originally comes from (Murray, Skene & Haynes 2017). Greyson (2007) request that the originator of the term was Kenneth Boulding (1966) whereas Liu et al. (2009) claims that circular economy originates from China. It has been said that the term of CE was first used in a study by Pearce and Turner (1990) that focused on the relation between the environment and economic activities (Merli, Preziosi & Acampora 2017). Others claim that the term appeared in the western literature for the first time in the 1980s when Stahel and Reday-Mulvey (1976) described a closed-loop economy and higher durability.

The academia lacks a common agreement on the definition of CE (Rizos, Tuokko & Behrens 2017). This is because CE is rather new field of research that is based on different schools of thoughts (Blomsma & Brennan 2017). Moreover, the definition of CE contains a wide spectrum of principles formulated in the past decades (Merli et al. 2017). One of the principles is *cradle-to-cradle* by Braungart, McDonough and Bollinger (2007) which aims to create cyclical “metabolisms” instead of minimizing the cradle-to-grave material flow. Another principle influencing the CE definition is Stahel's (2008)

performance economy in which higher competitiveness can be accomplished with consuming less resources and without externalization of the waste or risk costs. In addition, *industrial ecology* by Erkman (1997) and *regenerative design* by Lyle (1994) are also linked to CE and how it is seen today. The goal of *industrial ecology* is to transfer the concept of sustainable development into operational concrete solutions (Erkman 1997) while *regenerative design* calls for technologies that are favorable both ecologically and socially and that replace the used material and energy (Lyle 1994).

The early definitions state that circular economy is an economy which can regenerate itself. This is done using either organic or renewable materials which are meant to be reused or re-entered into the ecosystem when their life cycle ends or technical materials that switch from production to consumption in cycles losing as little value or quality as possible. (Commoner 1971.) This can be seen in the 3R principles of CE which are *reduce*, *reuse* and *recycle* (Pearce & Turner 1990). Sustainability Guide (2018) defines circular economy as an economic model that emphasizes business opportunities where cyclic processes overshadow the linear ones. It is also described as restorative and regenerative economy that is designed to maintain the utility and value of products and materials as high as possible all of the time.

The contemporary definitions and understanding of circular economy align with the definition of Sustainability Guide. The European Commission (2015) as well as Webster (2015) highlight the aim to keep products and materials in the economy as long as possible without compromising their value. One of the most famous definitions is by Ellen MacArthur Foundation (2016) presenting the three principles of CE which are minimizing the waste, lengthening the usage of materials and giving new life to natural systems. Kirchherr, Reike and Hekkert 2018 also rely on these principles in their definition emphasizing recycling, reusing and recovering raw materials. The World Economic Forum (2020) combines the above ideas into their definition of circular economy. The definitions of contemporary understanding of circular economy are presented in the table 1.

Source	Circular economy definition
The European Commission 2015	<i>“An economy where the value of products, materials and resources is maintained in the economy for as long as possible, and the generation of waste minimized”</i>
Webster 2015	<i>“A circular economy is one that is restorative by design, and which aims to keep products, component and materials at their highest utility and value at all times”</i>
Ellen MacArthur Foundation 2016	<i>“Circular economy aims to redefine growth, focusing on positive society-wide benefits -- It is based on three principles: design out waste and pollution; keep products and materials in use; regenerate natural systems.”</i>
Kirchherr, Reike & Hekkert 2018	<i>“ An economic system that replaces the ‘end-of-life’ concept with reducing, alternatively reusing, recycling and recovering materials in production/distribution and consumption processes.”</i>
The World Economic Forum 2020	<i>“Circular economy is an industrial system that is restorative or regenerative by intention and design. It replaces the end-of-life concept with restoration, shifts</i>

	<p><i>towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and return to the biosphere, and aims for the elimination of waste through the superior design of materials, products, systems, and business models”</i></p>
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Table 1. Contemporary understanding of circular economy.

Circular economy is an alternative to a linear “take, make, dispose” economy (MacArthur 2016) where after a resource is used it is disposed and its lifecycle ends (Jacometti 2019). According Murray et al. (2017) to linear economy converts natural resources into waste through production. What makes circular economy an appealing alternative to this linear model is its value creation opportunity. The effective flows of energy and materials as well as labor make it possible for both social and natural capital to be rebuilt. (MacArthur 2016.) Ellen MacArthur Foundation (2016) has created the now famous butterfly diagram (figure 1) which is based on the idea of *cradle-to-cradle* by Braungart, McDonough and Bollinger (2007) to illustrate circular economy and to show the non-stopping flow of materials both technological and organic looping different processes via value chain (MacArthur 2016). During the recent years, circular economy has gained significantly attention for its conceptualization as well as its implementation strategies (Geissdoefer, Savaget, Bocken & Hultink 2016).

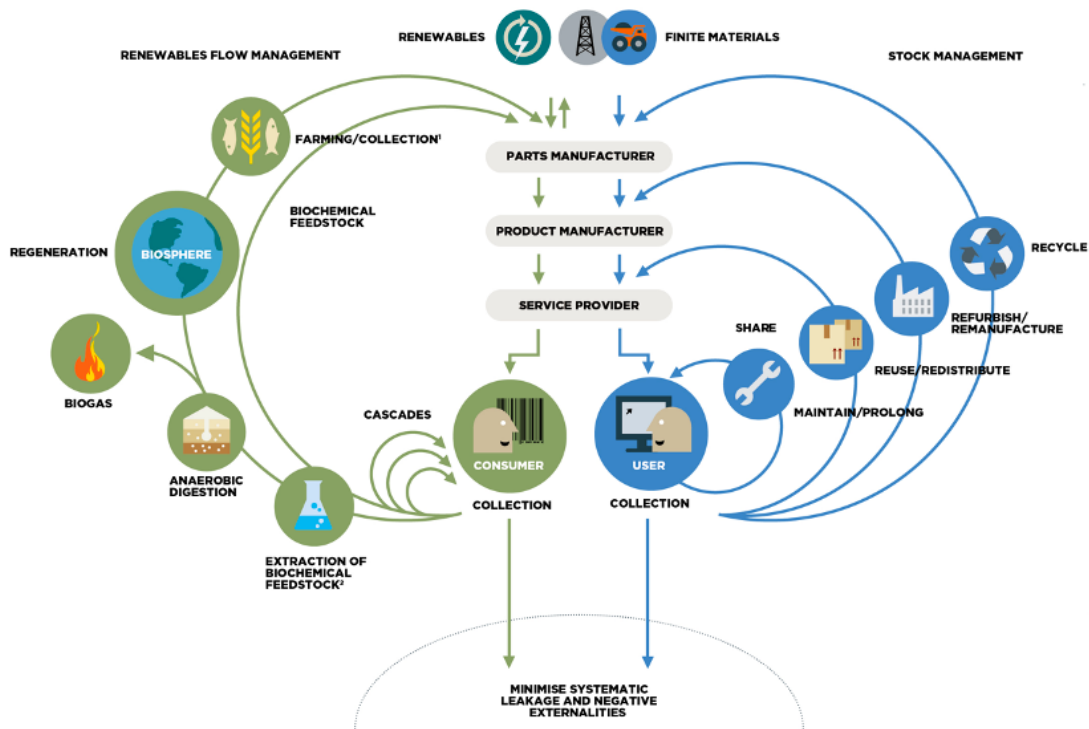


Figure 1. The circular economy butterfly diagram (Ellen MacArthur Foundation 2016).

2.1.1 Circular economy drivers

There can be identified drivers that push the transition towards circular economy from a company's perspective. The shift can happen partly due to government regulations and incentives, but a faster and more extensive transition depends on the decision-makers of companies and whether they see the potential of CE as a competitive advantage. (Masi, Day & Godsell 2017.)

According to Zhang, Joglekar and Verma (2012) CE initiatives may lead to *resource efficiency gains* which is further linked to enhanced economic performance. The "eco-efficiency" argument by Porter and Vanderlinde (1995) also support this claim as they state that improved performance may reduce material consumption and waste creation which leads to decreased costs. One driver for companies is also being able to *avoid environmental costs* that have to do with pollution and waste (Masi et al. 2017). This can

be done by maintaining or recovering the value of a product over time (Hollander, Bakker & Hultink 2017).

When it comes to brand, CE initiatives can lead to *improved brand reputation* in the eyes of consumers (Masi et al. 2017). According to Zhu, Geng and Fujita (2017) the demand for responsible products has increased on behalf of consumers while the standards for environmental certification have also developed. Giurco, Littleboy, Boyle, Fyfe & White (2014) state that when communicated well, CE activities enhance a company's reputation with consumers. In addition, demonstrating responsible supply chains and production is as important for brand reputation as certifications (Giurco et al. 2014). Related to brand reputation, companies that operate in an environmental-friendly manner can *expand to global markets* easier since governments carry out more disciplinary environmental regulations (Masi et al. 2017).

2.1.2 Circular economy barriers

The literature highlights *technical barriers* as key barriers for implementing circular economy (Kirchherr, Piscicelli, Bour, Kostense-Smit, Muller, Huibrechtse-Truijens & Hekkert 2018). Relevant technology is required for CE transition (Vanner & Bicket 2014). However, the technologies used in the linear economy do not cost as much and are easier to access compared to the ones linked to CE due to the fact that they have existed a longer time (Pan, Du, Huang, Liu, Chang & Chiang 2015). In addition, there is not enough organizational capacity and it is a challenge to integrate these technologies to companies in general but especially to smaller companies (Rizos, Behrens, Van Der Gaast, Hofman, Ioannou, Kafyeke, Flamos, Rinaldi, Papandelis & Hirschtz-Garbers 2016). According to Preston (2012) there are significant CE opportunities if the technical barriers are managed to overcome.

In addition, there are *cultural barriers* that have to do with consumers and company culture. When it comes to buying culture Ranta, Aarikka-Stenroos, Ritala and Mäkinen

(2017) claim that consumers would rather buy new products. Therefore, limited acceptance from consumers is one factor hindering the implementation of CE (Vanner et al. 2014). Without public participation for instance recycling and resource conservation cannot be achieved at the desired rate (Li & Yu 2011). Regarding company culture, findings from Pheifer (2017) suggest that in many cases CE is not integrated in the company strategy or its mission and vision which indicates that the concept of CE is not “mainstreamed” by the companies yet.

Financial barriers relate to the difficulties for companies to get investments for CE implementation (Ceglia, de Abreu & da Silva Filho 2017). Investment recovery in many cases depends on consumers’ green purchasing behavior which like mentioned above can be uncertain (Liu & Bai 2014). In addition, short-term corporate agendas and management’s lack of awareness regarding environmental issues often hinders getting investments (Shahbazi, Wiktorsson, Kurdve, Jönsson & Bjelkemyr 2016). Investments are important because CE initiatives are often so expensive that the company needs financial support (Ranta et al. 2017). Rizos, Behrens, Kafyeke and Ioannou (2015) also support this claim by stating that access to finance is key for companies to shift to CE.

2.2 Textile and apparel industry

The textile and apparel industry (T&A industry) is the third biggest manufacturing industry in the world (House of Common Environmental Audit Committee 2019). Textile industry consists of design, production and distribution of textiles, fabrics and apparel. The industry can be separated into three markets which are home textiles, technical textiles and clothing (Brax 2015). Apparel industry also includes the process of producing clothing but also accessorizes and footwear (Michigan State University 2021). Thus, the sector of textile and apparel industry considers both textiles and clothing as well as accessorizes and footwear and are often referred as one industry when talking about clothing (Brax 2015). The T&A industry consist also of marketing and retail operations of textile and apparel products (Su 2013). The industry is characterized as one of the most

important customer merchandise industries (Euratex 2017) and is estimated to be 1,3 trillion dollar industry (House of Common Environmental Audit Committee 2019).

The T&A industry is a classic portrayal of a global supply chain that is defined by the substantial input to world economy and global trade. Distinctive for these supply chains are also various stages and actions within the chain as well as shifting specifications that are managed and the excessively spread supply network. (Su 2013). These globally wide networks of stakeholders working in different stages of the supply chain have made the industry supply chains long and complex. After the shift towards fast-fashion begin, the traditional supply chains were replaced by more strategical, responsive and cheaper buyer determined supply chains. (Turker & Altunas 2014.)

Other characteristics linked to the T&A industry are unpredictability, a variety of products and international sourcing (Perry & Towers 2013). Due to globalization, most retailers have outsourced their production to developing countries and thus do not own production factories (Hale & Wills 2005). During the last 30 years, apparel and especially textile production has relocated to countries that are less developed (Turker & Altunas 2014). Developing countries are attractive to big companies to outsource their production since the labor costs and production costs are low there. These developing countries concerning textile and apparel industry are especially China, India, Sri Lanka and Bangladesh (Dirnbach 2008). Globalization has also led to trading agreements between different countries which affect the industry (Gardetti & Torres 2013).

2.2.1 Environmental impact

The industry is one of the most polluting industries and is known for overconsumption and big environmental footprint. The apparel industry itself has the second biggest water consumption compared to other industries and it pollutes more than all international flights maritime freight together (Dory 2018). There are also environmental challenges associated with the big energy consumption and toxic chemicals used in producing

textiles and garments. For instance, using pesticides and water to cotton production makes it one of the most polluting crop yields in the world (Giesen 2008.) The chemicals used in textile production cause damage to the local communities and environment as a whole. Washing and tumble drying is one of the biggest reasons why the industry has such a big environmental footprint (Pedersen & Gwozdz 2014.) In addition, the industry creates significant amount of waste and tons of textiles and garments are dumped to landfills annually (Dory 2018).

The globalization has had mainly two effects on the clothing supply chains. First, offshoring production has caused unemployment among European workers as spinning and weaving were traditional industries in Europe. Second, when production is shifted further away, the environmental burden increases due to longer transportation. In addition, the time demand that came with fast-fashion forces most of the packages to be delivered by air which pollutes significantly. (Turker & Altunas 2014.) Most of these issues are due to globalization and the creation of fast-fashion. Fast-fashion concludes the downside effect of linear business model in textile and apparel industry. In the following chapter, fast-fashion is defined.

2.2.2 Fast-fashion

In the history of clothing industry some retailers begin to increase their demands on their manufacturers by wanting more variety and the clothes to be more fashionable. This led to the previous two-season calendar changing to mid-season purchasing and all the way to purchasing throughout the year. Which eventually led to the change from ready-to-wear-fashion to a whole new industry called fast-fashion which is the norm nowadays. (Reinach 2005.)

The main idea of fast-fashion is that retailers take inspiration from fashion shows and transform it to products that can be put to market nearly immediately for mainstream consumers to purchase. (Tokatli et al. 2010). The distinctive characteristics of fast-

fashion production includes busy schedules, small batches and shorter development cycles (Tokatli et al. 2010). According to Abreu (2015) “Nowadays fast fashion has created a demand for 80 million new garments per year”.

Fast-fashion has two key components of which the first one is called quick response strategy. This strategy means the quick action of responding to fashion trends and transferring them to mainstream products. In order to make this possible in a fast schedule the design times are reduced. Some companies such as Benetton recruit people to follow seasonal fashion and to spot trends to be up to date on consumers desires. The other key component of fast-fashion is short lead times when it comes to production and distribution. This makes it possible to effectively match the supply and demand. Companies like Zara for example are constantly observing their inventory levels to be able to respond to the consumer’s demand. (Meichtry 2007.)

According to De Brito, Carbone & Blanquart (2008) there are two types of fast-fashion organizations. There are companies that oppose sustainability and just aim to respond to the extremely demanding environment. The second type of companies are the ones that try to engage and better sustainable practices in their supply chain to some extent.

2.2.3 Linear apparel lifecycle

Fiber manufacturing is the begin of apparel lifecycle because everything starts with fiber (Payne 2015). Fibers can be either natural or artificially made. Examples of natural fibers are plant-based fibers such as cotton and jute or protein fibers like wool and silk. Artificially made fibers fall into two categories as well. The first category is regenerated fibers of which viscose is one example and the second is called synthetic fibers and this includes for instance polyester and polyamine. (Ibrahim 2015.) According to Fletcher (2008) every fiber choice has its own problems. For instance, polyester is not renewable but processing it only uses a small portion of the water that is needed to plant cotton. Fibers are transformed into yarn by textile industry which is called *yarn manufacturing*

and further into fabrics through *fabric manufacturing* (Madhav, Ahamad, Singh & Mishra 2018).

Fabric manufacturing is one of the process of the textile industry. It includes various operations such as weaving, bleaching, dyeing and printing the fabrics. (Madhav et al. 2018). These phases involve a lot of chemicals which are harmful for the environment and often released to the nature. There are alternatives for the issues in these stages for example to use natural dye in cotton coloring or to use techniques that use less water, but these are not commonly used yet because of the cost and volume. (Payne 2015).

Apparel manufacturing refers to all the processes needed to produce an actual garment. This includes pre-production processes such as design, production processes like cutting, sorting and sewing and post-production processes such as inspection and finishing (Apparel network 2015). After the apparel is finished it is then distributed to a *retailer* from where it ends up to its *end customer*. After being used the garment often ends up being dumped to a landfill which ends its lifecycle. (Dory 2018).

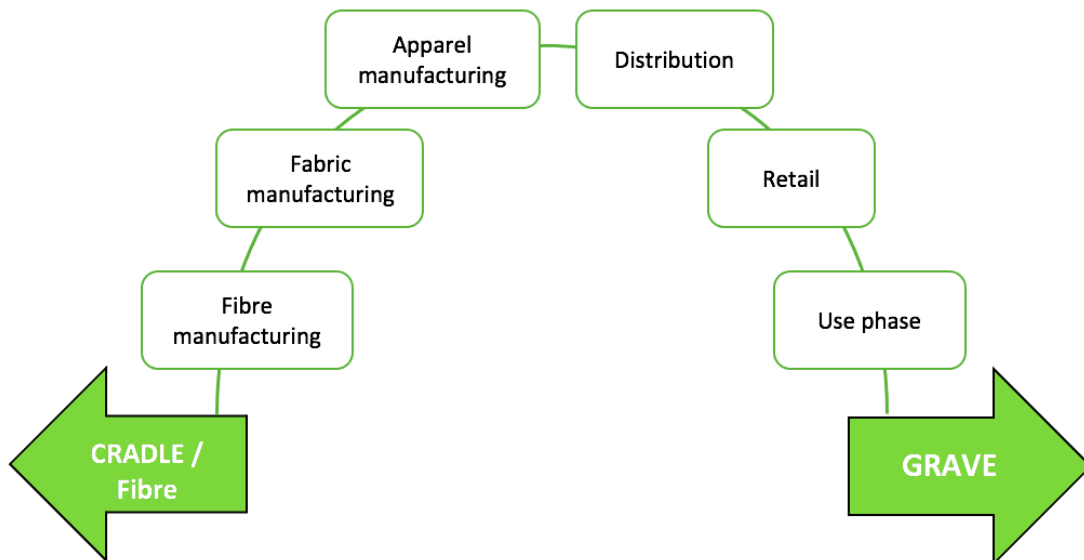


Figure 2. Linear apparel lifecycle (Adopted from Payne 2011).

A lifecycle of a garment is traditionally a linear starting from the cradle and ending to the grave where the garment ends up being garbage after its use and thus a significant burden to the environment. An inevitable consequence of the linear model and present consumption rate is the growing demand for fibers and the enlarging volumes of textile waste (Koszevska 2018). By the year 2030 global clothing consumption is predicted to increase 63% and according to the United Nations by the year 2050 the equivalent of three planets would be needed to resource the current consumption. (Environmental Audit Committee 2019.) The linear model has turned into a dysfunctional one that does not have enough opportunities to implement sustainable development practices effectively (McKinsey 2016). The inadequacy of this model is proven by the limited supply of raw materials, disposal costs that are getting higher and higher and the decreasing landfill capacity (Agrawal, Barhanpurka & Joshi 2017).

2.3 Closing the loop

The textile and apparel industry is currently at a turning point and different companies are looking for new more sustainable and resource effective solutions (Mäki 2021). Therefore, closed loop systems are called for. *"A closed loop system is a system where products are designed, manufactured, used and handled to circulate within the society as long as possible with maximum usage and less or no environmental effect"* (Muthu 2018). The T&A industry has a significant business potential when it comes to resource efficiency compared to other industries (Camacho-Otero, Boks, Pettersen 2019). This shift to circular models requires new technologies, structural changes as well as changes in consumers' consumption habits (Paunonen 2018). In the following subchapters the concept of circular fashion is defined, and its implementation discussed. In addition, circular business models in T&A industry are presented.

2.3.1 Circular fashion

The term circular fashion was invented by two individuals at the almost same time while completely independent of each other. Dr. Anna Brismar who owns a consultancy agency called Green Strategy came up with the idea of circular fashion in 2014 while preparing a sustainable clothing event in Sweden. She presented a theoretical definition of the concept in the event for the fashion brands that were taking part in it. The other person who was first to use the term was an employee in H&M sustainability department in Stockholm. The term was first used internally but was talked about publicly in 2014 as well in a seminar that was part of Almedalen Week in Gotland. (Muthu 2018, Brismar 2015).

Circular fashion is found on the concept of circular economy and links it to the apparel industry. In circular fashion the apparel is designed to last a longer time, in a way that it pollutes less, so that it is biodegradable and can be used again or used in the making of a new product. Circular fashion contains the idea that the lifetime of a product should be as long as possible which can be done through taking care of the products in a right way as well as fixing and maintaining the product. In addition, sharing the products with others so that it is used by several people during its lifetime is also supported. The resource can be given a new life or purpose by redesigning the product or modifying it to a completely different product. In the end the material recycled and reused for production of a new product. If the material cannot be recycled it should be composed so that it goes back to biosphere by transforming into nutrients. The lifecycle should thus be environmentally friendly and to contribute to the well-being of people, environment and the society as a whole. (Muthu 2018). The Ellen MacArthur foundation (2015) defines circular fashion as following:

“Circular fashion can be defined as clothes, shoes or accessories that are designed, sourced, produced and provided with the intention to be used and circulate responsibly and effectively in society for as long as possible in their most valuable form, and hereafter return safely to the biosphere when no longer of human use”.

Therefore, circular fashion can be summarized into three steps. First, the designers design and make textiles and apparels with low impact materials and a clear function. Second, these products are transported in an environmentally friendly way to be sold, reused, redesigned or repaired. Third, if the lifecycle of the products comes to its end, the product is then recycled so that its resources can be used again. (Green strategy 2015).

2.3.2 Implementation

When implementing circular economy in textile and apparel industry, all the stakeholders especially designers, manufacturers, retailers and consumers are required to take the complete lifecycle of an apparel into consideration (Vecchi 2020). According to Urbinati, Chiaroni and Chiesa (2017) this requires application of reverse supply chain actions and more interaction between different stages of the chain. In addition, companies and consumers need to communicate more and consumers should be offered new value propositions by the companies (Urbinati et al. 2017). Implementing circular business models calls for strong commitment as it involves all the parties in a supply chain (Lieder & Rashid 2016). Vecchi (2020) introduces six stages in the circular fashion implementation and this framework is often used in the recent research by for example Gillabel, Manshoven and Grossi (2021) of whom comments will be added to this framework.

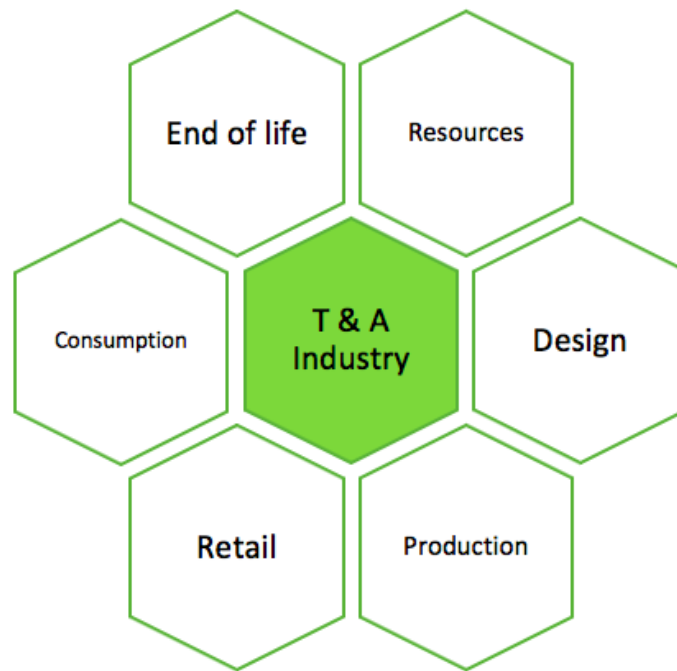


Figure 3. The circular fashion framework (Adopted from Vecchi 2020).

The first three stages are resources, design and production which are all linked to each other. When it comes to *resources* choosing the materials is vital and affects the lifespan and quality of the apparel. It is essential to take into account the end of garment's lifecycle from the very beginning to evaluate if the materials enable re-use or recycling in order to achieve resource effectiveness. In addition, using certain finishing techniques or coatings can affect the recycling possibilities. (Vecchi 2020.) Gillabel et al. (2021) remind that it can be challenging to implement circular practices in the resource stage, but that it is possible by for instance using recycled materials or by decreasing the use of particular materials as a whole. This leads to the *design* stage which amounts for 80 to 90% of the costs related to the environment and economy. The base rule for circular design is to minimize waste through smart manufacturing solutions or by reusing waste created by somebody else. The design should be timeless and in order to avoid overconsumption the designer can highlight the experience and consumer involvement which also enhances the relationship between the user and the apparel. (Vecchi 2020). According to Gillabel et al. (2021) implementing circular practices in the design phase

strongly relies on technological solutions and business model innovations to make the principles work in practice as well. The design phase leads to *production* in which it is crucial to take into consideration both water and energy consumption and to use chemicals as little as possible. Durability and quality are the key words here and therefore quality control is extremely important in the production stage. Customization is one way to longer the lifespan of an apparel. (Vecchi 2020).

The next three stages in Vecchi's (2020) framework are retail, consumption and end of life. *Retailers* play a central role in the implementation of circular fashion. Retailers can offer a possibility to return used apparels so that they can be used a resource to new products. This is more common when the producer is also the retailer. Retailers can also offer rental or swapping possibilities for example. In *consumption* stage consumer contributes to the implementation of circular fashion. Consumers are more and more interested in different circular fashion models as well as taking part in DIY which can be seen as an increasing number of for example sewing and knitting workshops. (Vecchi 2020). Gillabel et al. (2021) also recognize the role of the consumers and add that business model innovation and social innovation play a significant role in advancing circularity in the consumption and use phase. They also note that consumers should be critical about the sustainability of their consumption habits. The last stage is *end of life* and this is the result of all of the previous stages. The significant amount of textile waste can be reduced with the combined efforts of the previous stages and participation of manufacturers, designers, retailers and consumers. (Vecchi 2020). This stage is important in making the reuse and reproduction possible and thus suitable incentives are required to make sure that product can be collected to be used again or partly recovered. This can be accomplished with policy measures and financial incentives by for example giving discount on new products when the used ones are returned. (Gillabel et al. 2021.)

2.3.3 Circular fashion business models

There are three main circular business models that can be identified in the textile and apparel industry. First, the *recycling model* and reuse of materials aims to close the loop by transforming waste into new raw resources. Second, the *reuse model* lengthens the life of an apparel beyond the first user through resale. Third, service models such as a *rental model* or leasing where the product is owned by a company and consumers pay to have access to it for a limited amount of time. (Gillabel et al. 2021.)

In *recycling model* either pre-consumer waste or post-consumer waste is recovered and recycled. Recycling means breaking a product down into the raw materials it contains and recovering the materials to use in a new product. Pre-consumer waste consists of the fabric off-cuts from production and is called primary recycling whereas post-consumer waste refers to garments and textiles that are recycled after the use and is called secondary recycling. When the material is recycled it becomes a part of a new product stream which makes it either *open-loop recycling* or *closed-loop recycling* depending on the stream. (Payne 2015.)

Open-loop recycling relates to a process where the raw material is used in an unrelated product stream and not put back into the same product stream it came from (Payne 2015). In other word the product is recycled to be a different product. However, this often happens only once and the new product is not recycled after its use but instead destroyed at the end of its life cycle (Davis 2019.) Closed-loop recycling on the other hand means recycling the waste so that it re-enters the production chain of the same product. In other words, the material produced from the recycled material is the same as the recycled material. Examples of closed-loop recycling are for instance cradle-to-cradle and reuse of already existing apparel. (Payne 2015.)

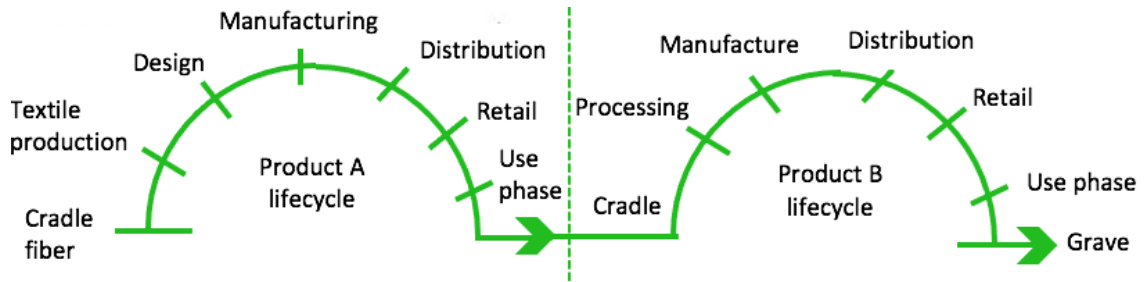


Figure 4. Open-loop recycling (Adopted from Payne 2015).

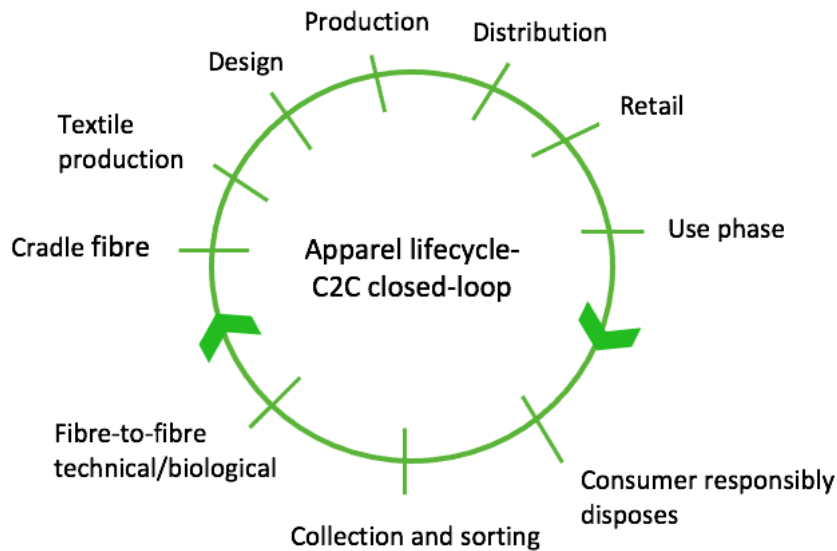


Figure 5. Closed-loop recycling (Adopted from Payne 2015).

Reuse model refers to apparel reuse which is also a closed-loop approach. Even if reusing apparels does not break down the apparel into raw materials it is still considered as closed-loop recycling because the apparel can become a part of a new life cycle in the same product stream. (Payne 2015). Reselling and reusing are the best ways to lengthen the product's lifetime and this is environmentally friendly as well since there is no additional resources demanded and it does not cause any pollution (Muthu 2018). In addition, the value of the apparels does not decrease, and many people most likely have products that they have never used or only used a few time that are still in flawless condition. The environment and resources are saved when these products are given a second life through this model instead of dumping them to the landfills. (McInerney

2009.) Examples of this model are for example charity shops and secondhand stores (Muthu 2018).

Secondhand consumption is becoming more and more popular (Steffen 2016). For apparels to be more likely to be resold and reused, the preowned apparels should be affordable and attractive for consumers. In addition, the accessibility and convenient as well as consumer experience are important part of the reuse model. The good quality and hygiene of secondhand clothes should also be communicated to the consumers to make the model more appealing. (Muthu 2018.)

Rental models provide apparels as service by renting them to customers for a period of time. This way the lifetime of an apparel is longer, and the customer gets a needed style without having to purchase the item. Rental models are especially beneficial when the apparel is only needed for a short time for example maternity clothing and luxury clothing. (Muthu 2018.)

Monthly rental model gives the customer access to multiple different styles on a monthly rental fee like a subscription model. When the customer pays the fee, they get access to a predetermined number of apparels for a month or other predefined time period. Monthly rental model suits customers who want to change their style often but want to avoid buying unnecessary clothes that will not be reused from the closet. (Ellen MacArthur Foundation 2017.) For the company, the model provides customer relationships that last a long time and steady business (Muthu 2018).

Short-term rental model is similar to the monthly one except in this model the apparels are rented for short-term only for example for a particular event. This way consumers can access luxury or high-quality clothing and the product's lifecycle lengthens. The apparels are often expected to be returned right after the event or occasion. (Ellen MacArthur Foundation 2017.) An example of this model is an American company Rent

the Runway which rents designer clothes for short-term use and rented more than 800 million USD worth of apparels in 2014 alone (Vasan 2015).

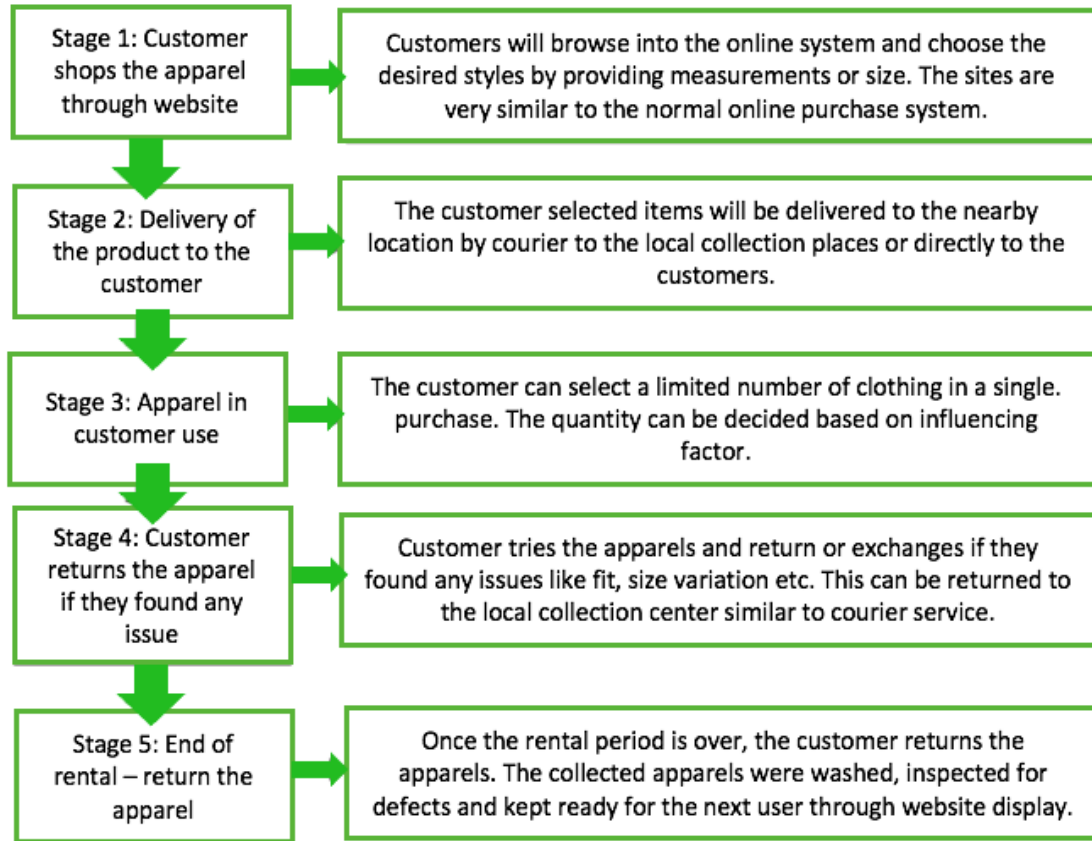


Figure 6. Rental model (Adopted from Muthu 2018).

2.4 Consumers' role in circular economy in textile and apparel industry

2.4.1 Different roles of consumers

Customer awareness is seen as the leading driver for CE practices in textile and apparel industry as the industry falls under the category of essential consumer goods industry (Jia, Yin, Chen & Chen 2020). Julia Nevmerzhitskaya pointed out that at the current state people consume more than produce and the consumption is growing every day and thus the role of consumers needs to be addressed (EU 2020). Maitre-Ekern and Dalhammar (2019:395) note that *"Consumers can be seen to be at the center of the value chain –*

they are the main target of the product supply chain and the starting point of the reverse supply chain". Indeed, consumers have a central role in the transition from linear model to a circular one in T&A industry and the pace as well as the success of this transition will rely upon their choices, their purchasing habits, their attitude towards new business models as well as the way they use apparels. (Muthu 2018.) Consumers have many roles in CE and Maitre-Ekern and Dalhammar (2019) have sorted these different roles and activities that each role include to show the extent and importance of consumers' contribution to CE. This sorting is illustrated in figure 7.

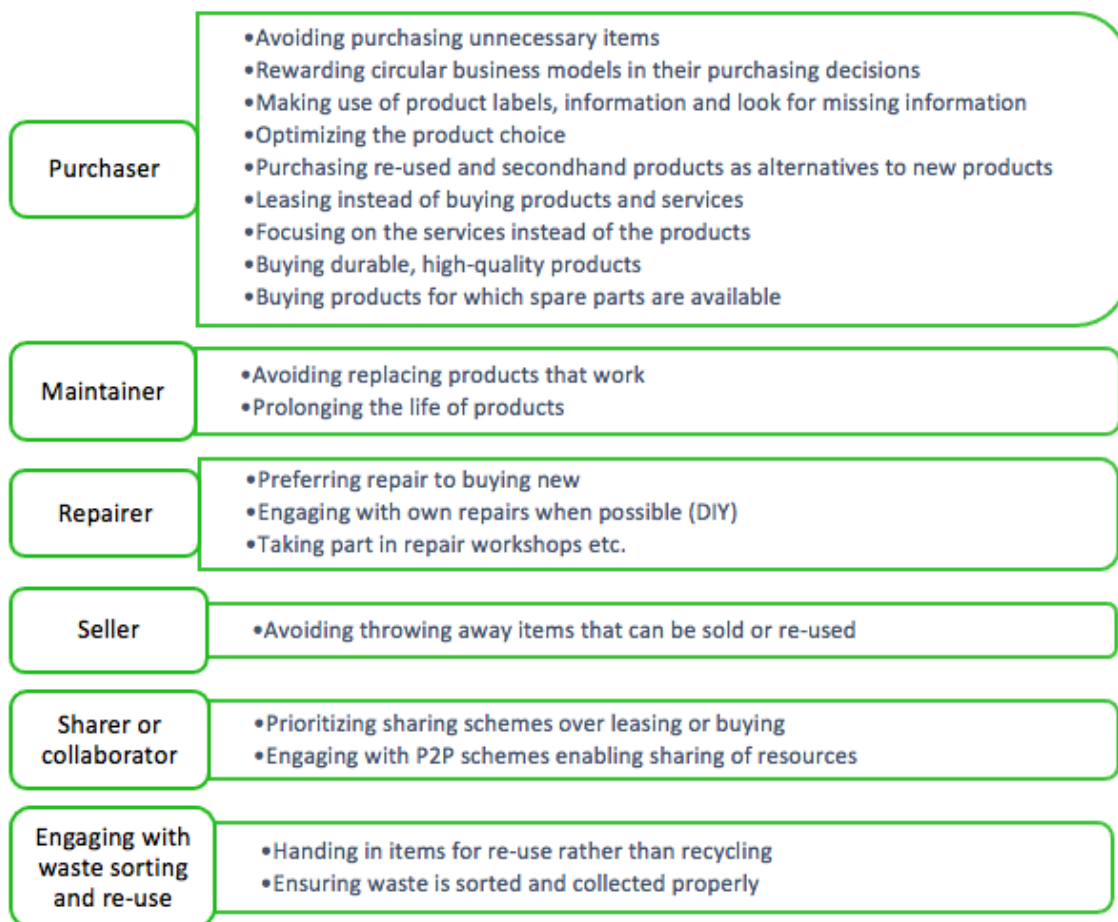


Figure 7. Consumers' roles in CE and activities that can support the CE (Adopted from Maitre Ekern & Dalhammar 2019).

Consumers' role in the circular economy involves a couple of essential aspects. Firstly, the attitude and openness towards new circular economy models and the acceptance of

new innovations. (Ellen McArthur Foundation 2015.) Second, an open attitude towards collaboration with manufacturers and engagement in presumption meaning design and manufacturing (Hannon, Kuhlmann & Thaidigsmann 2016). Third, conscious actions at the consumption and usage of an apparel for example readiness to resist consumerism, paying attention to durability and recyclability as well as to product life extension (Ellen MacArthur Foundation 2015). Fourth, considering how to handle used or broken textiles and paying attention to recycling and having the will to decrease the textile waste created by themselves (Muthu 2018).

Consumers' role in circular economy in T&A industry can be direct or indirect. Consumers have direct influence on the successful shift to circular models when they take part in design and manufacturing, use apparels in a certain way and handle them correctly after their use phase. Indirect influence occurs when consumers make decisions and act in a way that indirectly makes companies to change their business model or manufacturing practices for example. (Muthu 2018). Furthermore, consumers should be seen as a force of change whose actions will significantly matter in the shift towards circular economy (Maitre Ekern & Dalhammar 2019).

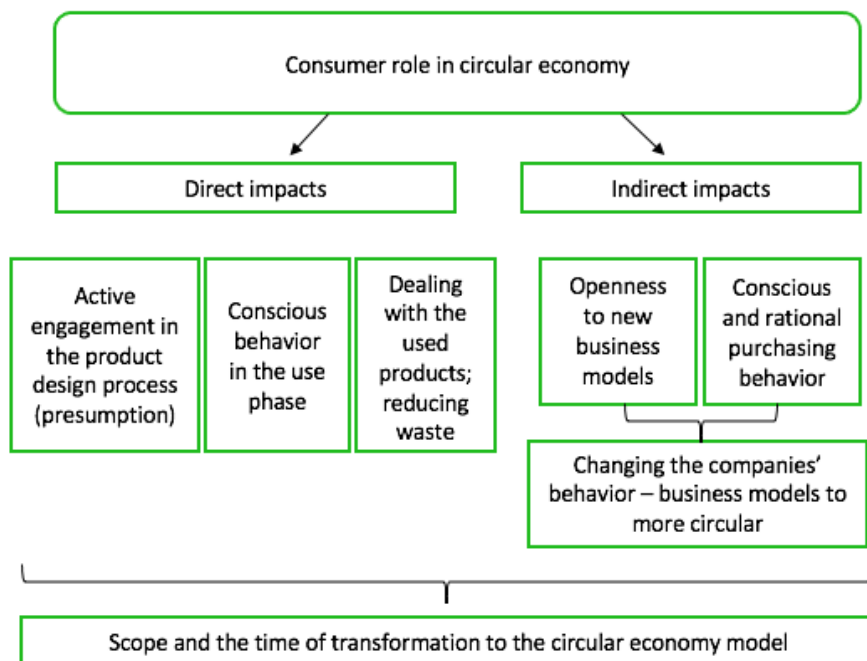


Figure 8. Consumer role in circular economy (Adopted from Muthu 2018).

As consumers have an important role in the success of circular economy in T&A industry and impact the transition from linear to circular model both directly and indirectly, it is topical to analyze what drives or hinders their willingness to participate in CE. Next consumer behavior in T&A industry is discussed to further understand factors behind consumers actions and willingness to participate in CE in this specific industry.

2.4.2 Influencing factors

Sustainable consumption behavior means in which scale the consumers' choices and buying behavior reduces the negative impacts on environment and alter the natural resources and energy in the environment (Thøgersen 2005). Because the purpose of circular economy is to accomplish sustainable development, consumption in the CE context can be seen as type of sustainable consumption (Kirchherr et al. 2018). Apparel consumption does not only concern purchasing but also includes the usage of clothing, taking care of them and overall the whole lifecycle of the garment as every stage of it has an effect on ecosystem (Hong & Kang 2019).

There are many differentiating opinions on the factors affecting consumers' purchasing decisions when it comes to textiles and especially apparel (Hassan, Shiu & Shaw 2016). In sustainable apparel, it has been found to be essential to pay attention to also non sustainability- related factors when aiming to explain purchasing behavior (Harris, Roby & Dibb 2016). Some researchers support the claim that the behavior behind apparel purchasing is driven by person's own interests which can be for instance improving their social status instead of collective concerns (Harris et al. 2016). In addition, research has shown that good availability of sustainable clothing and convenience can be important factors behind the final purchasing decision (Nocella, Boecker, Hubbard & Scarpa 2012). Therefore, also poor availability when it comes to sustainable apparel can be a hindering factor in purchasing behavior.

In addition, it has been shown that social environment influences consumers' purchasing decisions. Social norms have been acknowledged as a key factor behind people's motives

and behavior and they have a bigger influence in collectivistic countries. (Reynolds, Subasic & Tindall 2015.) However, social norms remain to be relatively little used in the field of sustainability consumption (Schultz et al. 2016). Additionally to social norms, personal norms also affect consumers' actions. These norms are at the individual stage and refer to how a person thinks they should act in a specific situation. (Schwartz 1977.)

One factor affecting sustainable clothing purchasing decisions is quality which usually means durability (Niinimäki 2010). Another factor is the fashionability of sustainable apparel that is often seen as being a barrier rather than driver to buy sustainable clothing (Hassan et al. 2016). However, contradicting opinion on the subject also exist and for instance Dickson (2000) claims that consumers' search for fashion has a positive effect on their buying behavior for sustainable apparel. Niinimäki (2010) also supports this claim by acknowledging that new strategies in design provide opportunities to customize sustainable apparel to be more in line with trends.

Sustainable apparel is often more expensive than other apparel and these high prices are in many cases seen as a barrier to sustainable apparel purchasing (Eifler 2014). Nevertheless, there are researchers that state that there is evidence of customers being willing to pay higher price for sustainable clothing (Nielsen 2014).

Terlau and Hirsch (2015) introduced a decision model for sustainable consumption. This model is often used as a framework to understand sustainable consumer behavior. The framework combines researches from several areas of expertise. According to the framework, explaining or altering consumer behavior when it comes to sustainable buying have to begin with influence quantities. These quantities are *individual determinants*, *social quantities* and *situational parameters*. Individual determinants include socio-economic factors for example age, gender and income in addition to values and norms. Social quantities refer to the norms of society and culture. Lastly, situational parameters mean the actual situation where the buying happens and covers for instance visibility, availability and incentives. Terlau & Hirsch (2015) recognize the power of

intention in between of attitudes and behavior. According to the decision model, intentions regulate the final purchasing behavior.

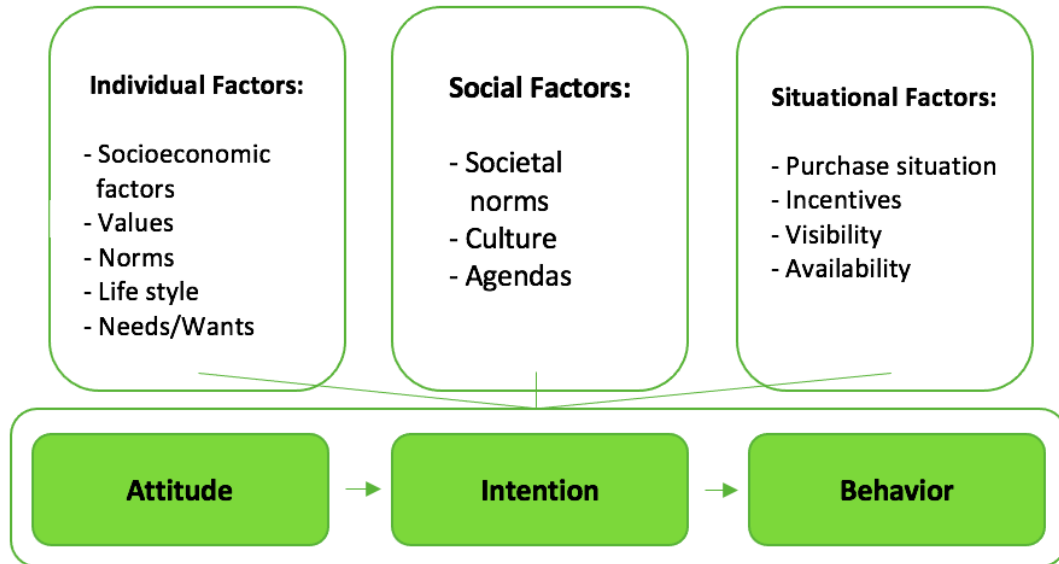


Figure 9. Decision making framework for sustainable consumption (Adopted from Terlau & Hirsch 2015).

2.4.3 Encouraging actions

After focusing on consumers' role in CE and what factors affect their purchasing behavior, it is time to take a look on the actions that can be done to encourage consumers to participate in CE rather than buying new. Maitre-Ekern & Dalhammar (2019) recognizes four main CE policies that are directed towards consumers to engage them in circular economy. In addition, European Union has established action plan with five policies to encourage consumers to contribute to CE (EU 2020) that aligns with the policies of Maitre-Ekern and Dalhammar.

First, *information* meaning labels and signs in shops. Influencing consumer behavior via information exposure has formed to be an established approach to environmental regulation and environmental labels have increased during the past years. However, the labels and signs disclosing information about the product are not effective if consumers

do not trust them. (Maitre-Ekern & Dalhammar 2019.) EU (2020) also includes information in their action plan towards consumer engagement in CE by highlighting the need for trustworthy and accurate consumer information. That is why monitoring the labelling standards is important. (Maitre-Ekern & Dalhammar 2019.) In addition, it is under consideration at the EU level if there should be labels disclosing the expected lifespan of the product helping consumers to compare the durability of different products (Montalvo 2016).

Second, *economic incentives* on top of information disclosure could keep unsustainable clothing from coming across as economically more appealing option. Clothing that is made of poor-quality calls for continual replacement and are normally more affordable in the first place. However, the continuous replacing of such clothes could quickly become more expensive than one-time purchase of sustainable higher priced apparel. Incorporating the environmental costs and indicating them in the price of the apparel is one option to affect consumers buying behavior. From the CE point of view, greater taxes when it comes to materials and lower ones when it comes to labor are one solution because that would endorse durability and repair due to the fact that repairing is often manual work and labor-oriented. (Maitre-Ekern & Dalhammar 2019.) EU also emphasizes supporting green buying by both government and public entities. Circ4life project funded by EU conducted a study where consumers were rewarded with tax reductions every time they recycled. This led to increased recycling and even though it was noted that this type of system might not suit for every society, it still shows the effect of economic incentives (EU 2020.)

Third, *consumer protection* can work as an incentive to participate in CE. Consumer protection refers to legal guarantees that secure consumers' rights when it comes to damaged products. (Maitre-Ekern & Dalhammar 2019.) This aligns with EU's action plan as one of the five steps is to strengthen the administration of rules and guarantees (EU 2020). When it comes to the environmental aspects, these guarantees can lengthen the lifespan of a product by encouraging consumers to get their clothing repaired rather than

throwing it away. These days when clothing gets damaged during a guarantee timespan, customers can either get a new product or repair the damaged one. However, still very few stores have the repair option as producers are not required or have many incentives yet to offer a repair service. (Maitre-Ekern & Dalhammar 2019.) EU's action plan also considers protecting consumers from incorrect green allegations and from companies intentionally making products last a short time (EU 2020).

Fourth, *new forms of consumption* such as deciding to buy a service rather than an actual product, is seen as an option to root for sustainable consumption. It has been argued that service-oriented buying could cut the link between profit and manufacturing volume and lead into more sustainable consumption (Maitre-Ekern & Dalhammar 2019.) The action plan of EU (2020) also supports new forms of consumptions as a way to get consumers to participate in CE. According to EU's action plan higher demand for CE products and services leads to new business possibilities. In addition, the action plan aims to advance energy savings, long-lasting and recyclable products. (EU 2020.)

2.5 Summary of theoretical framework

First, the theory focused on presenting the concept of circular economy in general and emphasized the need to shift from linear economy to circular one. Main definitions of the concept were presented as well as different CE processes that were not linked to a specific industry. All these processes aim to keep the materials in the economy as long as possible before they turn to waste.

Circular economy was also examined in the context of textile and apparel industry under the term circular fashion. T&A industry was analyzed to prove the need for CE in this specific industry. Different circular fashion models were also presented, and their implementation discussed. It was seen that these models would not work without consumers participating in them and thus the shift from linear to circular economy relies on consumers. After examining CE in general and in textile industry the theory focused on consumers' role in it.

It was established by multiple authors that consumers have a central role in the shift towards circular model. Consumers have multiple roles in CE, and they can impact both directly and indirectly. To understand consumers' willingness to participate in CE the factors affecting their sustainable buying behavior were analyzed. *Availability, social norms, quality, price and fashionability* are factors that repeatedly appeared in literature when studying factors affecting consumers' decisions on whether to buy green or not. The different factors were grouped into three main categories which are *individual factors, social factors* and *situational factors* following the decision-making framework for sustainable consumption by Terla and Hirsch (2015).

After this, it was examined how one can influence consumers' willingness to participate in CE through encouraging actions. Maitre-Ekern and Dalhammar established four main actions which are *information, economic incentives, consumer protection* and *new forms of consumption*. The European union also published an action plan to encourage consumers to participate in CE which aligns with the four policies and on top of them adds advancing energy savings, long-lasting and recyclable products. Figure 10 presents a summary of the theoretical framework focusing on consumers in CE.

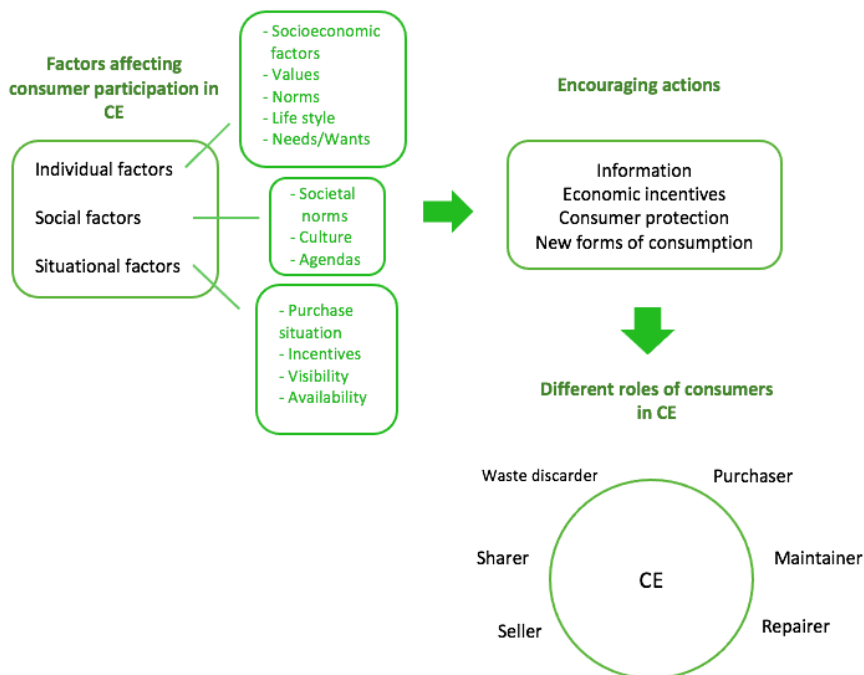


Figure 10. Summary of theoretical framework.

3 Methodology

In this chapter, the main methodological selections of the thesis are explained and discussed. In addition, the data collection and sample size are presented. Lastly, the validity and reliability of the research are discussed. This chapter relies on the *research onion* presented by Saunders, Lewis and Thornhill (2007) which illustrates how the researcher has to make methodological decisions while peeling the layers of the onion to get to the core which is the decision of how to collect and analyze the data (Saunders et al. 2007: 100.)

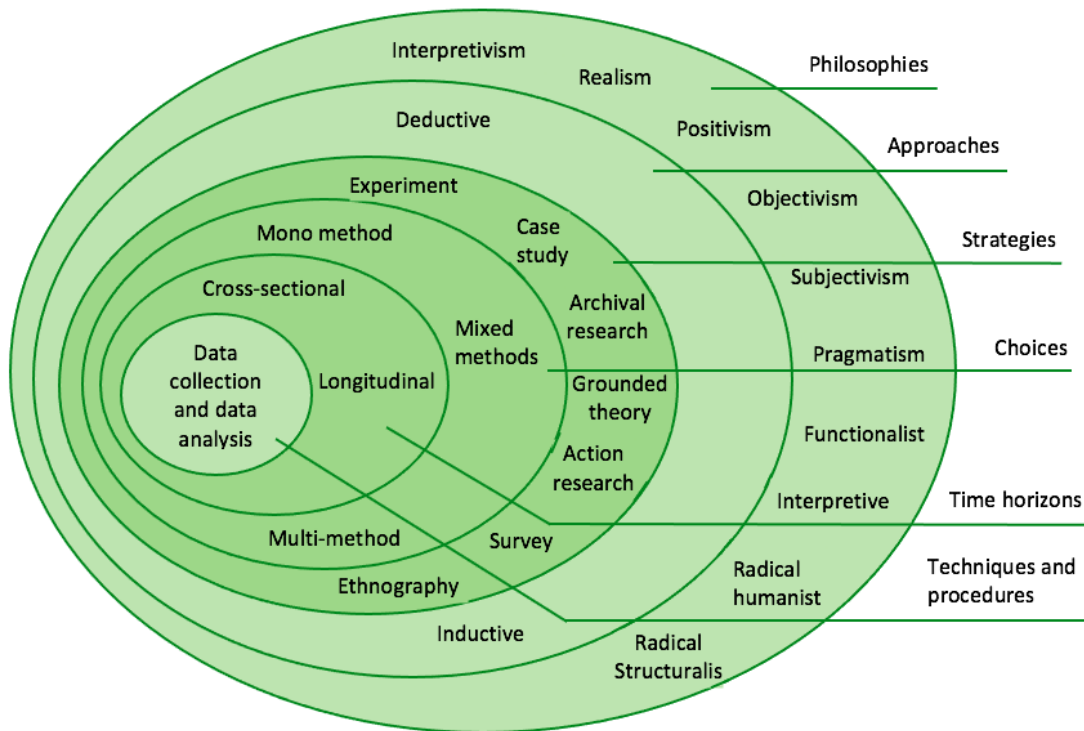


Figure 11. Research onion (Adopted from Saunders, Lewis & Thornhill 2007).

3.1 Research philosophy and approach

Research philosophy refers to developing knowledge in a certain field as well as the essence of this knowledge. The assumptions that the research philosophy includes establish the research strategy and methods that are used in a study (Saunders et al.

2007:101.) For this research, *interpretivism* is chosen as a research philosophy. According to interpretivism it is important that the researcher comprehends that people and their role as social actors is not the same. This philosophy includes the idea that people interpret their social roles in daily life based on how they see the meaning of these roles the same way as movie actors play characters in different ways based on how they interpret the character (Saunders et al. 2007:106.) Therefore, it is important that the researcher has to understand the world from the interviewees' perspective. Interpretivism is appropriate research philosophy when studying behavior (Saunders et al. 2007:107) and that is why it is suitable for this study. This study analyses people's different experiences and behavior and they are seen as individuals who experience the daily life and their social roles all in a unique way which aligns with the philosophy behind interpretivism.

There are two main research approaches which are *deduction* and *induction*. Deductive research approach designs the research in a way that it tests the hypotheses created from theory. Inductive research approach gathers data first and then cultivates theory from the basis of the data analysis. (Saunders et al. 2007: 117-118.) When it comes to this thesis, deductive research approach is more suitable as the theoretical background is formed first and the data collection and analysis is done after that. The empirical part of the research aims to test the theory and to provide better understanding of an already existing phenomenon (Saunders et al. 2007:117).

3.2 Research design

This research focuses on circular economy in the context of textile and apparel industry. Furthermore, the focus is on roles of consumers in circular economy and the importance of consumers' participation. The aim is to understand what factors affect consumers' willingness to participate in CE and what could be done to get them to participate more. The purpose of this thesis is exploratory because this thesis studies a phenomenon that has not been studied extensively. Exploratory in this case refers to further clarifying and

providing new insights to a phenomenon that need further research. Exploratory research can be conducted mainly in three different ways which are analyzing the existing literature, interviewing professionals of the topic and interviewing focus groups. (Saunders et al. 2007:133.) This research is conducted by interviewing companies as professionals of the topic as well as consumers to understand both perspectives.

According to Ghauri and Grønhaug (2002) a qualitative research method is usually chosen when the research aims to understand a particular phenomenon. Therefore, a qualitative research method is suitable for studying the consumers' participation in CE. In addition, qualitative methods are suitable when the focus is on experience, meaning and perspective (Hammarberg, Kirkman & Lacey 2016) which aligns with this study well as the research focuses on the reasons behind consumers' consumption behavior and engagement. As only qualitative research method is used to collect data, the research is *mono-method* research (Saunders et al. 2007:145). In addition, this research is *cross-sectional* because it observes a specific phenomenon at a specific time rather than observing a phenomenon during a long time period in a diary-like way (Saunders et al. 2007:148). This is due to the limited time that is provided for writing a master's thesis.

3.3 Data collection and analysis

The data is collected through semi-structured interviews. Semi-structured interviews include a list of themes and questions for the interview, but the questions are not always completely the same in every interview. Therefore, by observing the flow of the discussion the interviewer can add specific questions that suit that particular interview. In addition, the order of the questions can vary. (Saunders et al. 2007.)

The semi-structured interviews were done to both experts and to consumers. To gain company perspective, four companies applying one of the circular fashion business models were explored. The companies that were contacted were chosen based on previous knowledge about companies with circular fashion business models but also

based on the companies listed on the Finnish textile and fashion website and on the list of most interesting circular economy companies by Sitra. Total of 20 companies were contacted and experts from four companies accepted to be interviewed. All three of the circular fashion models (recycling model, reuse model, rental model) that were covered in the theory were represented. Two of the companies represent rental model, one recycling model and one reuse model. The interviewees representing the company were all founders or CEO's of the company providing the expert perspective. The experts were given the option to stay anonymous if they wished and thus some companies are named, and some are anonymous. An overview of the companies is presented below in table 2.

Company	Business model	Interviewees
Raring	Reuse model	Reuse expert 1 & 2
Rester	Recycling model	Recycling expert
Company 1	Rental model	Rental expert 1 & 2
Company 2	Rental model	Rental expert 3

Table 2. An overview of the companies

The interviews were conducted through teams and phone due to the current situation with the global pandemic. The main interview questions were divided into three themes. However, the interviews were not too focused on only these questions as the characteristics of semi-structured interviews include the free flow of conversation (Saunders et al. 2007) and therefore discussion flowed outside of the main questions as well and additional questions were presented when suitable. In addition, both *why* and *how* questions were included in the interviews to ensure versatile discussion. The themes and main questions of the company interviews are presented in the table below.

Theme	Main questions
Current state	-How do you see the state of CE in textile and apparel industry at the moment?

	-How do you see the consumer's role in CE in T&A industry?
Factors affecting consumer participation	-What is/ what are the biggest barriers for consumers to engage in CE in T&A industry in your opinion? - What is/ what are the biggest incentives for consumers to engage in CE in T&A industry in your opinion?
Change and future	-What could be done to make consumers participate in CE and enable the shift from linear model to circular one? -How do you see the future of CE in T&A industry?

Table 3. Themes and main questions of expert interviews.

In addition to expert interviews, consumer interviews were also conducted to understand the factors behind consumers' willingness to participate in CE in textile and apparel industry. The interviewees are Millennials, that have been born between years 1981-1996 and in total 15 interviews were conducted. The interviewees were picked from friends, colleagues and fellow students who fit the target group. All the interviews were anonymous to ensure that the answers are truthful and that the interviewees are willing to go in depth with their answers as the interviews contained sensitive and personal information such as values, personal consumption behavior and self-reflection. These interviews were also semi-structured interviews with same characteristics as the expert interviews. The consumer interviews were conducted face-to-face, through teams and through phone. Like company interviews, the consumer interviews also consisted of three main themes but allowed room for further discussion and reflection with additional questions and both open and closed questions. An overview of the interview structure is presented below in table 4.

Theme	Main questions
Current state /participation in CE	<p>-Do you participate in CE through your consumer behavior? If not, why?</p> <p>-Could you buy secondhand clothes or rent clothes instead of buying?</p> <p>-Do you recycle your textiles?</p>
Influencing factors	<p>-Please tell freely what factors affect your purchasing decision.</p> <p>-In what way does fashionability, price, quality/durability, availability and social norms/friends' buying behavior affect your purchase decisions?</p> <p>-If clothing stores offered a repairing option for broken clothes would you use it instead of buying a new piece?</p> <p>-Does it affect your decision to purchase a clothing if it had an etiquette disclosing its sustainability?</p>
Encouraging actions	<p>-What hinders/pushes your participation in CE in T&A industry?</p> <p>-What should change for you to participate in CE instead of the linear model?</p>

Table 4. Themes and main questions of consumer interviews.

In the first theme, the consumers were asked about their current participation in CE in regards of the three circular fashion business models presented in theory. In the next theme, the consumers were asked about specific factors and if they affect their buying

behavior. These factors were directly picked from the theory part of this thesis as these factors have come up in previous studies. The questions were also aligned with theory and more specifically with consumer-oriented CE policies by Maitre-Ekern and Dalhammar (2019). In the last theme, the consumers were asked what could be done for them to participate in CE. The questions were intentionally broad enough to encourage open self-reflection and versatile answers.

3.4 Reliability and validity

It is important to consider reliability and validity when conducting a research in order to decrease the chance of getting the answers or results wrong. Paying attention to reliability and validity of a study will make the outcome more credible. *Reliability* concerns the consistency of the findings that the ways the data is collected as well as the data analysis provide. (Saunders et al. 2007: 149.) The research can be seen as reliable if the same findings would come out in other occasions and by other researchers and if the way these findings were made from raw data is transparent (Easterby-Smith et al. 2002: 53).

There can be seen four threats to reliability. The first one is called *participation error* meaning that if the questionnaire or interview is conducted in different times for example in different days of the week the answers may vary. (Saunders et al. 2007:150.) In this study, the interviews were conducted during more neutral days of the week rather than on a Monday morning for instance. In addition, the questions of the interviews are less based on mood and more based on interviewees experiences and own habits. Second threat is *participant bias*, and it means that interviewees might give answers that they think are expected of them for example when interviewing employees, they might say what they think their employer wants them to answer (Saunders et al. 2007:150). The same applies to consumer interviews and the interviewees might say what they think the interviewer expects of them. Participant bias is avoided in this study by keeping the consumer interviews completely anonymous. In addition, the companies that did

not wish to remain anonymous were represented by an owner or CEO decreasing the likelihood of them not speaking freely. Third threat is called *observer error* meaning that if there are many researchers conducting a study, they could all be asking the questions differently which might lead to inconsistent findings (Saunders et al. 2007:150). This study is conducted by one person which eliminates the observer error. Fourth threat is *observer bias* which refers to different ways of understanding the answers (Saunders et al. 2007:150). This was minimized by making sure not to bring up interviewer's own opinions and beliefs and making sure the tone of questions was consistent in different interviews even if the questions varied due to the characteristics of semi-structured interviews.

Validity refers to how much the findings of the study are actually about what they seem to be about (Saunders et al. 2007:150). In addition, validity considers the extent to which the interviewer is aware of their interviewees' knowledge and experiences beforehand and is able to interpret their answers the way they were intended to be interpreted (Saunders et al. 2007:319). To ensure the validity of this study, the term circular economy was defined in the beginning of the consumer interviews so that both the interviewer and the interviewee understand the concept the same way. In addition, the interview questions were based on the literature review which was conducted based on peer evaluated articles and the interviews had themes so that they were structured similarly even if they were semi-structured interviews.

4 Empirical findings

In this chapter the findings of the research are presented, and the research question answered. The chapter is structured in a way that expert interview findings and consumer interview findings are presented separately but combined later. The findings of the expert interviews aim to answer the research question and the consumer interviews support these findings by providing the consumers' own perspective on their buying behavior and participation in CE.

4.1 Expert perspective

4.1.1 Current state of circular economy in textile and apparel industry

The literature review showed that CE in textile and apparel industry is still in the beginning but growing rapidly. The experts that were interviewed were also all unanimous about the fact that the circular economy is still in its early stages in textile and apparel industry but that the direction is right. It was pointed out that circular economy is the segment in the clothing industry that is growing the fastest in the future.

“The fact that big companies like Zalando have adopted circular offerings into their business models show that even big companies do not see a future with their old business model but need to move towards circular business models” -Rental expert 1

Reuse experts noted that they can see a significant change in young people's buying behavior compared to when they were young.

“Circular economy is becoming more and more popular and it is trendy to have a unique style and a lot of teens purchase many of their clothes as secondhand which was not the case when we were young and everyone dressed the same” – Reuse expert 1

“I think that especially younger generation considers what kind of impact their purchase has on environment” -Reuse expert 2

However, everyone also pointed out that a lot of work still needs to be done even though the direction is right and there are actors already applying circular business models.

“Still a significantly small percentage of material used is recycled so big changes are required. -- Especially in this industry, most of the companies have an already established business model that does not align with CE and it is a challenge to change it radically” - Rental expert 3

Recycling expert brought up that even though circular economy is in its early stages, Finland is a front runner in many ways.

“A lot happens in Finland which is positive -- we have many chemical recycling actors such as Infinitive fiber and Spinnova so we are going to the right direction, but a lot of work still need to be done” -Recycling expert

4.1.2 Consumers’ importance in circular economy

The experts were asked about how they see consumers’ role in circular economy in order to find an answer to the research question. From the experts’ answers it can be seen that consumers have a significant role in circular economy. Rental expert 2 pointed out that the significance of consumers has already been shown for example by the fact that big companies like Sokos in Finland and Zalando in a global scale have started to adapt circular offerings in their business models by selling secondhand clothing due to the ever-increasing amount of consumers that want to participate in CE and consume sustainably.

“The consumers’ role is demanding change so companies would move towards more sustainable business models” -Rental expert 2

Rental expert 3 also saw consumers’ importance in the influence they have to make companies change their business models. They saw that one way of doing this is to pay attention to own consuming habits and to participate in CE and to consume in a sustainable manner which pushes companies to adapt their business models to meet the demand of consumers.

“I feel like it all begins with consumers’ own consuming habits and they should re-think the same way that companies should re-think their business models. --Apparels should be seen as valuable items that consumers commit to, maintain them in good condition and repair them if needed rather than constantly buying new because it is cheap” -Rental expert 3

Both reuse and recycling experts also saw that consumers’ importance in circular economy begins with their own purchasing decisions and actions.

4.1.3 Factors affecting consumer participation in circular economy

The experts were asked what factors they see as barriers in consumers participating in CE. Recycling expert saw that the lack of actors is a barrier from the perspective of textile recycling.

“I hope that we can get more recycling companies here in the future” -Recycling expert

Consumers’ attitudes were also seen as a significant barrier for them to participate in CE.

“Many people see secondhand as the same thing that fleamarkets used to be or alternatively they see secondhand more as vintage pieces whereas in reality one can buy

the same shirt secondhand and pay 30 euros while it is still sold in the stores and costs 300 euros” -Reuse expert 1

Rental expert 1 agreed that attitudes are a big problem hindering the change from linear to circular model.

“When it comes to renting clothes, consumers have established behaviors and traditions to own clothing and they are not used to renting clothes. -- Consumers might also not have any interest to find out what kind of actors there is in the rental sector as they hold on to their old behavior or owning clothes” -Rental expert 1

Reuse expert 2 noted that in addition to attitudes, the problem can also be that consumers do not know how to find clothes in secondhand stores.

“I think that one issue is that even though many people might be willing to buy used clothing, they are not able to find what they are looking for” – Reuse expert 2

Rental expert 2 also noted that the lack of knowledge is a barrier and not knowing where to find information about different options. Rental expert 3 saw the lack of individual's resources as a big barrier to engaging in CE. This includes both money and time.

The experts were also asked what factors they see as drivers in consumers participating in CE. Reuse experts saw that there are many factors driving the consumers' participation in CE from the secondhand perspective.

“Younger generations are more aware of how their actions affect the environment and green thinking is increasing among them -- also the economical factor can encourage people to purchase used clothes as they are often cheaper than new ones” -Reuse expert 1

“Slow fashion is becoming more and more popular after the period of glorifying fast-fashion” -Reuse expert 2

Both reuse experts have seen that consumers are getting tired of their low-quality clothing breaking after couple of uses which leads consumers to search for high-quality materials. Rental expert 1 also saw that consumers are becoming more concerned about the environment which pushes them towards circular offerings.

“I feel like nowadays more and more people want to protect the planet and make ethical and sustainable choices so I would say the concern about the environment would be a driver for consumer participation” -Rental expert 1

4.1.4 Ways to encourage consumers to participate in circular economy

The experts were asked what could be done to make consumers participate in circular economy. The experts highlighted that CE should be talked about more and normalized as a part of everyday life. It should be more mundane and easily accessible. Reuse experts believed that social media is one effective way to spread awareness of secondhand and to normalize it even more.

“Many secondhand companies already have their own Instagram accounts, but secondhand could be even more visible in social media” -Reuse expert 1

“Social media influencers could speak in favor of secondhand and focus more on the benefits of purchasing used clothing and show that it is not the same as it used to be with fleamarkets -- Nowadays social media is a place where change can happen” – Reuse expert 2

“The fact that secondhand stores are as nice and trendy as normal stores is also one way of changing attitudes. --It is sometimes hard to believe that the clothes sold there are actually used” -Reuse expert 1

Rental expert 3 also saw that one main solution is to wrap the concept of CE into an attractive package meaning that the brand and concept is thought out to attract

consumers who are not driven by sustainability. She noted that a lot more actors are needed in the sector to do so and to have more actors demands more funding for CE business models. In addition, repetition was seen as the key to change consumers' attitudes. CE needs to be seen as an attractive model and not as a compromise.

"For example, buying a dress cannot be so that if participating in CE the consumer ends up with not as nice dress as they would have had if the dress was bought new from the store" -Rental expert 3

Expert 2 from the rental sector also agreed that CE should be more easily accessible than it currently is. She thought that one solution to make this happen would be to encourage entrepreneurship through taxation for example to give tax benefits to repair services.

"Companies should be obligated to make sure the lifecycle of a product is as long as possible and that the products are made in a way that they are possible to repair later. Companies should receive sanctions if they intentionally manufacture products that will have a short lifecycle"-Rental expert 2

Recycling expert pointed out that in order for everyone to work towards the same goal, regulation and public decision making is needed. This is needed for companies to use recycled fibers instead of the virgin fibers.

"CE should be a demand instead of an option. In addition, more actors are needed. Every project where a certain material is switched to another one demands a big change which needs to happen by the actors' own initiative and state of mind" -Recycling expert

When asked what could be done to change the attitudes of the end-users which in this case are companies, recycling expert saw that keeping CE visible in the media and maintaining discussion about the topic is important.

“I spread the message by taking part of thesis interviews and talking in seminars for example” -Recycling expert

Recycling expert also tells companies that consumers are relatively aware and appreciate if recycled fibers are used instead of virgin fibers which also increases the brand value of a company. There is no barrier to move to using recycled fibers if there is no need to make a quality compromise which is something that cannot happen.

4.1.5 Future of circular economy in the textile and apparel industry

Lastly, the experts were asked how do they see the future of circular economy in the textile and apparel industry. Reuse experts believed that the secondhand market is expanding and that the demand for used clothes continues to rise. They also thought that after Covid-19 is over, there will be more concrete secondhand stores especially in the capital area to complement the online secondhand companies such as themselves.

Rental expert 1 saw that new actors are constantly coming to the CE scene and especially secondhand clothing and textiles are becoming more and more popular so they saw that this will continue in the future as well.

“Big well-known companies such as Stockmann that has opened a Relove secondhand shop in their Helsinki store can make secondhand attractive to broad consumer groups moving forward” -Rental expert 1

In addition, she believed that there will be more innovations when it comes to fiber recycling and that in the future new products could be made from recycled fibers without having to compromise the quality. Rental expert 2 pointed out that suppliers could think about the reselling value of a product and produce products initially to meet the requirements of CE.

“From the rental point of view, brands could design their clothes having the rental and reuse aspect in mind in the future” -Rental expert 2

Rental experts also hope to see new actors that pave the way for CE and that challenge the already existing business models that currently dominate the textile and apparel industry.

Recycling expert had a good feeling about the future when it comes to consumers participating in CE from the recycling perspective. She noted that consumers are aware and told that she has received questions from consumers showing their interest. She pointed out that there are schedules established in the EU level for making textile recycling accessible, so she is not worried about consumers recycling their textiles. In addition, recycling expert saw a lot of possibilities in the future and thought that the current situation is just the peak of an iceberg of what could come.

“Finland has already been acknowledged as a pioneer in CE and skills and know-how we have here in the textile sector is extraordinary. --There is every possibility to make the CE models sustainable long-lasting business models” -Recycling expert

4.2 Consumer perspective

First consumers were asked what comes to their mind from the term circular economy. The interviewees all had some kind of idea what CE means and were able to name for example companies that have a circular business model such as Zadaa which was mentioned in several interviews. After hearing interviewees initial thoughts about CE, the concept was then defined to them in the context of textile and apparel industry.

“In my opinion, circular economy means that the product can be used during its whole lifecycle also in other ways than only by its initial owner” -Interviewee 1

“CE to me means that the lifecycle of a products does not end when I stop using it. It can be passed forward by for example selling it” -Interviewee 4

“The term CE makes me think of secondhand stores and using old products again and again instead of producing new ones” -Interviewee 12

4.2.1 Current participation in circular economy

The interviewees were asked if they currently participate in CE in their own opinion and most of their answers were very similar stating that they do in some ways but could participate more. Two of the 15 interviewees already actively participate in CE in textile and apparel industry by buying most of their apparels used, selling their old clothing, using rental services now and then and recycling their textiles. One interviewee brought a new perspective stating that they do not necessarily participate in CE, but they almost never buy new clothes and use the ones they have until they are unusable which can also be seen as sustainable.

“I do participate but I could participate even more. I recycle my used textiles and aim to buy at least most of my clothes secondhand” – Interviewee 1

“I go to secondhand stores and sell my used clothes I don’t use anymore for example in Zadaa” -Interviewee 6

“I could participate more even though I already buy some of my clothes secondhand” - Interviewee 5

“I would say that I don’t because I don’t rent or buy used clothes but I buy new clothes very rarely and use them up so they cannot be passed forward anymore” -Interviewee 7

Next the interviewees were asked about if they could participate in the three circular fashion business models discussed in the literature review: reuse model, rental model, recycling model. First, the reuse model was discussed. When asked if interviewees could buy used clothes, most of them answered that they already do buy some clothes secondhand and those who do not could see themselves doing so but they felt that it is difficult to find what they are looking for as secondhand.

"I could buy used clothes if it was easy to find nice pieces" -Interviewee 2

"I could buy secondhand clothes if they were easily accessible. It is difficult to find the kind of clothing I like to wear as secondhand" – Interviewee 3

"I could buy used clothes but maybe I am too lazy for that or rather I find it too difficult to search clothes in secondhand stores and fleamarkets" -Interviewee 11

When it comes to renting clothes, almost none of the interviewees had rented clothes before but almost everyone answered that they could for a special occasion or clothing needed for a specific hobby.

"I could rent clothing for a special occasion or for a specific need for example hiking" - Interviewee 3

"I could rent for example a ball gown but not everyday clothing" -Interviewee 14

"It feels weird to rent clothes for everyday life but for an evening party I could definitely rent a dress and I have done so in the past too" - Interviewee 5

"I could rent a dress for an evening party because I think it is silly to buy an expensive dress which after the one use lays in the back of the closet unused" -Interviewee 6

When asked if the interviewees recycle their clothes and textiles, the answers varied more than when asked about reuse and rental models. Almost none of the interviewees take their clothes to textile recycling because they do not know where the textile recycling places are and what one can bring there. Most of the interviewees either sell their clothes or donate them to UFF or similar organization. However, multiple people doubted that fast-fashion clothing stores that offer textile recycling, are not in fact recycling them but throwing the textiles to landfills.

"I aim to always either sell my used clothes or donate them to my friends. I never throw them to garbage" -Interviewee 15

"I try to sell my clothes or donate them to UFF, but they are not in a condition to donate then I do not know where I should take them" -Interviewee 4

"I feel like there is not enough places where I can recycle my used textiles. I do not believe that if I bring them to H&M recycling box for example that they will be recycled" - Interviewee 12

"I do not recycle my clothes and my closets are filled with my old clothes. I think I could possibly recycle them if there were more places to recycle textiles" -Interviewee 3

When asked if the interviewees would recycle their textiles if there were more textile recycling bins the unanimous answer was that they would. Especially if there were textile bins in every housing cooperative the same way there are bins for metal, glass and cardboard for example.

4.2.2 Factors affecting consumers' buying behavior

The interviewees were asked about their buying behavior and factors affecting it. First, they were asked to tell freely what factors affect their buying behavior. Price and quality

repeated in the answers. In addition, whether the product is easy to access affects many interviewees purchase decisions.

“Every time there is a new trend, I would like to buy it, but I try not to make any impulse purchases” -Interviewee 1

“Quality is the main thing for me because I want the product to last a long time and to still look good. When I was younger, I bought a new top for every party but that is also such a waste of money” -Interviewee 4

“Price is the first thing that determines if I buy a product or not and after that I will consider other factors” -Interviewee 13

Next, the interviewees were asked about different factors that were based on the theory and asked if these factors affect their buying behavior and how. Below is a table showing the factors and if they have an effect on interviewees’ purchase behavior. The numbers represent the interviewees and x means that the factors affect interviewees buying decision.

Factor	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Trends/fashion		x	x	x	x	x				x	x	x	x		
quality/durability	x	x	x	x	x	x	x	x	x	x	x		x	x	x
price	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Availability		x	x	x	x	x	x		x	x	x	x	x	x	
social norms/friends’ buying behavior	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x

Table 5. Factors affecting buying behavior

As the table shows, most of the interviewees saw that all of the factors based in the theory affect their buying behavior. Most variation was shown when asked about the effect of trends and fashion. Contradiction was found with quality and price as all the interviewees answered that price affect their buying behavior as they have a budget but almost all of them still want to buy durable products which often cost more.

“Price is the number one factor for me but I would like to buy durable high-quality clothes but those are often more expensive which pushes me to buy fast-fashion” -Interviewee 14

“Quality is the first thing that I think about and I try to proportion the cost into the times I wear the product” -Interviewee 3

“Social norms definitely affect my purchasing decision. I often buy things that I see other people wearing and I also often end up buying the same things as my friends” - Interviewee 11

“I often buy clothes that I come by when walking in the city and I am too lazy to search for something specific that I want so I definitely think that availability and easy access affect my buying decisions” -Interviewee 6

“Price absolutely affects my purchasing decision and I associate high price with high quality” -Interviewee 7

“I have often thought about buying something secondhand or ethically made but it ends up demanding more work than just walking to a closest fast-fashion store or ordering something online so I would say that availability is a big factor for me” -Interviewee 15

The interviewees were also asked if encouraging actions affect their buying behavior. The encouraging actions were picked from the encouraging actions presented by Maitre-

Ekern and Dalhammar (2019). First the interviewees were asked if they would use a repair service if it was offered by a clothing store or rather receive a new piece. All the interviewees chose the repairing if it was free and most chose it also if it cost something but was affordable.

"I would definitely repair my clothes if it was free or affordable" -Interviewee 8

"Yes, I would choose the repair option because I often repair my clothes myself. It is a waste to buy a new one if the product can be fixed" -Interviewee 2

"It depends on a situation. If the product is already worn out, I would rather get a new product than fix a flaw but if the product is otherwise in good condition, I would choose the repair option" -Interviewee 3

"If the product was timeless, I would repair it, but it was a trendy piece then I would change it to another product" -Interviewee 9

Next, the interviewees were asked if it affects their purchase decision if a product has an etiquette disclosing its sustainability. This could be different things for example that the product is made from recycled materials or that the production of the piece has used less water. Almost all of the interviewees answered that it would be a nice bonus but would not be the main factor affecting their purchase decision.

"It does affect my purchase decision, but it is not the first thing I look at. It is mainly a plus" -Interviewee 8

"I like that the sustainability matters are clearly disclosed so that the consumers do not have to search themselves and an etiquette would definitely make me interested about the product, but it still would not be the main factor affecting my buying behavior" - Interviewee 4

“Well, the etiquette would make me happy but to be honest if a fast-fashion store has these kinds of etiquettes, I do not believe them but see them as greenwashing” -

Interviewee 6

“I think it would affect my purchase decision but still would not be the main thing that affects it” -Interviewee 13

Lastly, the interviewees were asked if they would bring their used clothes to clothing stores for recycling if they receive discount coupon for it. Almost none of the interviewees were convinced that they would do so for different reasons but many saw it possible working as an incentive for consumers to recycle their used clothes.

“I think that is a good idea and many stores already do it, but I do not think that it would make me recycle more as I already sell my used clothes” -Interviewee 15

“I do not think I would take my used clothes to a clothing store. I also question this idea as giving a discount coupon in exchange of used clothes would just encourage more consumption which is not good” -Interviewee 10

“I think that would encourage me to recycle my used clothes” -Interviewee 5

“I do not think that would make me to bring my clothes to clothing stores. I would recycle my clothes in other ways but maybe that would make other consumers to recycle more” -Interviewee 7

4.2.3 Factors hindering and encouraging consumers’ participation in circular economy

The last theme of consumer interviews dived into what can be done to make consumers participate more in CE. Firstly, the consumers were asked about what hinders their

participation in CE. 11 out of 15 interviewees answered that the main thing that hinders their participation in CE is the difficulty. It is more difficult to find nice clothes secondhand than brand new and it is difficult to find places where one can bring their used clothes and textiles to be actually recycled.

“If I am looking for a specific piece of clothing, it is more difficult to find it secondhand compared to just buying it online or walking to a store to buy it. There is more offering when it comes to new clothing” -Interviewee 1

“The biggest thing hindering my participation in CE is that it takes too much time to find used or recycled clothes when I can just google what I want, and it gives me multiple online stores where I can buy the product brand new” – Interviewee 14

“Difficulty is definitely the main thing stopping me from buying reused clothes as I find it hard to find what I am looking for as secondhand” -Interviewee 6

“I think mainly my own laziness hinders my participation” -Interviewee 4

When asked about what encourages the interviewees to participate in CE the almost unanimous answer was the world's situation and the worry for the planet's resources. Four interviewees also mentioned that if it was easier to engage in CE, that would encourage them but that they do not feel like it is the case at the moment.

“The anxiety caused by the world's situation encourages me to participate in CE” - Interviewee 1

“My own values encourage me to take part in CE because I want to protect the environment. It would encourage me even more if it was easier” -Interviewee 10

“The overburden of the planet and the limits of its resources. We live in such abundance here in Finland that recycling seems like to only right option to me” -Interviewee 4

“At the moment nothing specifically but if it was easier to participate in CE, it would encourage me” -Interviewee 3

Lastly the interviewees were asked what should change for them to participate in CE instead of the linear model. The common themes that came up in their answers was easiness, better branding and change in consumers' mindsets.

“The secondhand stores should be branded better so that I do not have a feeling of shopping in a basic fleamarket” -Interviewee 1

“Buying secondhand should become easier. I think Zalando has a great secondhand platform where it is easy to find clothes with different filters” -Interviewee 11

“I think recycling textiles should be easier. Now it is difficult to find textile recycling bins and if I bring my clothes to a clothing store to be recycled, I cannot trust that they actually recycle them” -Interviewee 5

“Consumers' mindsets need to change in general so that they do not always buy new. I think this happens because people are used to doing so and it is easy. Especially when it comes to renting clothes, it should be made appealing and normalized” -Interviewee 12

5 Discussion and conclusions

The purpose of this study was to find out what are the roles of consumers in circular economy in textile and apparel industry and what can be done in order for consumers to take part in circular economy instead of the linear one.

5.1 Discussion

In literature review, it was found out that consumers have different roles in circular economy and that there are different factors and encouraging actions that affect their participation in CE. Next, the different roles of consumers in CE are discussed in terms of which factors hinder or encourage consumers to participate in CE in each role.

As *purchasers*, consumers participate in CE by for example buying secondhand products or renting apparels. When looking at factors affecting consumer participation in CE as purchasers, all of the factors found from theory apply. These factors are fashionability, durability, price, availability and social norms. The theory showed that fashionability can be both a barrier and enabler for consumers to participate in CE (Hassan et al. 2016; Dickson 2000). Consumer interviews showed that fashionability and new trends can be a hindering factor for consumers to take part in CE as it pushes them to buy new. However, only 60% of the interviewees said that fashionability affects their purchasing decisions and the ones it affects said that it is not the main factor and they try not to let it affect them. When it comes to durability, 14 out of 15 interviewees agreed that durability has an influence on their purchase decisions. The answers regarding durability were unanimous in a sense that consumers favor durable products making durability an encouraging factor as buying durable high-quality products is one of the actions to support CE in the categorization of Maitre-Ekern and Dalhammar (2019).

Price can be both a hindering and encouraging factor. Sustainably made apparels for example the ones where recycled materials are used can be more expensive which can be

a barrier for consumers (Eifler 2014). However, secondhand clothes are often cheaper than new ones. This was seen in the consumers' answers as well. Some consumers said that the affordable price of secondhand clothing is an encouraging factor whereas some consumers noted that the expensive price of sustainably made clothes is a hindering factor pushing them to choose fast-fashion. If the higher price of sustainably made clothing was seen as a barrier, not all consumers still saw cheaper secondhand clothes as an option due to the next factor found from theory which is availability.

Availability affects 12 out of 15 interviewees purchase behavior and was seen as a hindering factor for participating in CE. In literature review it was noted that good availability and convenience with products meaning if the products are easy to access can be an encouraging action but on the other hand poor availability can act as a hindering factor (Nocella et al. 2012). Consumers that were interviewed saw that it is difficult to find what they are looking for when buying secondhand clothing and it makes them to buy new apparels. They would like to buy used clothes, but it is seen as too difficult. Lastly, social norms acted as a hindering factor when consumers wanted to dress the same as their friends and as an encouraging factor when consumers' friends participated in CE which made them to want to do so as well.

Out of the five factors, fashionability and social norms can be linked to the roles of *maintainer* and *repairer*. These can be seen as hindering factors when it comes to the consumer interview answers. This is due to the fact that these factors push consumers towards replacing products that still work in search of new more trendy products or similar as the ones their friends have. This also decreases the willingness to repair products. However, as seen in the role of a purchaser, social norms can also work as an encouraging factor.

When it comes to the role of *seller*, availability and social norms can be linked to the role as influencing factors. Availability in this context refers to easiness and it was seen in the consumer interviews that many find it quite difficult and time consuming to sell their used clothes. This makes availability a hindering factor. Zadaa was mentioned as an easy

way to sell clothes but fleamarkets were seen as too time consuming. In addition, social norms can have an effect in a sense if one's friends tend to sell their reused clothes that might be an encouraging factor. On the other hand, if the situation is the opposite, social norms can also work as a hindering factor.

The factors affecting consumers' role as a *sharer*, are fashionability and social norms. As mentioned before, it was found that fashionability acts as a hindering factor in buying secondhand but the same applies to sharing as well. In addition, social norms can be either hindering or encouraging factor and it was found out in consumer interviews that several consumers share apparels with their friends. When it comes to the role of *waste discarder*, availability and social norms are the factors influencing consumers' participation in CE. Consumer interviews showed that availability is a hindering factor as they saw that there is not enough information and places where one can recycle their textiles. Social norms influence the role of waste discarder similarly as other roles meaning that the way consumers act can depend on their friend group and society around them. The different roles and factors affecting consumers' participation in CE in each role are illustrated in figure 12.

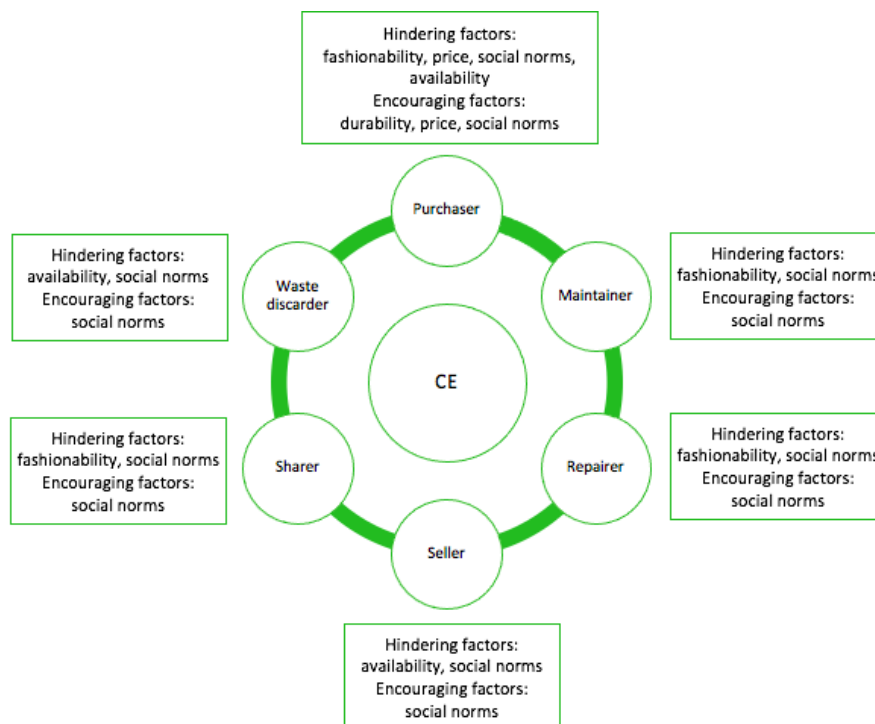


Figure 12. Different roles of consumers in CE and the factors affecting them.

When it comes to the encouraging actions presented in theory by Maitre-Ekern and Dalhammar (2019), *information* is linked to mainly the role of a purchaser as information often refers to labels and etiquettes disclosing the sustainability of the product. *Economic incentives* is an encouraging action linked to the role of a waste discarder as it was presented in the theory as a way to encourage consumers to recycle their textiles. The third encouraging action *consumer protection* regards the role of repairer as it provides consumers with the right to repair services when needed. Lastly, *new forms of consumption* can be linked to the role of purchaser and sharer as well as it refers to new business models such as sharing-economy.

5.2 Key findings

The research question of this study was *What are the consumers' roles in circular economy in textile and apparel industry and how consumers can be encouraged to participate in circular economy instead of linear economy?*

First, consumers' role in CE in T&A industry was examined. The literature review provided insight on how consumers' role in CE is seen in literature. Maitre-Ekern and Dalhammar (2019) saw that consumers have several roles in CE and that they can be for instance purchasers, maintainers, repairers, sellers, sharers, and waste disposers. Ellen McArthur Foundation (2015) found out that the attitude and openness towards new circular economy models and the acceptance of new innovations is an important aspect in consumers' role. In addition, open attitude towards collaboration with manufacturers and engagement in presumption as well as conscious actions at the consumption and usage of an apparel were established to be essential when it comes to consumers' role in CE (Hannon, Kuhlmann & Thaidigsmann 2016 & Ellen MacArthur Foundation 2015). Focusing on handling broken textiles and recycling was also linked to be an important aspect of consumers' role (Muthu 2018).

Literature review showed that consumers' role in CE can be direct or indirect and that consumers have a central role in the transition from linear model to a circular one in T&A

industry. In addition, the pace and the success of this transition will rely upon their choices, their purchasing habits, their attitude towards new business models as well as the way they use apparels (Muthu 2018.)

When interviewing the experts, it was evident that consumers are seen to have a significant role in CE in T&A industry. The experts highlighted that consumers have the power to enable the shift from linear to circular economy with their own actions and purchasing decisions. In addition, consumers can influence companies to change their business models. Consumers have already shown that their willingness to participate in CE and awareness can make companies adapt their business models and big companies like Zalando have adopted reuse model into their already existing business model to some extent.

All in all, both the literature review and the expert interviews indicated that consumers have different roles and significant importance in circular economy in the textile and apparel industry as well as in the shift from linear to circular economy due to the different parts they play as well as their power to make a change through their own actions and by influencing companies.

Second, the ways to encourage consumers to participate in CE more were focused on. The literature review focused on the four actions by Maitre-Ekern and Dalhammar (2019) and five actions by the European Union (2020) that are established to encourage consumers to participate in CE. Maitre-Ekern and Dalhammar (2019) found out that *information* such as labels and signs in shops, *economic incentives*, *consumer protection* such as legal guarantees and *new forms of consumption* which can be deciding to buy a service rather than an actual product can all encourage consumers to increasingly participate in CE. The five actions of EU (2020) aligned with the actions of Maitre-Ekern and Dalhammar (2019) as EU also includes information, consumer protection, economic incentives and new forms of consumptions. In addition, the EU (2020) has an action

focused on product processes and value chain and energy savings, long-lasting and recyclable products should be the objective.

Many ideas arose from the experts' interviews on how to get consumers to participate in CE. One theme that was highlighted was *attractiveness*. Several experts saw that the main thing to do is to wrap a CE model into an attractive concept to gain consumers' interest. This is also a way to change the mindsets about circular fashion models. Both certain experts and consumers agreed that reuse model is still often associated with traditional fleamarkets even though the modern secondhand stores are very similar to any other store selling new clothing. The clothes are neatly in display and the decoration is trendy which is contrary to the fleamarkets that many consumers remember from years and years ago. This applies to rental model as well and the concept should be made so attractive to consumers that renting clothes is seen as good option to buying new or even a better one. Several consumers that were interviewed also underlined the importance of branding the circular offerings in a more appealing way.

Another theme that arose from experts' interviews was *easiness*. CE should be more easily accessible than it currently is. Easiness was also repeatedly brought up in the consumer interviews. Consumers saw that buying secondhand is too difficult and time consuming even though it is going to the right direction. In addition, recycling textiles was seen as difficult and the consumers saw that there should be more information available and more textile recycling bins. In addition, it should be disclosed better where the clothing from the clothing stores' recycling bins end up.

Third main theme that stood out was *normalization*. In experts' interviews, social media was brought up as a way to spread awareness of CE models and to influence consumers' attitudes but moreover as a way to normalize CE models. They should not be seen as a compromise or a more complex option to linear models but rather normalized so that they could be the first option for consumers to consider. It was also seen important from experts' and consumers' point of view that CE models would be more visible in social

media as nowadays the main message social media influencers push through is often in accordance with the linear model. The consumer interviewed showed that especially rental model is still seen as an unfamiliar model and should be normalized significantly.

Fourth theme in the experts' interviews was *regulations*. Encouraging entrepreneurship through taxation was brought up for example by giving tax benefits to repair services. In addition, it was seen that companies should aim to make products' lifecycle as long as possible and that they should receive sanctions if they intentionally manufacture products that will have a short lifecycle. It was also pointed out that regulation and public decision making is a base for everyone to work towards the same goal. When it comes to recycling more regulations are needed for example so that companies would use recycled fibers instead of the virgin fibers.

5.3 Managerial implications

This study helps companies to understand consumers' role and importance in circular economy in textile and apparel industry. The study also provides insight into what could be done to make consumers participate in CE more in T&A industry from both experts' and consumers' point of view.

Customer awareness is seen as the leading driver for CE practices in textile and apparel industry (Jia, Yin, Chen & Chen 2020). It is vital that companies understand that they will eventually lose customers if they do not adapt their business model to lean more towards circular economy. The consumer interviews in this study showed that consumers are aware and willing to participate in CE and looking for such companies.

However, the current circular offerings do not yet meet with the desires of the consumers. This study also helps companies to understand how they could improve their circular offerings in order to get more customers.

In addition, this study provides useful insight to policymakers as they are also needed in the shift from linear to circular economy. Both theory and empirical part of this study bring up the need for new policies and regulations to enable the shift to CE.

5.4 Limitations and future research suggestions

Just like any research, this study also has its limitations. First, the only industry that this thesis takes into consideration is the textile and apparel industry. In addition, when examining the circular fashion models only the main models are presented. This is done to keep the study concise. In the empirical part of this thesis, only Finnish companies are interviewed which narrows the perspective and all the consumers that are interviewed are millennials which has the same effect.

The role of consumer participation in CE has been researched to some extent, there is still need for more research (Camacho-Otero et al. 2018). Therefore, consumers' roles and participation in CE should be further researched. It would also be beneficial to get the perspective of consumers from different generations rather than just one age group. In addition, companies from different countries could be interviewed as they would most likely have diverse views of the topic. Lastly, the answers from consumer interviews mainly focused on reuse model and the role of purchaser which leaves room for further research when it comes to rental and recycling models.

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