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THE FASHION INDUSTRY IN TRANSITION

Exploring the contribution of business model innovation to the fashion industry's transition towards circularity.

Master's Thesis for the Environment and Society Studies programme
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Preface

This thesis is the completion of my Master's degree in Environment and Society studies at the Radboud University Nijmegen, specialising in Corporate Sustainability.

In short this thesis focuses on the fashion industry. For me, it is not surprising that my thesis is focussed on the fashion industry. I have always had a great interest in the fashion industry. However, only during my masters I discovered the real impacts of the industry. From then on, I was determined to contribute to positive change in the fashion industry. I am grateful that I was able to express my passion in this thesis and I look forward to a future career in which I can also contribute to the cause of changing the fashion industry for good.

I would like to express my gratitude to several people who have been important during the process of doing research and writing this thesis. First of all my appreciation goes out to my two supervisors at the Radboud University, Ingrid Visseren-Hamakers and Carlijn Hendriks for their (endless) support and valuable feedback. They have also pushed me to be critical of my work and many times broadened my perspective.

I also want to thank Laura Meijering, from my internship company UNRAVELAU, for the valuable discussions and brainstorm sessions that we had. Her knowledge on the fashion industry and sustainability has enhanced the content of this thesis as well. I will carry the experience and knowledge that I have gained during the internship with me in my future career. I am grateful that I got to be part of the extremely driven team working towards the goal of creating a sustainable fashion industry.

I also want to thank all the 12 interviewees for their time and openness. I enjoyed every conversation and I hope that with this research I can contribute to their amazing efforts changing the industry.

Last but definitely not least, I want to thank my parents, Julius and all my amazing friends. Their support, trust, love and encouraging conversations have been so important to me during this process and I could not have done this without them. I can't thank them enough.

Enjoy reading!

Dionne Heuts
Amsterdam, August 2021

Abstract

The fast fashion business model causes massive impact on people and the environment through the exploitation of workers, high energy consumption, enormous waste, intense water use, carbon emissions and pollution due to usage of chemicals, dyes and finishes in the production of clothing. Because of this, the fashion industry has become one of the most polluting industries in the world. In response to this, start-up companies in the Netherlands are experimenting with circular business models to reduce the impacts of the fashion industry. These new circular business models could be at the forefront of transitioning the current fashion industry to a circular industry. However as the fashion industry is a highly complex industry, the exact role and contribution of the start-up companies in the transition is unknown. Therefore, the central research question is: *To what extent, how and why does circular business model innovation by Dutch new entrants contribute to a transition to a circular economy in the fashion industry?*

One theory that serves as a good basis for analysing transitions is the Multi Level Perspective theory as this framework allows for an observation of the different levels that influence regime transitions which helps to identify the role of the Dutch start-ups in the bigger transition. The theory on Business model innovation has been integrated into the MLP which formed the conceptual framework of this thesis through which the empirical data was analysed. To fulfill the purpose of this research, a case study on 4 Dutch fashion start-ups each with a different type of circular business model, lease, subscription-rental, swapping and remanufacturing was performed. Besides, interviews were conducted with in total 12 Industry experts, incumbent firms and new entrants.

The most important conclusions in the research are that the contribution of the circular business model innovation by the Dutch start-up companies to the fashion industry's transition is currently limited and the way that they are currently contributing is only by pioneering. However, the Dutch start-ups could have a far more significant impact on the industry, and thus have a bigger contribution, if they would scale. The reason why the circular start-ups have not been able to scale is due to a few barriers, created by the other elements in the transition, that were identified in the empirical research. These barriers include: (on the regime level) not enough targetec legislation on both national and international level, external investors being hesitant to invest in the circular fashion start-ups, misinformed consumers due to greenwashing by the regime, (on the niche level) missing technological innovation, (on the landscape level) the trend of globalisation that is still ongoing, which allows the regime companies to pursue their fast fashion business model and finally, the corona pandemic that has hit the Dutch circular fashion start-ups hard which prevented them from scaling.

This research also has some limitations, one of which being that from a social justice perspective, there is a lack of the social dimension in the concept of circularity while this is so relevant for the fashion industry. Besides, due to lack of time, only the most prominent influences, actions and interactions and barriers for an increase in the influence by the Dutch

start-ups could be discussed. However, recommendations for future research were given to overcome these limitations. Finally, based on the empirical research, this thesis has also provided a practical recommendation to the Dutch start-up companies namely to become sustainable fashion activists and this way through, informing and influencing society and by pushing for new laws and regulations, enlarge their role in the transition which could accelerated the fashion industry's transition towards circularity.

Keywords: Business model innovation, circularity, transition theory, fashion industry, circular business models

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List of Abbreviations

CE	-	Circular Economy
MLP	-	Multi-Level Perspective
BMI	-	Business Model Innovation
EC	-	European Commission
EU	-	European Union
SDGs	-	Sustainable Development Goals
e.g.	-	for example (lat.Exempli gratia)

*The term start-ups and new entrants is used interchangeably in this thesis but denotes the same.

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Chapter one - Introduction

1.1 Background and context

In its current form, the fashion industry is not sustainable. The business models of the fashion companies that are currently the dominant actors in the regime (the dominant structure, culture and practice) of the Dutch fashion industry are based on the linear take-make-disposal model. In their business model, the fashion companies offer low quality clothes for very low prices. Besides, the current fashion industry is not only competing on price but also on speed, which has resulted in the big fashion companies releasing an average of 20 collections per year instead of 4 (Demkes, 2020). Because of this, these companies are often referred to as fast fashion companies.

The low price of clothing and the speed of new collections has led to an increase in the average purchase frequency by Dutch consumers (Birtwistle and Moore, 2007). This system (the business models of the dominant fashion companies) facilitates and strengthens the culture/regime of throw-away clothing among Dutch consumers resulting in clothing being extremely undervalued (Ahsmann et al., 2020). On average, one Dutch person buys 46 pieces of clothing per year, owns in total 173 pieces of clothing and throws away 40 pieces of clothing, creating massive mountains of discarded clothing (Ashman et al., 2020).

All this takes its toll on people and the environment. Extreme growth in the production and consumption of clothing has led to a significant increase in the exploitation of workers, energy consumption, waste, water use, carbon emissions and pollution due to usage of chemicals, dyes and finishes in the production of clothing (Mishra, Jain & Malhotra, 2020). Because of this, the fashion industry has become one of the most polluting industries in the world (Ahsmann et al., 2020).

Looking at the impacts of the fashion industry on people and the environment, it becomes clear that the industry needs to change and become more sustainable. To combat the major impact of the fashion industry on people and the environment, a number of policies and guidelines have been established over the past few years. For the scope of this study, only the relevant policies and guidelines affecting the Dutch fashion industry will be discussed.

In 2015, the United Nations set out 17 urgent sustainable development goals.The Sustainable development goals should be reached no later than 2030 to save our planet, the climate, biodiversity and humanity and reduce inequality (Global Fashion Agenda, 2021). SDG 12, responsible consumption and production, requires the fashion industry to change to circular models (such as renting, recycling or resale) to facilitate responsible consumption to consumers (Global Fashion Agenda, 2021). Nonetheless, all the 17 SDGs affect the (Dutch) fashion industry in one way or another and require changes from the industry in order to meet all 17 SDGs .

On a European level, the EC has established a set of policy initiatives called 'the European Green Deal' with the aim of making Europe climate neutral in 2050 (European Commission, Secretariat-General, 2021). To fulfill this ambition, the EC states that transforming the EU's economy into a closed loop circular economy will make a decisive contribution (European Commission, 2020) This has been reflected in the Circular Economy Action Plan and Circular Economy Package. In the Circular Economy Action Plan, textiles is recognised as one of the 7 key value chains. With a set of comprehensive measures, which includes "*improving the business and regulatory environment for sustainable and circular textiles in the EU, in particular providing incentives and support to product-as-service models", "providing guidance to achieve high levels of separate collection of textile waste", "boosting the sorting, re-use and recycling of textiles through regulatory measures such as extended producer responsibility" and "applying the new sustainable product framework to ensure that textile products are fit for circularity*" the EC aims to strengthen innovation in the industry and to drive new business models (European Commission, 2020, p. 13).

The Dutch government also plans to fully transition to a circular economy in the Netherlands by 2050 through a government-wide program. This also means that all the individual sectors in the Netherlands, including the fashion industry, also need to transition towards circularity (The Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs, 2016). To achieve this, a policy program on circular textiles has been introduced in 2020, which envisions circular business models to be the standard in the Dutch fashion industry by 2050 (Ministry of Infrastructure and Water Management, 2020).

As the policies above show, the circular economy (CE) and circular business models have gained considerable attention. CE has been defined in several ways. However, a popular definition describes CE as "an industrial system that is restorative or regenerative by intention and design. It replaces the 'end-of-life' concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse and aims for the elimination of waste through the superior design of materials, products, systems, and within this, business models" (MacArthur, 2013, p. 7).

According to the discussed policies, companies, in this case fashion companies, need to take responsibility for combating the effects they have on the environment and move towards a circular way of working. In other words, innovate their business models for circularity. According to Nußholz (2017, p. 12), circular business model innovation is "how a company creates, captures, and delivers value with the value creation logic designed to improve resource efficiency through contributing to extending useful life of products and parts (e.g., through long-life design, repair and remanufacturing) and closing material loops". Examples of circular business model innovation in the fashion industry are reselling, recycling, upcycling, sharing, remanufacturing and renting. According to Bidmon and Knab (2018) and Pieroni, McAloone and Pigosso (2019), business model innovation could provide a strong foundation to transition towards a circular economy.

1.2 Problem Statement

However, the fashion industry is a complex and fragmented global industry which makes the transition equally complex (Bhardwaj & Fairhurst, 2010). Therefore, more understanding of the fashion industry's transition towards CE could potentially contribute to and accelerate the transition.

As section 1.1 shows that circular business model innovation in the fashion industry plays a role in the industry's transition, it could be of value to further explore and investigate this role.

Bidmon and Knab (2018) have developed a framework, based on the MLP (transition theory) by Geels (2011) to understand the aspects and influences that are important in a transition. In this framework a crucial role has been assigned to business model innovation. The importance of business model innovation in transitions has been speculated before but it has never taken center stage in a transition framework before.

In the fashion industry, mainly disruptive start-ups (new entrants) have been at the forefront of circular business model innovation and established brands and retailers have been slower to act which will be further elaborated in the theoretical framework (Fashion for Good & Accenture Strategy, 2019). This means that new entrants have an important role to play in the fashion industry's transition towards circularity.

But, when focussing specifically on the Dutch fashion industry, what is this role of Dutch new entrants with a circular business model exactly in the fashion industry's transition toward CE? And why is this role the way it is? The insight into these questions could contribute to an increase in the impact and the effectiveness of the contribution of Dutch new entrants with a circular business model in the Fashion industry's transition towards circularity

1.3 Research Aim and Questions

Therefore this thesis **aims** to explore and reflect on the role of Dutch new entrants with a circular business model in the fashion industry's transition towards circularity. By creating a better understanding and deeper insights into the fashion industry's transition towards circularity and the (potential) role for Dutch new entrants with a circular business model, a secondary **aim** of this research is to give recommendations to Dutch start-up companies in the fashion industry on how they can effectively contribute to the creation of a more circular fashion industry.

This leads to the following main research question:

To what extent, how and why does circular business model innovation by Dutch new entrants contribute to a transition to a circular economy in the fashion industry?

1.4 Scientific and Societal Relevance

The findings of this research contribute to the scientific body of knowledge on (CE) transitions and circular business models. According to Bidmon and Knab (2018), existing research has primarily focussed on how the external environment of organizations influences their business models (Zott & Amit, 2007; Saebi et al., 2017). Research on the opposite relation, how changes to business models impacts the wider system, still holds much potential (Wirtz et al., 2016). As research at the intersection of business models and societal transitions is just burgeoning, this research makes an empirical contribution by investigating the interplay between the two concepts in a specific industry, the fashion industry. The fashion industry has been the focus industry of previous studies on circular business models before. (Stål & Corvellec, 2018; Holtström, Bjellerup & Eriksson, 2019; Hvass & Pedersen, 2019). However, as these studies did not investigate the effect of these innovations on the fashion industry, this research aims to bridge this gap.

Besides, this research is also relevant from a societal perspective. As discussed above, our current economic system, of which the linear fast fashion system is a good example, causes enormous social and environmental problems/threats as discussed above (e.g. soil exhaustion, exploitation of people, excessive carbon emissions). To combat these problems, the transitions towards a circular economy, not only in the fashion industry, is urgent. In search of a more sustainable world, this thesis investigates transitions and identifies the challenges/bottlenecks and opportunities in this transition which could lead to better alignment which could accelerate the transition towards circularity, not only in the fashion industry but also in other industries going through a transition. This way, this research will contribute to creating a sustainable and circular economy.

Finally, this research also serves the practical aim to give recommendations to Dutch start-up companies with a circular business model on how they can effectively contribute to the transition towards a circular fashion industry and where the challenges and opportunities lie in this. The recommendations could give the Dutch start-ups valuable information, concrete tools and actions which can boost their position as changemakers and enlarge their impact on the industry. Because of this, this thesis also has practical relevance.

1.5 Delimitations

In this thesis there is an industry focus on the fashion industry. The fashion industry has been selected since it is one of the most polluting industries in the world and big change is needed to make the industry more sustainable (Malik, Akhtar, & Grohmann, 2014). As a response there is currently a lot of focus on circularity in the fashion industry, and as there is a rise of innovative start-ups in the industry this makes the fashion industry an appropriate focus industry for this research (Todeschini et al., 2017). However, by focusing on one industry, the scope of this research is delimited.

The contribution of circular business model innovation by start-up companies to the fashion industry's transition towards circularity has been investigated by means of a case study. The case study of this research is limited to 4 Dutch fashion start-ups that each apply 1 type of circular business model innovation namely: Leasing, rental on a subscription basis, swapping and remanufacturing. The choice for these four start-up companies was based on that they each represent a different type of circular business model innovation. However, as there are more different types of circular business model innovation (e.g. rental, resale, sharing, reusing, repairing), this research is limited by only including 4 start-ups in the case study.

Finally, the case delimits this study as it only investigates circular business model innovation by new Dutch new entrants, circular business model innovation by incumbent fashion industries as well as non circular business model innovation will not be part of this study.

1.6 Reading Guide

Chapter one has provided an introduction to the research, presenting the relevant context, aim, research questions and relevance. Chapter two will present the theories that have been used and the conceptual framework that serves as the basis for this research. chapter three explains the methodological choices of this research. In chapter four, the result of the empirical research will be presented. Finally, this research will be concluded with a conclusion in chapter 5 and a discussion in chapter 6.

Chapter two - Theoretical and Conceptual Framework

This chapter presents an overview of the literature relevant to this thesis. This thesis is built upon two different types of literature: *transition theory* (section 2.1) and *business model innovation* (chapter 2.2). Chapter 2.1 and chapter 2.2 will be structured in the same manner. First, the general concepts of the literature will be presented after which the theories will be narrowed down and translated to the fashion industry. In chapter 2.3 both fields of literature are combined in a conceptual framework and operationalised to explain how the theoretical insights will be used to answer the research question.

2.1 Transition theory

In this thesis, the role of circular business model innovation by Dutch entrants in the transition towards circularity in the fashion industry is investigated. The multi-level perspective (MLP) by Geels (2002) is one of the most common frameworks in the transition literature. As the MLP approaches transitions through a multidimensional perspective, incorporating the interlinkages between micro-, meso- and macro-levels of society, the MLP is a suitable framework to investigate the role of one single entity (in this case Fashion start-ups with a circular business model) in the light of the entire transition.

This section starts with introducing the general concepts of the MLP literature. Furthermore, transition research focused on circular economy transitions is reviewed followed by specific research on circular economy transitions in the fashion industry. Section 2.1 is concluded with criticism on the MLP framework that is specifically relevant to this thesis.

2.1.1 Multi Level Perspective Theory

The MLP is an explanatory theory that analyses structural change from a multi-dimensional perspective (micro, meso and macro). The three levels in the framework are distinguished according to Giddens' (1984) structuration theory which argues that actors continuously use and reproduce rules by their actions which leads to stabilization of those rules over time and subsequently, these structuring forces have a constraining influence on those actions. The MLP uses the degree of structuration to separate the three levels based on their stability: a higher macroeconomic socio-technical landscape, the existing socio-technical regime dominated by established actors and niche innovations that are introduced outside the incumbent market (Geels, 2002; Geels, 2010). The MLP addresses the complexities of socio-technical transitions by incorporating the inter-linkages between developments in the three different levels which makes the MLP a suitable tool to analyse sustainability transitions (Geels, 2010; Bolton & Hannon, 2016). The interplay between these three levels in a socio-technical transition is presented in figure 1.

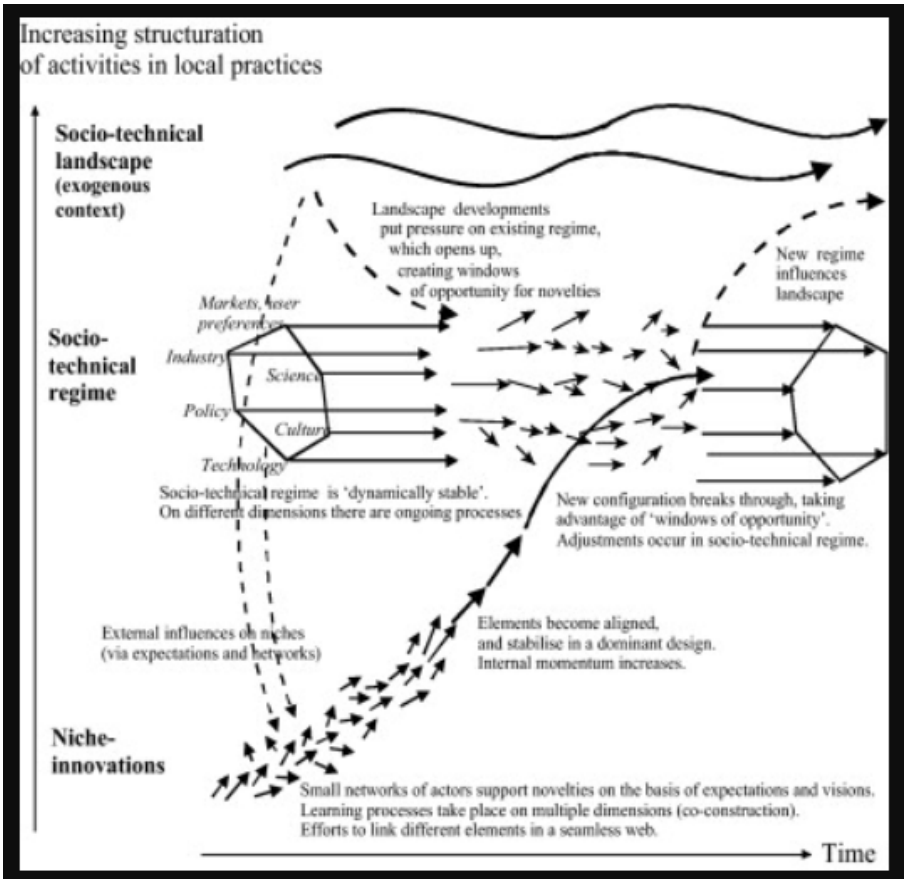

Figure 1. Multi-level perspective theory (Geels, 2002, p. 1263)

Despite the MLP's focus on technological innovation as a driver for socio-technical transitions, Geels (2010) points out that transitions are also the result of changes in consumer behavior, regulations, culture and business models.
The MLP defines transitions as a shift from one socio-technical regime to another. Therefore, the regime level is of primary interest.

The socio-technical Regime (Meso level)

According to Geels (2011, p. 27) the regime is a "semi-coherent set of rules that orient and coordinate the activities of the social groups that reproduce the various elements of socio-technical systems". In other words, referring to the duality of structure by Giddens (1984), different social groups act according to the regime but by acting according to the regime, the regime becomes stabilized. Thus, a regime is made up of, but also reproduced by, for example, capabilities and competences, cognitive routines and shared beliefs, lifestyles and user practices and institutional arrangements and regulations (Geels, 2011). All of the aforementioned is institutionalised as the current regime. This makes regimes at a meso level relatively stable.
However, through pressures from niches and the landscape or misalignment of the activities within the regime, an opportunity for niche innovations arises to influence the regime or even enter and reform the regime completely (Geels & Schot, 2007).

The landscape (Macro level)

The sociotechnical landscape can be described as the wider context that influences niche and regime dynamics (Rip & Kemp, 1998). The landscape includes many elements that sustain society. These elements can be subdivided into demographic trends, political ideologies, societal values and macro-economic patterns (Geels, 2011). The landscape forms an external context in the sense that it usually changes slowly under large global developments and cannot be influenced by the niche or regime level in the short run (Geels, 2011).

According to the MLP, changes in the landscape can potentially create pressure on the existing socio-technical regime. Sufficient pressure by the landscape on the regime could create a window of opportunity for niche innovations, if the innovation is well enough developed, to enter the regime (Geels, 2010; Köhler et al., 2019).

Niches (micro level)

The niche level can be seen as a 'derived concept' as it is defined in relation to the regime (Geels, 2011). Namely, in the niche level, innovations are developed that differ substantially from the existing regime structure (El Bilali, 2019). The innovations generated by niches have the ability to pressure the regime as they are often designed to resolve problems in the existing regimes (Geels, 2004). As described above, when the landscape puts pressure on the existing regime and/or there is misalignment in the current regime, niches get a "window of opportunity" and can influence/change the state of the current socio-technical regime (Geels, 2004).

Sustainable transitions & pathways

Within transition research, research on sustainability transitions has expanded rapidly and is still a highly emerging field of research (Köhler et al., 2019; Markard, Raven & Truffer, 2012). Sustainability transitions can be defined as "long-term, multi-dimensional and fundamental transformation processes through which established socio-technical systems shift to more sustainable modes of production and consumption" (Markard, Raven & Truffer, 2012, p. 956). Smith, Voß and Grin (2010) argue that the MLP is very suitable to analyse and describe sustainability transitions as it enables to simplify and order complex large-scale shifts.

The MLP does this by analysing the processes and the interplay between these processes in the landscape, the regime and niche. An analysis of the landscape dynamics and the level of pressure that they put on the regime together with the level of development of the niche innovations helps to better understand the type of transition and and identify the potential bottlenecks or weak spots but also the opportunities in the fashion industry's transition towards circularity (Geels & Schot, 2007; Köhler et al., 2019).

According to Geels et al. (2016) there are four types of transition pathways through which a socio-technical regime shift happens which is based on the interplay of the timing and

nature of the multi-level interaction. The first pathway is *substitution* which is based on disruptive niche-innovations that are already sufficiently developed when the landscape pressure occurs. Second, *transformation*. Niche innovations are not sufficiently developed causing the incumbent actors who are stimulated by landscape pressures to gradually adjust the regime. The third pathway is *reconfiguration* in which the niche-innovations have a symbiotic relationship with the regime, triggering further regime adjustments under landscape pressures. Lastly, the fourth transition pathway is *dealignment and realignment*. Niche innovations are insufficiently developed but have coexisted for a long time. However, major landscape pressures destabilize the current regime leading to the re-creation of a new regime around the existing niche-innovations (Geels et al., 2016). Geels and Schot (2007, p. 413) further proposed that a transition may shift between pathways: "If landscape pressure takes the form of 'disruptive change', a sequence of transition pathways is likely, beginning with transformation, then leading to reconfiguration, and possibly followed by substitution or dealignment and realignment". Figure 2 represents the two dimensions and the resulting types of transition pathways.

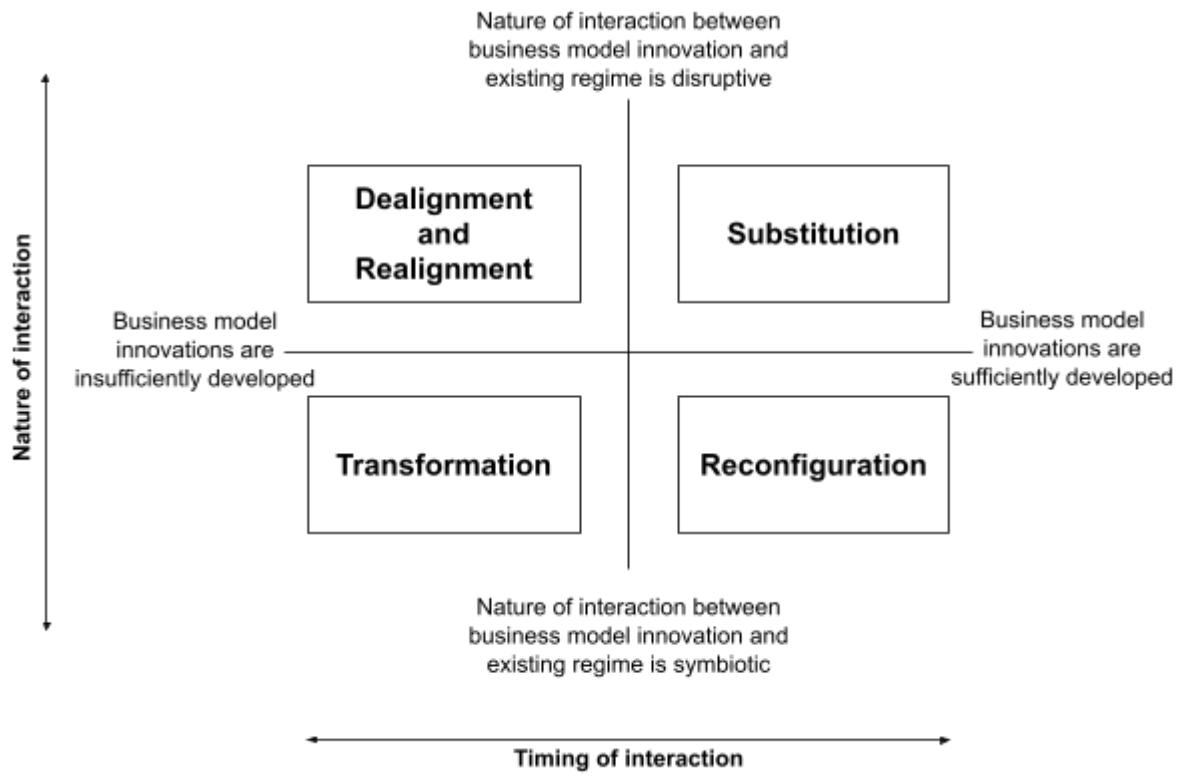

Figure 2. Transition pathways (Adapted from Zannini, 2020, p. 11)

2.1.2 The circular economy

In order to understand the transition towards CE in the fashion industry, the concept of the circular economy needs to be elaborated first.
The current economy is based on a linear “take-make-waste” production model. In this model, products are produced with a continuous and ever increasing stream of new ‘raw’ materials and are discarded in its entirety after use (jonker & Faber, 2015). the linear production system has enormous negative consequences: an unmanageable amount of waste is generated, mass production is leading to resources being depleted and monocultures are increasing which exhausts the land and results in loss of habitat for millions of animals, people are being exploited, often hazardous chemicals are used in the production phase often leading to pollution of the surrounding area which has a massive impact on the local communities living in those areas, throughout the entire supply chain CO2 is emitted resulting in climate change and so on (MacArthur, 2013).

An ever-wider recognition of the major negative impact of our current economic model has resulted in more and more people calling for new economic models (Jonker, Stegeman & Faber, 2017; MacArthur, 2013). From this, the CE concept, which is grounded in the study of non-linear systems, emerged as a countermovement (MacArthur, 2013).

The Ellen MacArthur Foundation is an important contributor to the understanding of the circular economy. The Ellen MacArthur Foundation refers to regenerative design, biomimicry, industrial symbiosis, natural capitalism and blue economy as important theories for the development of the concept circular economy (Ghisellini, Cialani & Ulgiati, 2016). As defined by MacArthur (2013, p. 7), a circular economy “replaces the ‘end-of-life’ concept with restoration, shifts towards the use of renewable energy, eliminates the use of toxic chemicals, which impair reuse, and aims for the elimination of waste through the superior design of materials, products, systems, and, within this, business models”.

Thus, the core of the CE concept is to eliminate waste which is achieved by creating a closed-loop system (Jonker et al., 2017). In the closed-loop system, the added value in products is kept and maximised within the economic circle for as long as possible through collection and reuse (Akanbi et al., 2018). Figure 3 visualises the different elements of the circular economy in which it is not only important to redesign material waste but also the biological ingredients need to be returned to the atmosphere (MacArthur, 2013).

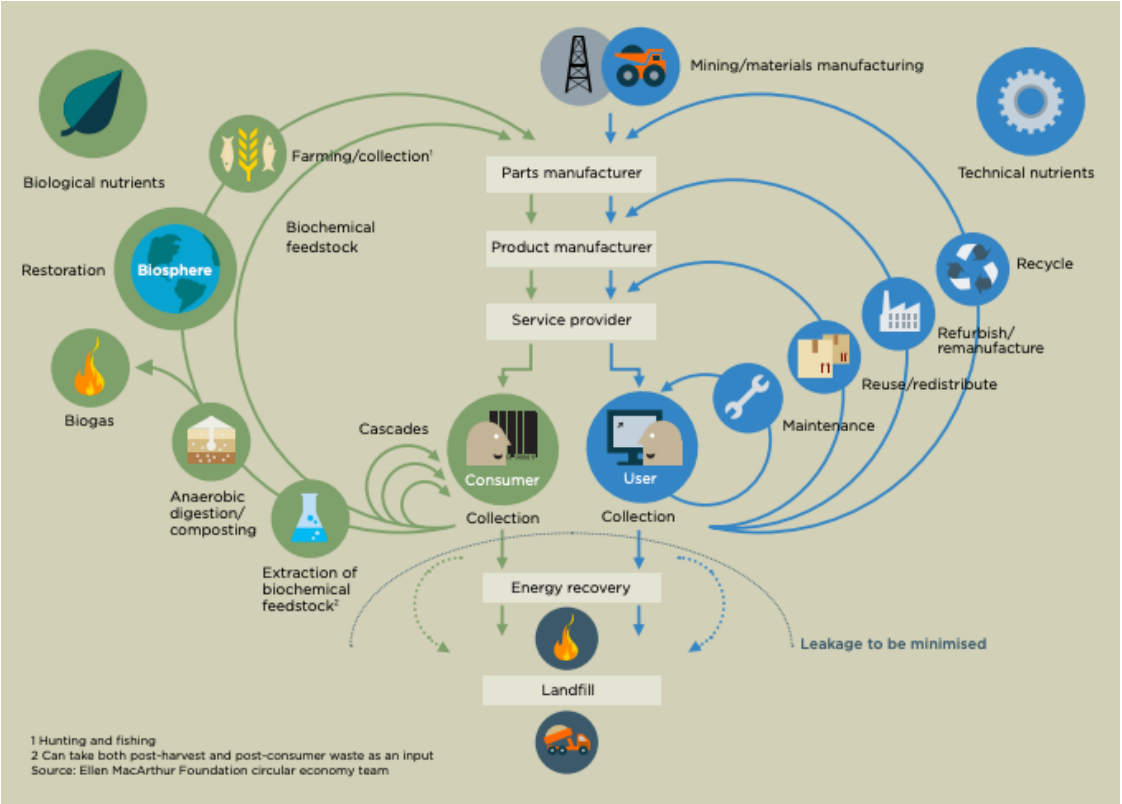

Figure 3.The circular economy - an industrial system that is restorative by design (MacArthur, 2013, p. 26)

To be able to achieve durability of the raw materials and the products, the concept of end-of-life needs to be replaced by reuse and product life-time extension (MacArthur, 2013). By reusing and life-time extension, closed loops will be created and the unsustainable take-make-dispose pattern of the current linear economy could be overcome. CE has the potential to solve many of the aforementioned problems of the linear system and could potentially increase the sustainability and welfare of the entire society without adding any extra material, energy and environmental costs.

2.1.3 Transition towards Circular fashion

The concept of CE is becoming increasingly recognized as a solution for the current unsustainable economic model. More industries that are striving to become more sustainable are adopting the circular economy model, including the fashion industry (Sandvik & Stubbs, 2019). The potential of the CE to address the large environmental impact of the fashion industry has resulted in a growing interest in the concept among fashion brands and researchers studying the fashion industry, which can be seen in the fact that CE is the fastest-growing research direction within sustainable fashion (Stål & Corvellec, 2018; Jia et al., 2020).

As described in the introduction of this thesis, the circular economy concept can be implemented (both by consumers and producers) through the R-framework bij Potting et al.,

(2017) that prioritises the different strategies that contribute to the creation of a circular economy. As discussed in the introduction of this thesis, the best solution for the negative impacts of the fashion industry is to refuse anything new.

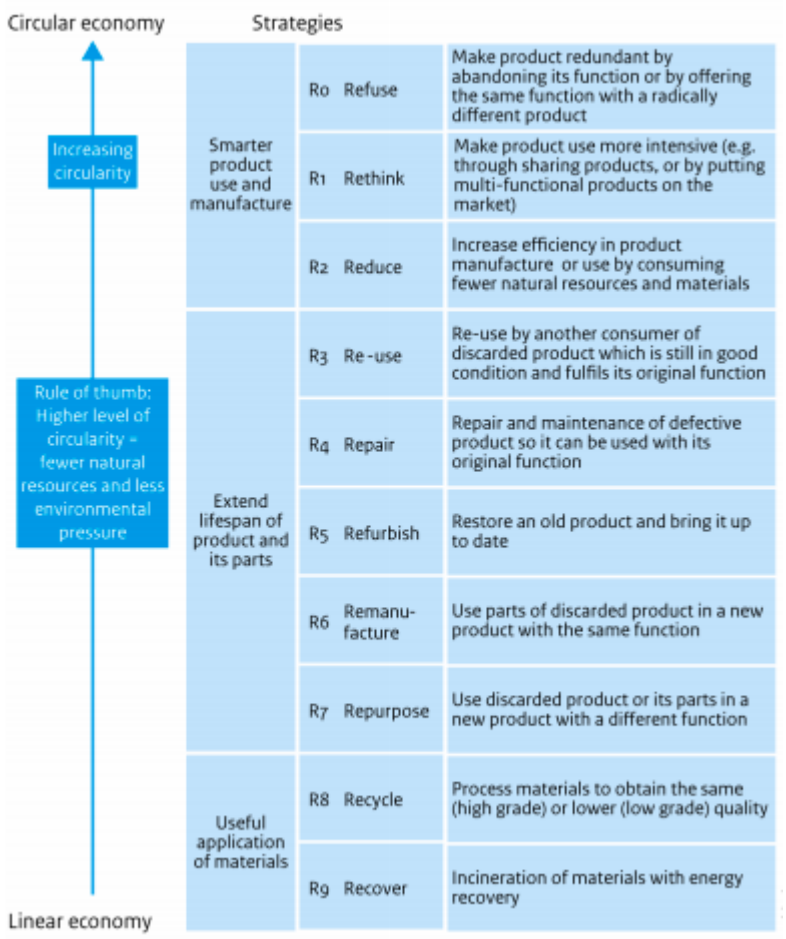

Figure 4. Circular strategies for producers and consumers in order of priority (Potting et al., 2017, p. 5)

Further down the R ladder, circular economy strategies can be either extending the product's life (reusing, repairing, refurbishing, remanufacturing or repurposing) or by recycling and regenerating the components of the products (MacArthur, 2013). In the case of the fashion industry this means that in the first place, consumers should refuse to buy anything new and producers should stop producing clothing from virgin materials and existing garments should be either reused through resale, or repaired/altered so the clothes can last for another round. Finally, if none of the above is not possible anymore, the used textiles should be used as input for new fashion products through recycling. So, according to the R framework by (Potting et al., 2017) circularity can be achieved by reversing logistics to redistribute the clothing in different stages of the supply chain (Bouzon and Govindan, 2015).

According to Stahel (2016), the element of speed is an important addition to the R ladder approach. Stahel argues that the decision for the R strategy (extending or recycling) depends

on the difference between short-life fashion and long-life fashion. Long-life fashion are high-quality garments that maintain their value when life-extending practices (repair, reuse, refurbished) are applied. Short-life fashion on the other hand are garments that are produced with low quality through fast production systems that often after the 'first life of the garment' which means when the person that initially bought the garment does not want the garment anymore, the quality of the item is often not good enough anymore for its life to be extended. These garments are more suitable for the second approach which is recycling (Earley & Goldsworthy, 2015). However, the statement by Stahel (2016) is definitely not a given rule. The choice for the strategy should be determined per specific case. Therefore, each individual clothing piece should be evaluated with great care and based on that, the strategy should be determined to get the most environmental, social and financial value out of the items (Sandin and Peters, 2018).

In addition to the changes in the end-of-life stage of garments, Sandvik & Stubbs (2019, p. 368) argue that to create circular fashion, changes throughout the entire value chain are necessary; "it requires new design practices, collection of used textiles, establishing reverse logistics (making sure garments are distributed throughout the supply chain correctly according to the R strategy for the specific garments) and supporting legal frameworks". Figure 5 presents an overview of the application of the CE in the fashion industry specifically.

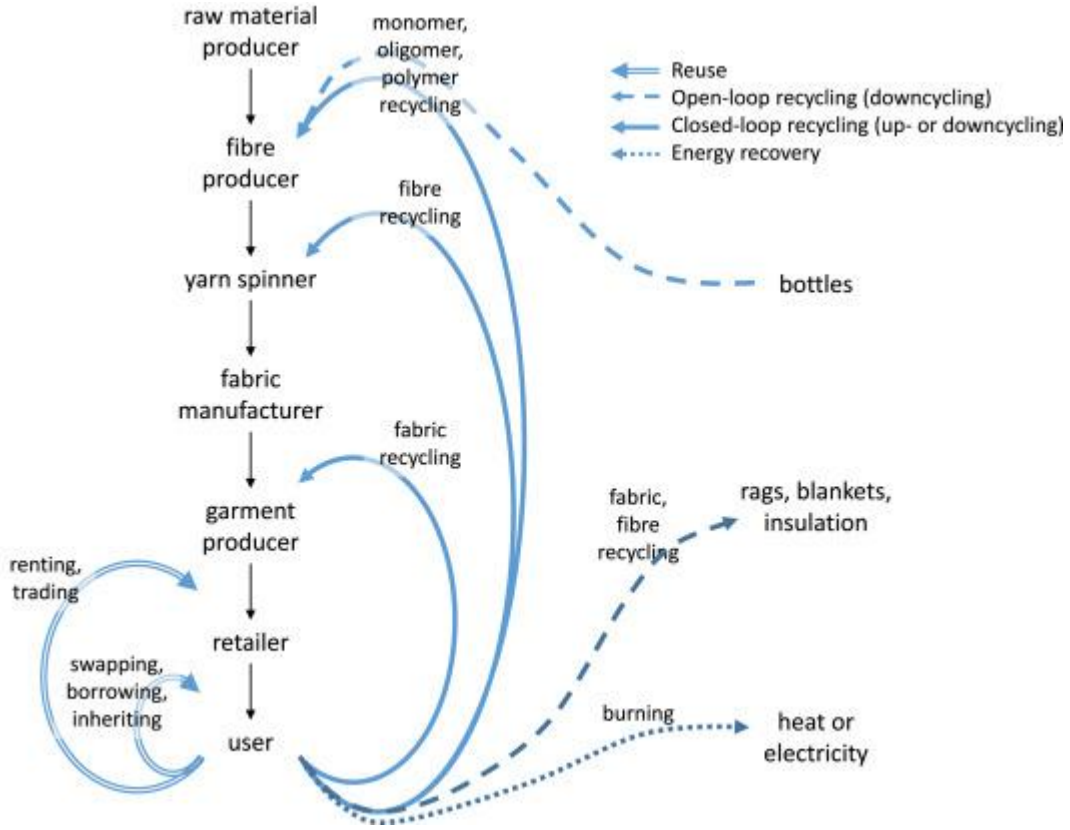

Figure 5. A classification of fashion reuse and recycling routes (Sanding & Peters, 2018, 356)

2.2.5 Criticism on transition theory

As described in this chapter, the multi-level perspective is a much applied and convenient framework for analysing socio-technical transitions to sustainability (Geels, 2011). However, the MLP has also received some criticism (Geels, 2011). For example that in the MLP a transition is explained as a regime change but various authors state that the operationalisation of the regime concept is unclear which makes it difficult to apply the MLP in an empirical context (Berkhout, Smith & Stirling, 2004; Smith, Stirling & Berkhout, 2005). Besides, the MLP has been criticized for the lack of agency in the literature (Smith et al., 2005; Genus & Coles, 2008). Meadowcroft (2011) particularly mentions the lack of power relations and struggles and discursive activity in the framework. The criticism on the framework will be further elaborated in the discussion.

The criticism and suggestions by Bidmon and Knab (2018) are specifically interesting for this thesis and the development of the conceptual framework. Therefore the article by Bidmon and Knab (2018) will be discussed in more detail in this chapter.

It is argued that the MLP has offered valuable explanations on systematic societal change related to sustainability (Geels, 2010; Markard et al., 2012; Smith et al., 2010). However, according to Bidmon and Knab (2018), existing transition research has put too much emphasis on the role of novel technologies while technology alone will not suffice to achieve the required systematic shifts. Thus, besides only explaining the role of technology, to be able to provide detailed explanations of interactions between different actors and other elements of a socio-technical system, the MLP needs to be complemented by local models (Geels, 2005; Geels & Schot, 2007). Following this insight, Scholars and practitioners have pointed out the potential of business model research to provide the missing link in transition research (Bidmon & Knab, 2018). “Business models have been ascribed the potential to disrupt entire industries because they connect multiple actors, mediate between the production and the consumption side of business and support the introduction of novel technologies into the market” (Bidmon & Knab, 2018, p. 903). Because of this, business models explain links between local dynamics on an organizational and industry level and global dynamics on a systemic level. While the importance of the role of business models in systemic transitions seems obvious, Bidmon and Knab (2018) have been the first in the field to fully integrate the concepts.
As this research investigates the role of circular business model innovation by new entrants in the fashion industry, in the greater transition towards a circular fashion industry, the integration of business models and the MLP will serve as the theoretical background for this thesis.

Section 2.2 will elaborate on business models after which, both fields will be merged into one conceptual framework that forms the basis of this thesis.

2.2 Business model innovation

As described in chapter 2.1, business models can be of importance for industrial transitions. Therefore, this section will review the literature on business models. First general literature on business models and business model innovation will be reviewed. Subsequently, business model innovation in the context of the fashion industry will be reviewed. Finally, literature on the main subject of this thesis, circular business model innovation in the fashion industry will be discussed.

2.2.1 Business models and sustainability

Business models have been researched for over half a century and the concept has been used in various academic disciplines (Zott, Amit & Massa, 2011; Wirtz et al., 2016). Business models have gained a tremendous amount of interest in the academic community because it is believed that business models have an essential role in describing how companies create a competitive advantage (Zott et al., 2011). This has led to varying views on the functions and characteristics of business models and the lack of a common and widely accepted language in business model theory (Zott et al., 2011; Bidmon & Knab, 2018). This chapter will introduce those characteristics and functions of business models that are widely accepted and of importance for the integration of business models into the MLP.

Most scholars agree that, in its most basic form, a business model is a description of how an organization works and how it creates and captures value for its stakeholders (Zott et al., 2011; Bidmon & Knab, 2018; Osterwalder & Pignuer, 2010; Baden-Fuller & Morgan, 2010; Zott & Amit, 2010). Teece (2010) agrees and extends this view by defining business models as hypotheses on who a company's customer is, what the needs of this customer are and how the company creates value by fulfilling this need. In order to create and capture this value, business models are a combination of very much interrelated components and are closely intertwined with business models of for example, suppliers, partners and financiers (Zott & Amit, 2010; Mason & Spring, 2011).

The relationship between a company's business model and the company's strategy has been studied before in the literature. Osterwalder (2004) states that a company has three business layers: strategic, business model and process as presented in figure 6.

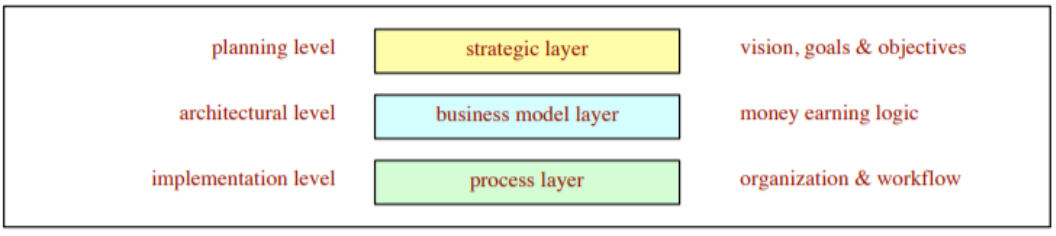

Figure 6: three business layers identified by Osterwalder (2004, p.14)

The layers are presented in a hierarchical manner, placing business models between a business' strategy and process. Osterwalder (2004) argues that there is an interplay between

the three levels: a company's strategy determines the type of business model which subsequently determines the company's tactics and processes.

In recent years multiple authors have started to explore the relationship between business models and sustainability and have stated that companies can utilize business model innovations to radically reduce negative external effects or even to create positive external effects for the natural environment and society (Mitchell & Coles, 2003; Teece, 2010; Stubbs & Cocklin, 2008; Schaltegger et al., 2016). As a result, a theoretical debate on the appropriate general principles for the development of business models for sustainability emerged (Schaltegger et al., 2016). Boons and Lüdeke-Freund (2013, p.267), based on business model and sustainability innovation literature, propose basic requirements for each of the constitutive elements of a business model to comply with a business model for sustainability: "The value proposition must provide both ecological and social and economic value through offering products and services; the business infrastructure must be rooted in principles of sustainable supply chain management; the customer interface must enable close relationships with customers and other stakeholders to be able to take responsibility for production and consumption systems (instead of "selling stuff"); and the financial model should distribute economic costs and benefits equitable among actors involved".

Based on the literature review and considerations by Boons and Lüdeke-Freund, Schaltegger et al. (2016, p. 6) propose a definition of business models for sustainability that extends the conventional business model perspective (as described above), which focuses mainly on financial value appropriation, by social and ecological value creation: "A business model for sustainability helps describing, analysing, managing and communicating (i) a company's sustainable value proposition to its customers and all other stakeholders, (ii) how it creates and delivers this value, (iii) and how it captures economic value while maintaining or regenerating natural, social and economic capital beyond its organizational boundaries".

2.2.2 Business model innovation for sustainability

To achieve sustainable business models, innovation is needed. Namely, business models can also be *subject to innovation* (Teece, 2010; Zott et al., 2011). According to Hacklin et al. (2018) and Chesbrough (2010), sustainability related business model innovations are often more successful when the existing business model is substituted in its entirety instead of adapting the current business model with new innovations. "Novel business models have been ascribed potential to disrupt entire industries and lead to considerable competitive advantages for a focal organisation" (Bidmon & Knab, 2018, p. 906). Without depending on technological innovations, business models are able to redefine the way an organization creates and captures economic, environmental and social value (Morris et al., 2005; Zott et al., 2011). Business model innovation can be the result of novel technology but can also be driven by changing environments, competition or novel market demands (Wirtz, 2011; Chesbrough, 2010; Doz & Kosonen, 2010).

In the field of business model innovation, Foss and Saebi (2017) have developed a typology based on the novelty (to the firm or to the industry) and the scope of innovation (modular or architectural). Based on this, four types of business model innovation, as presented in figure 7, can be identified: evolutionary, adaptive, focused and complex.

Novelty	Scope	
	Modular	**Architectural**
New to firm	Evolutionary BMI	Adaptive BMI
New to industry	Focused BMI	Complex BMI

Figure 7. Business model innovation typology, developed by Foss & Saebi (2017, p. 217)

Evolutionary BMI are described as "a fine tuning process involving voluntary and emergent changes" (Demil & Lecocq, 2010; p. 227). *Evolutionary* BMI affects only individual components of the business model and typically happens gradually and naturally over time (Foss & Saebi, 2017). *Adaptive* BMI are not necessarily new to the industry but involves radical changes to the overall business model of an individual company (Saebi, Lien & Foss, 2017). In the two types of BMI mentioned above, the firm adapts its business model as a response to changes in the external environment (Teece, 2010). In contrast, with *focused* and *complex* BMI the company innovates its business model with the intention of disrupting the current market conditions (Foss & Saebi, 2017). With focused BMI the company innovates within one area of the business model "while keeping its value proposition, value delivery and value capture mechanisms intact" (Foss & Saebi, 2017, p. 217). However, by innovating the business model, the company is now able to target a new market segment that has been ignored by competitors (Foss & Saebi, 2017). Finally, complex BMI affects the entire business model of a company. In this case, the company introduces a new way of delivering value to the entire industry (Foss & Saebi, 2017).

As the case that is investigated in this study is 4 types of circular business model innovations that are new to the fashion industry and introduced by Dutch new entrants, *complex* BMI is the type of BMI that is most applicable to this study. The specific business models from the new entrants that are the case of this thesis will be explained further on in this chapter. First, what is meant by circular business model innovation will be explained.

2.2.3 Circular Business Model Innovation

According to Geissdoerfer et al. (2018), circular business models are part of business models for sustainability, incorporating aspects of business models for sustainability but also including specific aspects regarding resource loops (figure 8). Consequently, circular business models can be defined as business models for sustainability, "that are specifically aiming at solutions for the circular economy through a circular value chain and stakeholder incentive alignment" (Geissdoerfer et al., 2018, p. 714).

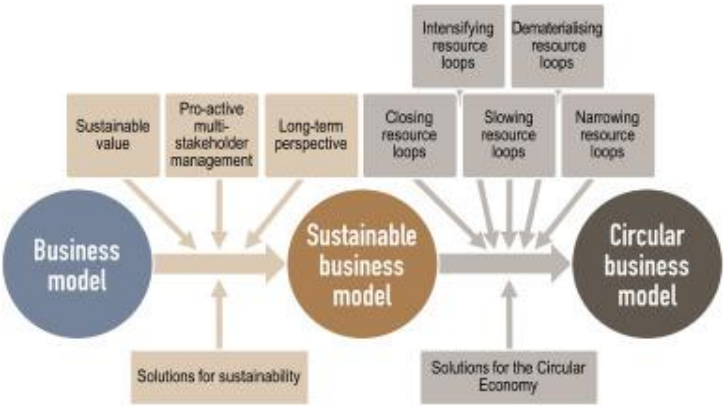

Figure 8. Comparison of the sustainable business model and the circular business model by Geissdoerfer et al. (2018, p. 714)

According to Den Hollander and Bakker (2017) and Pieroni et al. (2019a), circular business model innovation aims to boost resource efficiency and effectiveness by uncovering new sources of economic value along the product's lifecycle and ultimately to close energy and resource flows by changing the value proposition of products. This way, circular business model innovation reduces the environmental impact and negative social impact of the company while simultaneously allowing the company to fulfill consumer demands.

Meaningful progress with regard to circular business model innovation has largely been made by disruptive start-ups (new entrants). Existing companies with successful linear models (incumbent firms) have been slower to act as a result of significant barriers to adoption. These barriers include operational complexity of circular business models, lack of clear evidence on long-term financial viability and risk of cannibalisation (Hopkinson et al., 2018). These new entrants, or in the terms of Geissdoerfer et al. (2018) *circular start-ups* are companies that create a circular business model outside of an existing company. They are established independently with their own brand, employees and resources. However, they can be supported by non-independent institutions, for example accelerators.

As the case that is investigated in this research concerns Dutch new entrants in the fashion industry that apply a circular business model, 2.2.4 will go deeper into the specific business models of these new entrants.

2.2.4 Circular business model innovation by Dutch new entrants in the fashion industry

The Dutch new entrants that have been selected for this case study have implemented some form of circular business model innovation with the ambition to disrupt the Dutch fashion industry. With regard to the R ladder by Potting et al. (2017), the business models all fall under the category of lifespan extension of the product (in this case clothing pieces).

The circular business model innovations by the Dutch fashion start-ups can be categorised into leasing, rental, rental on a subscription basis, Swapping and remanufacturing.

The business model of *Leasing* is based on the principle of 'use it, not own it'. The leasing model is a compensation model in which the customer pays for continuous access to the item of clothing while the fashion start-up maintains the ownership of the product and is responsible for the maintenance and take-back of the product (Van Loon, Delagarde & Van Wassenhove, 2018). This allows the consumer to replace or return the clothing item without any extra cost. This way, the start-up company can control the lifecycle of their own product and it allows them to use the resources again. this way, the start-up can closely control its impacts on the environment (Van Loon, Delagarde & Van Wassenhove, 2018)

The rental business model, consumers can rent fashion items for a limited time, often for a lower price than what the item would cost if it would be purchased (Roos et al., 2015). "The idea behind rental is that each clothing item can be used more times before disposal compared to the conventional, non-collaborative consumption" (Roos et al., 2015, p. 37)

The *rental on a subscription basis* business model is slightly different from the rental model in the fact that with this business model, customers pay a recurring price at regular intervals for the access to a clothing item (Christmann & Pasztuhov, 2021).

Swapping is an interesting business model in the fact that it is not a monetary model as customers pay for their new clothing items with their own unwanted clothing items. Per item the customer is rewarded with points or tokens that they can use as 'money' to buy new clothing items. Though for the business model to be economically viable often a small service fee is charged per clothing item (Henninger, Bürklin & Niinimäki, 2019).

Finally*, Remanufacturing* is a business model and circular strategy in which both raw materials and the end-of-life value of clothing items are recovered and used for new items which are then sold again to new consumers (Giutini & Gaudette, 2003).

These circular business model innovations can differ largely from one another in terms of characteristics and challenges. However, Weissbrod and Bocken (2017) and Pedersen and Andersen (2015) have identified overall challenges related to circular business model innovation in the fashion industry. The challenges for start-ups particularly are: rethinking the design phase, educating consumers, opposition from established companies that have based their business models on the linear fast fashion model and aligning values of different actors across the supply chain. Pedersen and Andersen (2015) emphasize the importance of partnerships to overcome these challenges. "Knowledge sharing and collaboration in between and across companies and sectors can accelerate circular business models in the fashion industry" (Pedersen & Andersen, 2015, p. 324).

2.3 Conceptual framework

The integration of transition research and business model research acknowledges the importance of the interrelation between organizations and their wider environment for achieving sustainable development. However, to be able to integrate these two theories, it must be defined how business models are placed within the MLP (Bidmon & Knab, 2018). Bidmon and Knab (2018) have identified three roles and respective impacts of business models on transitions: (1) Business models as part of the socio-technical regime, (2) Business models as intermediate between technological niche and the socio-technical regime and (3) Business models as non-technical niche innovation (Bidmon & Knab, 2018). In the first role, business models enforce the stability of the socio-technical regime by creating guiding rules among regime actors. This view is aligned with the literature on business models that states that the existing dominant mode of doing business creates significant barriers for business model innovation by incumbent firms due to path dependencies and fear of cannibalization of the current value appropriation (Chesbrough, 2007; 2010).

Although there are a number of examples of large incumbent companies that act as innovators, the literature shows that most business model innovations are driven by forces from outside the regime (Bidmon & Knab, 2018). This means that the new business model innovations have to be able to break through the existing socio-technical regime, being dominant business models and the overall dominant logic in the industry and among customers, regulators and financial actors, to become established in the new socio-technical regime in the transition (Bolton & Hannon, 2016; Bidmon & Knab, 2018). This makes business model innovation similar to technological niche innovations within transitions. However, Bidmon and Knab (2018) argue that business model innovations must be placed closer to the regime than technological innovations as they have reached a higher level of stability by already fulfilling the specifications that contribute to greater stability: the *expectations and visions* are already well articulated and communicated due to the crossboundary nature that requires redefinitions of transaction among a number of actors (Matthyssens, Vandenbempt & Berghman, 2006; Zott & Amit, 2010), *learning processes* have already reached an advanced stage because with the development of new business models, new opportunities to create and capture value have already been explored (Tikkanen et al., 2005; Martins, Rindova & Greenbaum, 2015) and *social networks* already exhibit considerable breadth and depth as the formation of new business models requires collaboration between multiple actors (Klang & Hacklin, 2013).

Because of this, business models often function as an intermediate and lift technology innovation to a higher degree of stability. But as discussed in the literature on BMI, business models can also function as a disruptive force on the regime (Bidmon & Knab, 2018). As this thesis investigates the role of circular business model innovation by Dutch new entrants in the fashion industry's transition towards circularity, the last function, business models as non-technological niche innovation, best fits this research. It is acknowledged that technology does play an important role in the development of new business models but the main focus of this thesis is not specifically on the role of the technological innovations in the

transition but more on the supporting role of technology in the development of new business models. Therefore, the second function of business models will not be included in this research.

The figure by Bidmon and Knab (2018) (fig. 9) that represents the third role of business model innovation in industrial transitions integrates both theories described in this chapter and thereby captures all the important concepts for this research: the overall socio-technical regime and dynamics between the actors within it, the incumbent players in the industry, the high-level landscape pressures on these dynamics and circular business model innovation by new entrants that have the potential to shift the regime from one state to another by utilizing these change pressures.

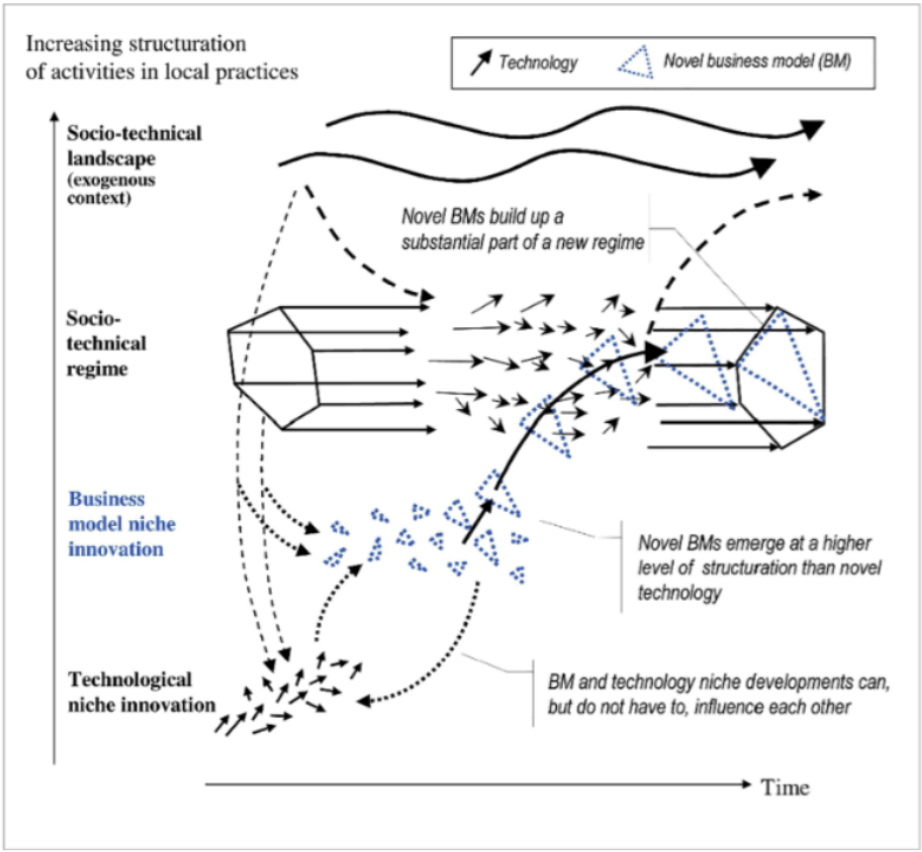

Figure 9. Business models as non-technological niche innovations (Bidmon & Knab, 2018, p. 911)

For the scope of this research, the discussed theories (transition theory and BMI) have been combined into the conceptual framework, inspired by figure 9 by Bidmon & Knab (2018). The conceptual framework is the lens through which the data and empirical findings are reviewed and analysed.

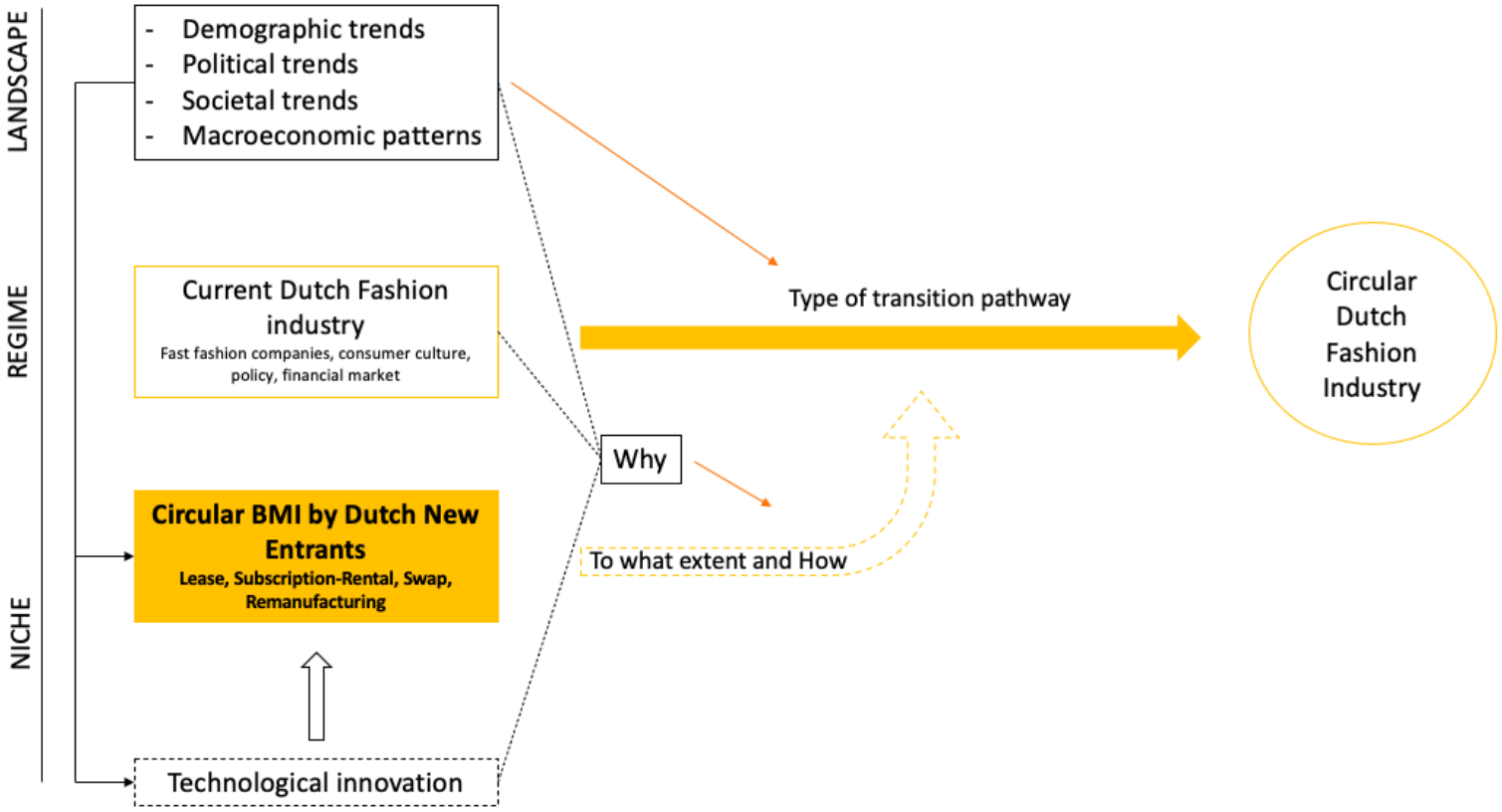

Figure 10. Conceptual framework

Chapter 2.3.1 will explain how the conceptual framework is operationalised to answer the research question: *To what extent, how and why does circular business model innovation by Dutch new entrants contribute to a transition to a circular economy in the fashion industry?*

2.3.1 Operationalisation of the conceptual framework

To investigate the role of circular BMI by start-up companies in the fashion industry's transition towards circularity, a conceptual model including the concepts: transition towards circularity, transition pathways and circular business model innovation was created. This section will explain how the different theoretical aspects are operationalised to analyse the empirical data and answer the research question.

In the conceptual framework, the orange square represents Dutch start-up companies in the fashion industry (also called new entrants) with a circular business model. To keep this study focused, the types of business model innovation have been limited to lease, rental on subscription base, swap and remanufacturing.

The highest level, the socio-technical landscape incorporates different high-level trends: demographic, societal, political and macroeconomic, that create pressure on the existing regime and affect the developments in the niche. Shifts in the landscape are necessary to create a window of opportunity for niche innovation.

The middle level represents the current regime of the Dutch fashion industry and the response of the regime to the circular business model innovation by Dutch new entrants. The conventional regime is characterized by the linear business model and the culture of throw-away fashion.

The conceptual framework is built up by a few elements that interact with each other. The yellow arrow represents the fashion industry's transition towards circularity and the dotted arrow represents the relation between the Dutch fashion start-ups with a circular business model and the transition, which is the main focus of this study. the arrow is made dotted because the relationship between the two phenomena is to be determined in this study. To discover *to what extent* there is a relationship between the two concepts and *how* this relationship takes shape the MLP has been used as a base. The MLP is suitable in this research as it also allows reflection on the influences of other factors on the transition and on "the relationship" between circular BMI and the transition such as technological innovation, landscape trends and the response of the current regime of the Dutch fashion industry.

By analysing how the different elements act and interact, the type of transition pathway can be determined. Which of the four transition pathways is the case in the fashion industry is based on the interplay of the timing and nature of the interactions in the industry. When having determined what type of transition pathway is taking place in the fashion industry's transition towards CE, which will be done in the findings in chapter 4, it is easier to evaluate the role (to what extent and how) of the Dutch start-up companies in this transition.

Finally, the influences and responses of the different elements in the transition which is included in the MLP analysis, will serve as an answer to the question why the role of the Dutch fashion start-ups is the way it is in the fashion industry's transition towards circularity.

To conclude, the transition from a linear to a circular fashion industry is analysed by the MLP and the main actions and interactions between the different elements in the framework are discussed. Then, based on this information, the type of transition pathways can be determined which will be used to draw a conclusion on the extent to which and how the circular business model innovations contributes to the fashion industry's transition towards CE. Last, the influences of the "external elements" (Landscape, regime, technological innovation) are analysed to draw a conclusion on why the role of the Dutch fashion start-ups is the way it is.

Chapter three - Methodology

This chapter presents the chosen methodology for collecting and analysing the empirical data of this research. First, the research strategy is discussed. After, the case study will be presented and explained followed by the types of data collection and how this data is analysed. Finally, the reliability, validity and ethical choices of this research are discussed.

3.1 Research strategy

3.1.1 Research Philosophy

The philosophical underpinning of this research is the post-positivist view. In this section, the *ontology*, "what is the form and nature of reality and, therefore, what is there that can be known about it", the *epistemology*, "what is the nature of the relationship between the knower or would-be knower and what can be known" and the *methodology,* "how can the inquirer (would-be knower) go about finding out whatever he or she believes can be known" of the post-positivist paradigm will be described (Guba & Lincoln, 1994, p. 108).

Regarding the *ontology*, it is assumed that there is one reality but this reality can never be perfectly apprehended. This research aims to investigate the general role of circular business model innovation by Dutch start-up companies in the greater transition towards a circular fashion industry. However, it is recognized that "because of flawed human intellectual mechanisms and the fundamentally intractable nature of phenomena" the exact reality can never be perfectly apprehended (Guba & Lincoln, 1994, p. 110).

With regard to the *epistemology* of this research, the researcher aims to remain as objective as possible during the entire research. However, it is acknowledged that full objectivity can never be reached (Guba & Lincoln, 1994).

Lastly regarding the *Methodology,* this research uses qualitative data alongside the theoretical and conceptual framework in chapter 2 to find an answer to the research question. The use of qualitative data allows for the collection of more situational information in a more natural setting, which is in line with the post-positivist paradigm (Guba & Lincoln, 1994).

3.1.2 Research Design

To fulfil the purpose of this research, which is to investigate the role of circular business model innovation by start-up companies in transitions, a qualitative case study was conducted.

Since the field of circular business model innovation in the fashion industry has been an understudied area of research, an exploratory research design is appropriate for this case

study (Sandvik & Stubbs, 2019). According to Yin (2003), exploratory qualitative case studies can provide new empirical insights on phenomena of which research is limited.

The search for empirical data is based on the literature review and the conceptual framework, in which the literature on circular economy transitions and circular business model innovations by start-ups in the fashion industry has been combined, which means that the research is deductive in nature (Van Thiel, 2014). The literature and the conceptual framework have served as a basis for gathering the empirical data and serve as the lens through which the empirical findings have been reviewed and analysed.

3.2 Case Study

The contribution of circular business model innovation by start-up companies to the fashion industry's transition towards circularity has been investigated by means of a case study.

To keep the study focused, the types of circular business model innovation have been limited to lease, rental on subscription base, swap and remanufacturing. A list with 8 Dutch start-up companies applying one of the four circular business models has been compiled in table 1. As the Dutch fashion start-up field is constantly in development, this list is not exhaustive.

From this list of 8 Dutch fashion start-ups, 4 start-ups, that each represent 1 of the types of circular business model innovation, have been selected as case study. These four brands have been analysed and interviewed in order to understand how they see their role in the transition and what impact they are making on the fashion industry. The research intends to generalise the data provided by the 4 Dutch fashion start-ups for the type of BMI that they pursue.

Next to analysing and interviewing the 4 start-up companies that serve as a case, interviews with other stakeholders in the fashion industry were conducted to also include other perspectives in this research. The empirical data collection in this study will be elaborated below.

	Name of the start-up	Form of Circular Business Model Innovation
1	MUD Jeans	Lease
2	LENA the Fashion Library	Subscription - Rental
3	UNRAVELAU	Remanufacturing
4	The Swapshop	Swap
5	Huulaloop	Subscription - Rental (kids clothing)
6	Circos	Subscription - Rental (kids & maternity clothing)
7	Outfit Library Less	Subscription - Rental
8	The Renewal Workshop	Remanufacturing

Table 1. Overview of Dutch fashion start-ups with a Lease, subscription rental, swap or remanufacture business model.

3.3 Data collection

The empirical data has been gathered from three types of entities: industry experts and representatives, incumbent fashion retailers and the four new entrants that form the case study. The data from these entities has been gathered using four different empirical data sources: (1) Semi-structured interviews, (2) Industry reports, (3) observations and (4) Webinars. The specific data sources are elaborated on in the following section after the case has been described.

3.3.1 Interviews

According to Blomkvist and Hallin (2015), interviews are an appropriate way to collect empirical information on complex phenomena in a qualitative case study. In total, 12 Semi-structured interviews were conducted with different types of actors that, according to the conceptual framework, play a role in the fashion industry's transition towards circularity. As industrial transitions are multi-dimensional and include multiple different types of actors, a variety of interviewees makes it possible to analyse the macro-, meso- and micro-level dynamics in the transition. From the different perspectives that were gathered from the case study, the role of the Dutch start-up companies, that have innovated their business model towards circularity, in the fashion industry's transition towards a circularity could be properly analysed. The four selected start-ups 4 all applied a different type of circular business model. This way a conclusion could be drawn on the role of lease, rental on subscription base, swap and remanufacturing business models could be drawn.

Semi-structured interviews were used as it enabled to address the points that were considered relevant during the interviews and not to limit the interview to what was already known from the literature (Bryman, 2016). However, the literature was used to prepare specific interview questions that then were reviewed and revised multiple times to identify other important aspects and questions (Bryman, 2016).

The interview guide was structured in such a way that the participants were first asked general questions about themselves and circularity before they were asked specific questions relevant for this research. This was done to mitigate any biases in the answer provided (Bryman, 2016). The interview guide is attached in Appendix A. All interviews lasted between 30 and 75 minutes and were conducted between November 2020 and January 2021. Based on the different types of entities, a code was given to every interviewee. The codes are assigned randomly to ensure anonymity. The information about the interviews has been listed in table 2. In total 12 interviews were held.

Date	Duration	Interviewee	Code
16-11-2020	50 minutes	Founder Industry association for sustainable fashion	Industry Expert 1
20-11-2020	60 minutes	Founder fashion start-up with a remanufacturing business model	New Entrant 1
24-11-2020	40 minutes	Founder fashion start-up with a rental/rental on subscription basis business model	New Entrant 2
27-11-2020	45 minutes	Founder Consultancy Agency on business model innovation	Industry Expert 2
1-12-2020	40 minutes	Representative fast fashion retailer	Incumbent Firm 1
3-12-2020	30 minutes	Representative from an industry association for sustainable fashion	Industry Expert 3
7-12-2020	60 minutes	Founder fashion start-up with a lease business model	New Entrant 3
8-12-2020	30 minutes	Representative fast fashion retailer	Incumbent Firm 2
9-12-2020	40 minutes	Representative fast fashion retailer	Incumbent Firm 3
22-12-2020	30 minutes	Brand director fashion start-up with a swapping business model	New Entrant 4
5-01-2021	75 minutes	Representative UN Alliance for Sustainable Fashion	Industry Expert 4
12-01-2021	30 minutes	Professor in sustainable fashion	Industry Expert 5

Table 2. Interviews conducted in this study

3.3.2 Industry reports

Reports from the fashion industry have been analysed to gain additional insights into the transition of the fashion industry towards circularity and business model innovation in the fashion industry in general. By analysing different industry reports, views from players or organisations that were unable to participate in an interview have still been included in the analysis. The reports have been selected based on the relevance to the research topic and importance of the publishing organisation with regard to the circular economy transition in the fashion industry. The reports that have been analysed are listed in table 3.

Industry Report	**Source**
The State of Fashion 2020	BOF & McKinsey & Company
The State of Fashion 2021	BOF & McKinsey & Company
The Quest for Sustainable Business Model Innovation	BCG
A New Textiles Economy: Redesigning Fashion's Future	Ellen MacArthur
The Future of Circular Fashion	Fashion for Good & Accenture Strategy
Policy programme for circular textile 2020-2025.	Ministry of Infrastructure and Water Management
Square your circle	World Resources Institute & WRAP
Financing the Transformation in the Fashion Industry	Fashion for Good & BCG
Demographic Change in the Netherlands: Strategies for resilient labour markets	OECD
Staat van het Bestuur 2020	The Ministry of the Interior and Kingdom Relations
Nederland Handelsland 2020	CBS
A circular economy in the Netherlands by 2050	The Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs
Meet the 2020 consumers driving change	IBM
Investment report 2020/2021: Building a smart and green Europe in the COVID-19 era	Economic Department EIB
Essay collection Beyond the social class: On new divisions in society	Ministry of the Interior and Kingdom Relations

Table 3. Industry reports analysed in this study

3.3.3 Observations

During the writing of this thesis, the researcher completed two relevant internships. One at UNRAVELAU, a Dutch fashion start-up with a remanufacturing business model and one at Fashion for Good, an industry association for sustainable fashion. Fashion for Good is both a platform that accelerates and scales niche innovations for sustainable, circular and transparent fashion and a museum that showcases the niche innovations to the wider public. Both internships have given relevant insights into the current state of the fashion industry and the role of innovative start-ups in the industry. No specific data has been gathered and noted down during the internships. However, the internships have deepened the researcher's knowledge on the industry which has been of value when analysing the empirical data.

3.3.4 Webinars

During the Covid-19 pandemic, the number of online events has increased. This also applies to online events about sustainable and circular fashion. The author has attended a number of events that were useful to the research. Most of the online events often hosted a number of important speakers that brought additional insights and extra points of view to the research. The webinars have not been fully transcribed. However, when specific information seemed relevant to the research, the information was noted. The webinars that were attended during the research are listed in table 4.

Date	Webinar	Hosted by	Duration
09-06-2020	The role of Circular Business Models During COVID-19 and Beyond	Fashion for Good	60 minutes
09-09-2020 & 16-09-2020	Een nieuw beleid voor circulair textiel	Reflow	120 minutes
13-10-2020	Circular Fashion - Is this the future of the Fashion Industry?	Moda Circolare x The Sustainability Club	60 minutes
15-10-2020	How Can We Transform The Fashion Industry?	Ellen MacArthur Foundation	30 minutes
08-12-2020	Fireside chat with Mike Shaffer	Fashion for Good	30 minutes
10-03-2021	How Micro and Small Fashion Businesses Revolutionise Fashion	Centre for Sustainable Fashion	60 minutes

Table 4. Webinars followed for this study

3.4 Data analysis

After the relevant theories have been described, the conceptual framework has been developed that serves as the lens through which the data and empirical findings are reviewed and analysed.

All the interviews were recorded (with the permission of the participants) and transcribed: every detail has been written down. Subsequently the interview transcripts have been analysed using a thematic analysis approach. Based on methodology suggested by Brinkman (2012), the individual sections in the interview transcripts that seemed relevant to answer the research questions were tagged. The sections were selected for various reasons: “the interviewee stated their importance, they were mentioned by numerous interviewees, they had a strong link to the existing literature, or the researcher found that the concepts were logically relevant to each other” (Van Den Heuvel, Kao & Matyas, 2020, p. 4). First the The sections were grouped deductively according to codes that have been derived from the conceptual framework: based on the elements that make up the regime and landscape according to Geels & Schot (2007). After, these codes were grouped in regard to the levels in the MLP, namely regime, landscape, and niche-innovation. All the transcripts were coded accordingly using the computer program NVivo. Finally, the transcripts were reread and the codes were evaluated to ensure that the codes and the specific sections in the interviews matched correctly.

A few of the interviews were held in Dutch, as this sometimes was preferred by the interviewee. Quotations from the Dutch interviews that were used in the analysis have been translated to the best of the ability of the researcher.

To capture different dimensions in this research and due to difficulty in finding a diverse group of interview respondents due to the current Covid-19 situation, data triangulation has been applied (Yin, 2003). The semi-structured interviews have been supplemented with secondary data from industry reports, observations and webinars when the data appeared relevant for the analysis.

The coding scheme is added in the appendices (Appendix B)

3.5 Reliability & Validity

The quality of scientific research is often measured by the reliability and the validity of the research (Yin, 2003). According to Van Thiel (2014) the reliability of qualitative studies means that if the investigation is carried out in exactly the same way at a later time, similar outputs will be achieved. The validity of qualitative research is divided into 2 basic types of validity: internal and external validity. Internal validity refers to the question whether the researcher has really measured the effect that he/she intended to measure. In other words, the cogency of the study. External validity refers to the generalization of the study: do the results of the study also hold for other "persons, institutions, moments in time or locations?" (Van Thiel, 2014, p. 49).
A description of these aspects in relation to this research is presented in this section.

3.5.1 Reliability

This study strives for reliability by being consistent in the used concepts and by executing the research objectively (Yin, 2003). First, the purpose of this study and the theoretical concepts used are extensively covered in the introduction and the literature review to prevent interpretation errors. Second, to ensure objectivity, an interview guide was constructed to be consistent in every interview and the interviews have been transcribed to preclude interpretations from the researcher. In addition, this study enhances reliability through purposive and theoretical sampling of interview candidates (Shah and Corley, 2006). Overall, this research has a high level of reliability.

3.5.2 Validity

As described, the internal validity refers to the relationship between data collection methods and the research questions (Van Thiel, 2014). According to Yin (2013), internal validity can be ensured by including multiple data sources, also described as data source triangulation, for generating the empirical data. This thesis aims for high internal validity as the empirical data consists of four different types of data sources: interviews, industry reports, observations and webinars. Also, by interviewing three different entities, industry experts and representatives, incumbent fashion retailers and new entrants in the fashion industry, different stakeholder opinions could be incorporated into this thesis which reduces bias. However, this bias has not been reduced completely as, due to time constraints and because many stakeholders did not have time for an interview, not every 'type' of stakeholder in the fashion industry's transition towards circularity has been interviewed. As a result, the internal validity of this research is not optimal. However, by adding other data sources (industry reports, observations and webinars) the researcher tried to increase the internal validity of this research by incorporating other stakeholders' opinions via these other data sources.

Regarding the external validity, the problem with qualitative case studies lies in the fact that there is difficulty with the generalisation of results (Yin, 2013). However, this thesis applies analytic generalisation which according to Yin (2013) aims to generalise theory rather than populations. By analysing a specific case, 5 types of circular business model innovation by

Dutch fashion start-ups through the lense of the conceptual framework which is build up from transition theory and BMI, this research aims to draw a conclusion on the contribution of circular business model innovation by new entrants in the fashion industry's transition towards circularity rather than to generalise the findings for every other industry that is going through a transition as transitions are difficult to compare. According to Gale et al. (2013), the use of a conceptual framework in analysing the empirical data, as is done in this study, increases the overall validity of the research.

3.6 Ethical implications

Ethics plays a significant role in research. According to Van Thiel (2014, p. 154) researchers have to abide by five rules to conduct ethical research. The five rules are: *beneficence,* which means that the research should aim to contribute to the acquisition of knowledge or to find a solution for a problem. Thus, research should be positive in its aim and may not be intended to do harm. As this research intends to contribute to knowledge about the fashion industry's transitions towards circularity and thereby wants to contribute to accelerating the transition of the fashion industry towards circularity, this research has a positive aim. Second, *veracity.* The research should not be misleading. This research aims to be as transparent as possible in every phase of the research. Also, during the interview phase, the researcher made sure that the interviewees had full understanding of the purpose of the research. Third, *privacy,* states that the respondents have the right to refuse to participate in the study or to withhold information. In this study, privacy was assured as no interviewee was forced to participate in the research. Besides, before conducting the interview, the researcher stressed that the interview candidates were not required to answer every question. The fourth rule, *confidentiality,* implies that the researcher has to reach an agreement with the interviewees on how the information will be processed in the study. The researcher made sure to adhere to the fourth guideline by explaining to the interviewees that they would be addressed in the research according to anonymous codes, based on three categories. Also, before the interview, the researcher explained to the interviewees that the voice recording would be treated with confidentiality and was only intended for the researcher herself. The last guideline refers to *informed consent.* This implies that the researcher has to gain permission from the respondents to carry out the study and publish the results. The researcher did not draw up a special contract to obtain consent from the interviewees. However, the interviewees were all informed about this matter, to which all interview candidates gave their oral consent.

Chapter four - Findings

In this chapter, the findings from the gathered empirical data will be presented. First the four start-up companies with their corresponding business model that form the case study will be introduced and their opinion on their own role in the Fashion industry's transition will be discussed. After the empirical findings from the interviews with the stakeholders, webinars and industry reports on the contribution of technological innovation, the current landscape pressures and the fashion industry's regime responses will be discussed. Finally, by adding all the elements that have been discussed, an analysis of the type of transition pathway that the fashion industry is currently following will be made.

4.1 Circular Business Model Innovation in the fashion industry

This section will explain the business models of the 4 case study start-ups and discuss their own view on their role in the fashion industry's transition towards circularity.

Case 1: the lease business model

"We started this company with the idea to try to make the fashion industry circular." (New Entrant 3). The core of the business is an innovative leasing service for jeans. Customers are charged a monthly fee per pair of jeans that they lease. Part of the service is that customers can replace or return the pair of jeans they are leasing whenever they want. If the pair of jeans is damaged or at the end of its life, the jeans are recycled into another item of clothing or furniture. However, to make sure that the jeans last as long as possible, the start-up only sources the highest quality of organic cotton (New Entrant 3). Besides, the company is very strict on the selection of its manufacturing partners to make sure that the working conditions in their entire supply chain are good and that the products are of the highest quality.

New Entrant 3 states that his business model would not be effective at all if he wasn't completely transparent about everything, publishing every in depth detail about the company's supply chain from the origin of the organic cotton to the personal profile of the factory owners.

According to New Entrant 3, the role of the lease start-up in the fashion industry's transition towards circularity is two sided. First to show the industry that circularity is possible with the most polluting item of clothing. Second, to grow bigger as a company to have more impact in volume. He states that the second role is currently still difficult because by paying a fair price throughout the entire supply chain, the price of the lease jeans is much more expensive than the competitors with a fast fashion business model (New Entrant 3). This makes it difficult for the start-up to gain market share and create big scale impact.

Case 2: the subscription-rental business model

The second start-up that has been selected as a case study offers a subscription service for kids clothing. Initially, the idea for the company came from the fact that the founder had to buy kids clothing herself and realised how time consuming this was. Therefore she came up with the subscription rental model for kids clothing to take this burden off parents' shoulders.

However, when starting up the company, the owner found out how polluting and conservative the fashion industry is and realised that with this new business model she could contribute to changing the industry (New Entrant 2). The business model of the company is that parents pay a monthly fee and receive a number of outfits for their kids. Parents can then switch the clothing anytime. This happens mostly during a change of season or when they need bigger sizes. The clothing that is returned when parents switch is cleaned and sent to other parents. This way, the clothing is optimally used and nothing is thrown away (New Entrant 2).

4 years ago when New Entrant 2 founded the company, there were not many examples of rental on subscription models. Because of this, the potential partner companies that the founder approached didn't understand the purpose and need and were not very eager to partner with the start-up (New Entrant 2). However, her goal is still to partner with different kids clothing brands and convince them to retain the ownership over their products and rent the clothing through her platform. This way the companies will get an incentive to produce clothing that lasts longer and this way take real steps towards a fully circular system (New Entant 2). However, she realises that these companies need a proven record and that her business still needs to scale a lot to offer this to the companies (New Entrant 2).

Case 3: the swapping business model

The third business model that is included in the case study is swapping. This start-up wants to save hundreds of thousand garments per year in the Netherlands from being wasted and incinerated by rewarding consumers when they bring their unwanted clothes to them. Consumers will receive "Swaps" for each item that they hand in. These "Swaps" can be used to buy items that were handed in by other people (in 2 stores in Amsterdam and Rotterdam and online. A small service fee is included per item, however this amount is very low because as the innovative model combines collection and consumption, the start-up does not have to spend any money on buying clothing (New entrant 4).

New Entrant 4 states, "I believe that swapping makes the world a better place. By extending the life of our clothing, we are working towards a cleaner world. One without over-consumption, pollution and waste being incinerated." She believes that the swapping business model can make a serious impact on the fashion industry by being an example for the big companies in the industry and by changing consumers behaviour (New Entrant 4).

Case 4: the remanufacturing business model

The last start-up that is included as case applies a remanufacturing business model. The company was founded three years ago and is connected to the upcycle centre in Almere, the Netherlands. In the upcycle center people can hand in their unwanted goods, including clothing. The concept of the upcycle center is that all the goods handed in are reused by affiliated start-ups for new products (New Entrant 1). In this case, the start-up is responsible for reusing the clothing that is handed in. New Entrant 1 directly sorts the clothing that is handed in, washes the items and creates new pieces of clothing for example by combining different pieces or by cutting the clothing in small pieces of fabric and sewing them together into a new piece (New Entrant 1). Besides that, with every choice that she makes in her business, she makes sure that it causes as little damage as possible to the environment, people and animals (New Entrant 1). Besides, by working with a made-to-order system and zero-waste clothing patterns New Entrant 1 ensures that there is no overproduction and no waste is generated during the production of the new items.

New Entrant 1 states that she believes that her role in the transition of the fashion industry is two sided. First by pioneering with remanufacturing, New Entrant 1 wants to show the industry that it is not necessary to use new fabrics for the production of clothing (New Entrant 1). Second, she states that it's her role to inspire and inform people. She is already doing this by giving workshops at primary and secondary schools (New Entrant 1).

4.2 Technological Innovation

According to the theoretical and conceptual framework, technological innovation can but does not necessarily influence the development of circular business models.

The four Dutch new entrants all state in the interviews that they are not yet dependent on technological innovation to roll out and implement their new business model. However, they all recognise the importance of technology in making their new business models scalable. New entrant 1 even states that without large scale technological innovation in the fashion industry a circular industry can never be reached. Industry expert 3 agrees and states that it is often the logistics and manual work that makes the upscaling of circular business models difficult, technological innovation can provide solutions for these bottlenecks. New technologies that are needed for the scalability of the four types of circular BMI are for example automated logistics, C2C platforms and technologies for recycling textiles. For the lease and subscription-rental models, automated logistics that, from the moment a customer signs up, the system arranges the monthly payments, invoices, keeps track of the products that are leases/rented and their returns (New Entrant 2). Also, New Entrant 2 states that “it would be super valuable if the system all the data on each of the rented items, how

long was it rented, who rented it, how many times can the item be rented before the quality deteriorates and if the system also includes the feedback of each customer that rented that item, in other words online digital twins of each item that can be rented". For the swap business model, C2C platforms could help to scale the business model as with these platforms, physical stores are no longer needed and the shop is no longer location dependent (New Entrant, 4). With regard to the remanufacturing business model, technologies could easy the disassembly of clothing pieces and ensure they keep their quality after which it is easier to create new items of clothing with the fabrics (New Entrant 1)l

The view on the importance of technological innovation in scaling circular business models is shared in an industry report by Fashion for Good and Accenture Strategy that has been analysed. Innovation and collaboration platform Fashion for Good together with service company Accenture (2019) state in their 'The Future of Circular Fashion' report that circular business models can fundamentally alter the basis of the fashion industry if they are combined with innovative technology. In the report, three types of circular business models were analysed: rental, subscription-rental and recommerce (selling second hand clothing items). The report highlights that recommerce has become much easier thanks to technological innovation for example with a technology that connects first hand retailers with the second hand market which allows for large scale resale (Fashion for Good and Accenture Strategy, 2019). However, The role of technological innovation in the subscription-rental business model, one of the cases in this research, is not discussed in the report.

Even though the importance of technological innovation in scaling circular business models is acknowledged by most interviewees and in the analysed industry reports, new entrant 1 points out that technology is very much behind in the fashion industry compared to for example the food industry. This statement is confirmed and explained in a report by Fashion for Good and management consulting firm BCG (2020) who recognise that there is untapped potential of new technologies in the fashion industry. The lack of sufficient investments is pointed out as the main barrier for large-scale deployment (Fashion for Good & BCG, 2020). In recent years, only a fraction of available investment capital has reached tech-innovators in the fashion industry, the reason for this financing gap being that often investment opportunities are overlooked by potential investors due to a lack of industry or technological expertise or a lack of strategic investment and scouting approaches (Fashion for Good & BCG, 2020). According to the report, drastic changes are needed in this matter as they state that technological innovation is essential to achieve a complete transition of the fashion industry (Fashion for Good & BCG, 2020).

Although there is much consensus in the preceding text on the importance of technological innovation and Industry, Industry Expert 2 emphasises that, especially in the fashion industry, it is not only technology that ensures that circular business models will take over the current regime. This will further be elaborated in chapter 4.2 and 4.3.

In short, different from what has been described in the conceptual framework, the researcher could not find supporting arguments for the role of technological innovation in the

development of circular business models by Dutch new entrants in the fashion industry. However, the importance of technological innovation for scaling circular business models was extensively mentioned and discussed.

4.3 Landscape Pressures

As shortly mentioned by Industry Expert 2 in chapter 4.2, a systemic transition requires a tremendous number of changes. According to the theoretical and conceptual framework, landscape changes regarding demographic trends, political ideologies, societal values, and macroeconomic patterns are of great importance in transitions too. Therefore, this subchapter will present the empirical data on the influence of different landscape changes on circular business model innovation and the existing regime of the Dutch fashion industry and thereby also the transition of the fashion industry.

4.3.1 Demographic trends - changing demands and digitalisation

According to a report by the OECD on demographic change in The Netherlands (2013), The Netherlands will undergo, and in some regions already is undergoing, major demographic change. The population in The Netherlands will continue to increase in the coming decades but the nature and speed of the population growth will differ per region. What is particularly striking is the increasing ageing of the population and the increasing differences between regions, in particular between urban regions and shrinking regions (The Ministry of the Interior and Kingdom Relations, 2020).

According to The State of Fashion 2020 report by BOF and McKinsey & Company (Amed et al., 2020), generational shifts are one of the most important challenges that the Dutch fashion industry needs to deal with in the coming years. Older people spend their money differently than younger people which leads to an increasing specific target group approach by retailers. Incumbent Firm 1 states, “Generation Z consumers are currently most demanding circularity from companies and as brands ultimately want to make money and they want to fulfill their consumer needs, I don’t see how brands can’t move towards circularity because the younger generation is demanding it and they won’t accept less. This is even becoming more and more now after covid”. Also, according to industry expert 2, the new generation of consumers is more flexible with regards to which brand or store they buy their clothing from whereas the older generation sticks much more to specific brands or stores that they already know. Industry expert 2 explains that for a large part, this is due to the rise of social media and young people spending increasing amounts of time online. Young consumers use social media as an information channel which has led to younger generations being influenced by different factors than older generations in consumption decisions. Brands and shops are increasingly aware that this is the way to reach the younger generation and are developing their digital offering through online stores or partnering with online multi-brands, as a result, e-commerce is growing (OECD, 2013). Industry expert 2 points out that this generational shift provides a massive opportunity for start-up companies in the fashion industry as the shift to the online environment allows the start-ups to compete

with established businesses on a level that they could not before: “a clever idea and good marketing online can ensure that a start-up company stands out quicker among the younger generation” (Industry expert 2).

In conclusion, new entrants with a circular business model can benefit from the different demands from the younger generation and from the fact that the younger generation is spending an increasing amount of time online, giving the new entrants a platform to reach the younger generation and compete with the existing regime.

4.3.2 Political trends - mindset shifts from governments and geopolitical instability

In the political domain, there has been an increasing volatility in the voting behaviour of Dutch citizens for some time now and an increasing popularity of local parties. Besides, despite that The Netherlands is still a high trust society from an international perspective, trust in government and political institutions, especially political parties, is historically low (The Ministry of the Interior and Kingdom Relations, 2020). Another visible trend is the continuing fragmentation of political parties: traditional parties (e.g. PvdA and CDA) are declining in importance while the smaller parties are increasing. On an international level, geopolitical instability and trade tensions have increased in recent years. For example, the deteriorating relationship between the West and Russia, Brexit, Tensions between North Korea and The United States, Conflicts in the Middle East and the Trade war between the United States and China. Besides, the unconventional political approach of the US Trump administration has also caused political unrest internationally (van Eijkelenburg & van Harn, 2021).

In this subchapter, it is investigated what effect these developments have on the Dutch and International regime of the fashion industry and on Dutch new entrants with a circular business model.

First, Industry Expert 2 mentions that “from an environmental point of view, governments on a national but also supranational, the EU for example, are realising that there are planetary boundaries and things need to change”. This is shown by, as mentioned in the introduction of this thesis, the European Green Deal and the policy program on circular textiles in the Netherlands. This mindset shift from governments and potentially corresponding policy development would potentially create pressure on the fashion companies in the regime as this requires these companies to change for example their business models and with that, create a window of opportunity for the new entrants, that don’t need to change their business models to adhere to this changing political influence.

Furthermore, according to the State of Fashion 2020 Report (Amed et al., 2020), political and geopolitical instability complicates the outlook for the global fashion industry and pressures big fashion companies whose supply chains are spread over the globe. New Entrant 1 notes that because of the political tensions big fashion companies are starting to realise that

outsourcing their entire supply chains carries a lot of risks. The fast fashion companies will have to rethink their sourcing strategies as trade tensions threaten to escalate and fast fashion companies, which depend on short lead times, will face difficult commercial decisions regarding prices, margins and lead times (Amed et al., 2020). These developments pressure the current regime of the Dutch fashion industry since, as described earlier, the regime is currently being determined by the big (fast) fashion companies that depend on globalisation. The unrest within the regime and uncertainties about global supply chains, created by geopolitical instability and trade tensions puts pressure on the current regime of the Dutch fashion industry.

In conclusion, the "green" mindset shift from governments on a national but also supranational level could potentially pressure the regime of the Dutch fashion industry Besides that, geopolitical instability and trade tensions create unrest within the regime as the fast fashion companies are highly dependent on globalisation to be able to offer fast, low priced trends. Because of this, the (nearshored) circular business models can become a lot more interesting for the companies in the current regime of the Dutch fashion industry.

4.3.3 Societal values - increasing pressure from society

Societal values are determined by time and place and change over time. Overall, The Netherlands attaches great importance to the values of openness and freedom. However, societal values are currently in flux in The Netherlands and the relationship between citizens and the government is in transition. To begin, citizens have higher expectations of government performance but at the same time citizens want less government intervention. Because of upcoming themes such as social initiative and social innovation, which is reflected in more protests related to climate change, social inequality and discrimination, more questions are being asked about the meaning we attach to citizenship (Völker & Elchardus, 2012). However, a complicating element in this is the ever increasing social differentiation and segmentation in The Netherlands (Völker & Elchardus, 2012). Another social trend that has emerged in The Netherlands is that among a growing group of citizens their direct living environment and quality of life has become more and more important, which is reflected in a strong increase in volunteer work, a growing concern for the environment, nature conservation, in increase in healthy and organic food and an increasing demand for local production (The Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs, 2016).

This chapter will present findings on the influence of some of the previously mentioned societal trends on the Dutch fashion industry and circular start-up companies in the Dutch fashion industry.

As mentioned above, increasingly, the Dutch society is having a much more critical attitude than before and has much higher expectations, not only from the government, but also from the private sector (Völker & Elchardus, 2012). According to Industry Expert 2, a rising group of people expects companies to be serious about their social responsibility and make a positive contribution to society. This also applies to the way that companies deal with their

environmental impact and diversity (Industry Expert 2). This development is very positive for circular start-up companies in the fashion industry as most of the values that are becoming increasingly important for some groups in the Dutch society, are automatically integrated into circular business models while the fast fashion companies are currently often punished by these societal groups for their ignorance of these issues in the past (Industry Expert 2).

Industry Expert 2 also points out the positive effect of this trend for new 'sustainable' entrants in the fashion industry, "from my own observations and from discussions that I hear and that I also sometimes have with businesses is that because of increasing pressure from society and as society is more and more supporting companies that have already implemented circular practices, the big companies are also trying to get into the circular thinking." However, Industry Expert 2 immediately adds that this value shift from society might not be enough pressure for the current fashion industry to change their business models. A 'need' shift, in other words, the urgency to be fully circular might be necessary for these fast fashion companies to change their way of doing business completely (Industry Expert 2).

However, another important effect from the changing societal values is that the Dutch workforce is also becoming more picky and more demanding of the company that they would want to work for. For some Dutch employees, a good salary is not enough reason to work for a company (Industry Expert 2). The fact that they can contribute to a better society or a healthier planet through their job is becoming a much more important reason for many people (Industry Expert 2). As already mentioned in chapter 4.3.2, this way, the fashion companies in the current regime are hurt through lower employment. The decreasing ability from fast fashion companies to recruit good employees also pressures the current regime.

In conclusion, as a result of changing societal values, the current regime of the fashion industry in The Netherlands could be pressured through increasing demands from some societal groups and employees of the fast fashion companies.

4.3.4 Macroeconomic patterns

Covid-19 has affected the lives and livelihoods of billions of people around the world. Regarding the macroeconomic patterns, the measures taken by countries to prevent the spread of the coronavirus have restricted the movement of people, interrupted trade and investments and have forced businesses to close or reduce capacity (Economics Department (EIB), 2021). Globalisation and the entanglement of economies ensures that a crisis can quickly lead to a global crisis which has been the case with the corona crisis. Due to lockdown measures in almost the entire world, trade has been hit hard by this crisis. This also had a major impact on the fashion industry and has led to record-low economic profits in the industry (Amed et al., 2021). Also the Dutch fashion industry was hit hard by the pandemic (Hijmans, 2020). However, the crisis could turn out as an opportunity for start-ups to make an impact on the industry because of uncertainty and unrest in the regime created by the corona crisis. According to the state of fashion report (2021, p. 11), " The pandemic

will accelerate trends that were in motion prior to the crisis, as shopping shifts to digital and consumers continue to champion fairness and social justice". However, on the other hand, during the crisis the start-ups also have had a difficult time surviving which has prevented them from scaling enough to seize this opportunity to drive big change in the industry (New Entrant 1, Industry Expert 1, OECD, 2020). Incumbent Firm 1 agrees with the statement from the OECD and mentions that there has definitely been a transition in the fashion industry which can be attributed to covid. However, she is talking about a transition towards digitisation instead of the transition to a circular economy (Incumbent Firm 1).

Besides, the Netherlands traditionally has been a trading country which means that the Dutch economy, and with that the recovery of the Dutch economy, is very closely related to developments in neighbouring countries and trading partners. The above indicates a trend closely related to the fashion industry, namely the further globalisation and entanglement of economies. According to the CBS (2020), economies will be even less concerned with national borders in the future and will consist of fast-changing international networks. Besides the increasingly international import and export of products, production processes will also be cut into even smaller pieces and each part of the chain will be performed in the country where it is most efficient (CBS, 2020). This is called an international value chain (CBS, 2020). This increasing globalisation directly impacts the fashion industry. Globalisation has provided the fashion industry with low-cost labor (creating severe problems, as discussed in 1.1) and easy access to international markets, which has resulted in faster and cheaper fashion, also known as "the fast-fashion model", discussed earlier in this thesis. Some even argue that fast fashion is the main effect of globalisation (Schlossberg, 2019). As shortly mentioned above, globalisation and the entanglements of economies will increase in the future. This is not a very positive prospect for the Dutch circular start-up companies as due to increasing globalisation, the fast fashion brands will continue their way of doing business, creating more clothing, at en ever faster pace, for an even lower price which could impede the competitiveness of start-ups and thus their ability to drive the transition (New Entrant 3; Corner, 2016).

To conclude, The coronavirus pandemic and associated measures has had a significant impact on the fashion industry. However, on the one hand, this crisis could turn out as an opportunity for start-ups due to uncertainty and unrest in the regime created by the crisis. On the other hand, the Dutch start-ups also had a very difficult time during the pandemic, hindering them from scaling. Finally, the trend of increasing globalisation and entanglement of economies facilitates fast fashion brands in continuing their business model of making cheap and "fast" fashion which makes it difficult for the start-ups to compete with the fast fashion brands.

4.4 Socio-technical Regime Response

In this section, the responses by the current regime of the Dutch fashion industry (subdivided into, fast fashion companies, consumers, policy and the financial market) to the circular business model innovation by the four Dutch start-up companies will be discussed.

4.4.1 Fast fashion companies

The conventional regime is characterized by the linear business model that is the leading business model of fast fashion companies, who form a big part of the current regime and significant change will not be achieved if these multinational fashion companies do not change their way of working (Ellen MacArthur Foundation, 2017). However, the opinions of the interviewees on the response of the fast fashion brands to the changing landscape and circular business model innovation in the niche are divided.

In general, as New Entrant 3 explains, there are two different responses from multinational brands to circular business model innovation by Dutch new entrants. Some fast fashion brands are very interested and they try to learn from the new entrants. For example, New Entrants 2 and 3 have previously received questions from multinational brands about their innovation. Also all three Incumbent Firms that have been interviewed state that their companies are closely monitoring the developments in the niche. This is also visible from the fact that there are quite some multinational fashion brands that are buying and acquiring innovative start-ups (Industry Expert 2). Industry Expert 2, also mentions that this is mainly a strategic move by the multinational brands as especially with regard to business model innovation, new entrants can pose a danger to the multinational brands. “In other industries it has happened that new entrants have taken a fast track and basically have taken the big companies out of business” (Industry Expert 2).

On the other hand, there are also incumbent fashion companies that are ignoring the developments and innovations in the niche (New Entrant 3). Industry Expert 5 explains that most of the fashion brands in the regime brands, are only thinking about the strategies that they need to have now in order to survive, especially after the impact that the covid-19 virus has had on these brands, and as long as their current strategy still works and they are still earning enough money to survive they are not interested in niche developments and they won’t change their practices.

A few interviewees also mention that the reason why some incumbent fashion companies are ignoring the business model innovation by new entrants is because in The Netherlands there is currently a lack of good large-scale best practices which probably makes the big companies hesitant to adopt new models (New Entrant 1; New Entrant 2; Industry Expert 2; Incumbent Firm 2). Although there has been much research, for example by BCG and Mckinsey & Company, that has proven the rise in efficiency and the economic potential of circular business models, the lack of large-scale best practices appears to be a major factor that keeps the incumbent fashion brands from adopting a new business model. This problem will be elaborated on in chapter 4.4.

These different statements make it very difficult to generalise the response of the fast fashion brands to the circular business model innovation by the four Dutch new entrants. However, a missing best practice for one of the four circular business models appears to be

an important element why the fast fashion companies are not adopting one of the four circular business models.

4.4.2 Consumer mindset & behaviour change

In most industries, the consumers are often seen as the biggest driving force for a transformation (Industry Expert 2). Incumbent Firm 1 hoped that the big brands would make certain sustainability related decisions themselves without needing a specific push. However, the brands will follow wherever they can make money which means that consumers can have a big impact on the fashion industry with the choices that they make (Incumbent Firm 1).

As explained in chapter 4.3.3, the environment, social responsibility and contributing to society are becoming more and more important among a growing group of citizens. As these societal values are changing, consumer mindset and behaviour is also slowly changing, for example, some consumers are nowadays actively looking for brands that align with their values (IBM, 2020). The fact that the four circular business models that are the case of this study align well with the changing societal values (socially responsible and better for the environment) is a good development for the new entrants.

However, according to New Entrant 3 consumers should be more aware of the power that they as a consumer have. Because, “if consumers don’t change the way they are spending their money, the companies will think that they are doing a great job and they have a fantastic economic model as they are earning a lot of money” (New Entrant 3, 2020). This means that consumers should be more well informed on how to make changes in their buying behaviour that could actually contribute to the transition and even though the information provided to the consumers is already a lot more than 10 years ago, Industry Expert 5 states “I don’t really see this happening on a large scale yet”.

Also, a major complicating factor in this is greenwashing by the regime. New Entrant 3 explains that nowadays, whenever there is external pressure that threatens to reduce the company’s profits they only change minimally but say a lot about it, which is called greenwashing, and with this they keep their customers happy. Greenwashing by large companies leads to misinformed consumers and consumers still choosing to buy clothing from the regime companies. New Entrant 3 explains that it is very difficult as an innovative start-up to deal with greenwashing as, because of this, they do not get the support they need from consumers to be able to scale and influence the regime.

To sum up, the fact that the circular business models of the new entrants align with the changing societal values is a very positive development for new entrants as this affects the consumer behaviour of a growing group of consumers. However, consumers are not well enough informed or misinformed by greenwashing to use their power as a consumer to contribute to the transition of the fashion industry.

4.4.3 New regulations and government support

Most of the interviewees believe that policies (on a national and international level) will play a very important role in the transition of the fashion industry (New Entrant 1, New entrant 4, Industry Expert 2, Industry Expert 3 and Incumbent firm 3). In the State of Fashion 2020 report, it is even stated that law and policy is the only way to stop the race to the bottom and set a fair level playing field in the fashion industry (Amed et al., 2020). According to New Entrant 4 and as briefly discussed in the introduction, the Dutch government and the EU are increasingly committed to circularity in the fashion industry with the EU funded reflow project that tests diverse approaches to circularity within cities by focussing on 6 different resource flows, of which textiles is one but also with the set climate objectives in the EU green deal and the Dutch policy programme on circular textiles.

Also, as stated in chapter 4.2.2, the mindsets of national but also supranational governments regarding environmental responsibility and planetary boundaries are slowly changing. Industry Expert 2, expects that because of these changing mindsets, governments and maybe even supranational governments will start building new elements into their laws which requires companies to be more circular and more conscious about the materials that they use. “In the European Union we have seen that a couple of laws with regard to single use plastics have been created in the last 2 years and I think there’s definitely more to come with the Green Union Deal. Single use plastics does not necessarily influence the fashion industry but I think this shows that there is definitely something happening here, so there is pressure coming from the political side for sure” (Industry Expert 2).

Also, as discussed in the introduction, on May 20 2021, Dutch State Secretary Stientje van Veldhoven announced that by 2023, extended producer responsibility will be introduced on all textiles in The Netherlands. This means that the producers of consumer clothing will become responsible for the collection, recycling, reuse and waste phase of the clothing that they produce (Dutch Government, 2021). This shows that with regard to politics, landscape changes have led to considerable pressure on the policy part of the regime. This regulation on extended producer responsibility is a very good development. However, New Entrant 1 states that there is still too little specific policy for the fashion industry. For example, what would help the innovative start-ups is making the tax more advantageous to circular companies and penalize the companies that do not move towards circularity through tax (New Entrant 1).

The influence or pressure of circular business model innovation by new entrants in the fashion industry on Dutch politics is difficult to determine. New Entrant 1 states that innovative start-ups should be pushing for new law and regulations but that most start-ups do not yet realise that they can also fulfil this role, “I do think that it is very important that circular new entrants, instead of purely focusing on innovation, also look at the role that they could play in society and besides focus on how they could change or influence laws and regulations. We need more fashion activists, fortunately there already are quite some climate and environmental activists but I think there are only a handful of fashion activists and I think

that the innovative start-ups would fulfill this role very well as they also inspire other people by what they are doing" (New Entrant 1). This is much needed because, even though extended producer responsibility on textiles is a very big step in the right direction, as stated before, more legislation to reduce the environmental and social impacts of the fashion industry is desperately needed. Smart legislation can steer the industry in the right direction and will allow the industry to replace words and public pronouncements with action and accelerate the transition towards a circular fashion industry.

To sum up, the introduction of extended producer responsibility on textiles shows that there are some changes in the Dutch national but also international governmental approach with regard to fashion. However, much more legislation is needed to push the transition of the fashion industry and the disruptive new entrants could be the ones pushing for and influencing new laws and regulations.

4.4.4 The financial market

"The challenge is not a lack of disruptive ideas, but rather a need to accelerate the pace of change. One critical lever is the inflow of capital needed to scale new solutions" (Fashion for Good & BCG, 2020, p. 2)

New Entrant 2 and Industry Expert 5 both mentioned the importance of investments from financial institutions and external funding partners to be able to scale the start-ups to a level that they can have a serious impact on the regime, which according to Industry Expert 5 will take a lot of investment to achieve this. Fashion for Good and BCG (2020) have calculated that the fashion industry needs $20 billion to $30 billion of financing per year to develop and commercialise disruptive business models to take a step towards a circular fashion industry through innovation by 2030.

As the financial institutions and external funding partners are part of the regime, external pressures, for example shifting societal values and changing political ideologies, are necessary to ensure that the financial institutions and funding partners actually invest in the innovative new entrants with disruptive business models.

Industry Expert 2 states that there is already some mindset shift visible in the financial sector. For example, the European Central Bank has increased the standards for Environmental, Social and Governance reporting for the companies that the bank has given loans to. Besides, "banks are increasingly giving loans to companies that actually embrace sustainability as a holistic concept which in this case of course also applies to the four new entrants (Industry Expert 2). This financial regime change is a very positive development for the new entrants and also is a great incentive for the incumbent fashion companies to also adopt a circular business model which could accelerate the transition.

Incumbent Firm 2 agrees and states, "something that is currently missing in the Dutch fashion industry is a big role for investors. I think you could compare the transition in the fashion industry to the energy transition in The Netherlands in the sense that the industrial

transition requires large investments from external parties. Besides, there is currently a bit of finger pointing going on in the fashion industry and no one knows exactly who should be responsible for making the large investments. Therefore I think that in the end it should be external investors who invest in the transition with the perspective that ultimately they will have a return on investment".

However, as the fashion industry is a very specific industry with specific challenges, making it difficult to compare the financing of the transition in the fashion industry to the financing of the energy transition in The Netherlands. For example, in the fashion industry, individual consumers are less likely to invest in sustainable innovation compared to the energy transition where a lot of consumers are investing in renewable energy (Incumbent Firm 2).

Besides that individual consumers will not be likely to invest in the transition, research by Fashion for Good and BCG (2020) has shown that there are also a number of large barriers for financial institutions and external investors to fund the fashion industry's transition towards circularity through investing in the development and commercialisation of disruptive business models. The barriers have been listed below in table 5.

Current barriers to financing that prevent innovations in the fashion industry from reaching scale.
1. Misaligned incentives in the fashion industry
2. Limited awareness of the opportunity
3. Absence of a structured innovation process
4. Lack of experience and technical expertise
5. Incorrect perceptions regarding pricing and externalities
6. Inadequately structured exclusivity

Table 5. 6 barriers to financing the transformation in the fashion industry adapted from Fashion for Good & BCG (2020, p.21)

To conclude, as stated by the interviewees, external investors are needed to accelerate the transition towards a circular fashion industry. However, individual consumers are not likely to invest in the transition and there are still a number of large barriers that prevent external investors from investing in disruptive circular business models making it difficult for the new entrants to scale enough to be able to transform the regime.

4.5 Transition Pathways

As Industry Expert 2 explains, “we are so caught up in a system in which everything is so interlinked that all the different types of actors and influences (different elements of the MLP) play a role to make that transition happen”. As shown in the conceptual framework, the different elements (landscape pressures and niche innovations) affect the type of transition pathway. This chapter will reflect on the findings and the interplay of the timing and nature of the multi-level interaction between the landscape pressures affecting the Dutch fashion industry and the influence of one of the four Dutch fashion start-ups on the regime to determine the potential transition pathway to a Dutch circular fashion industry. The analysis of the type of transition pathway helps to determine the role (to what extent and how) of Dutch start-up companies in this transition.

According to the theoretical framework there are four types of transition pathways through which a socio-technical regime shift could happen: substitution, transformation, reconfiguration and dealignment and realignment. Regarding substitution, the findings that have been presented in this chapter, have shown that it is difficult for the four Dutch new entrants to scale their circular business model innovation because of missing technological support, not enough (targeted) legislation, a number of large barriers for external investors, and greenwashing by the fast fashion companies in the regime. As the four Dutch fashion start-ups have not been able to scale because of the above mentioned barriers, the first transition pathway, substitution, in which the niche innovations are already sufficiently developed when landscape pressures occur, does not hold true in this case.

In the findings, the landscape changes: demographic trends, political ideologies, societal values and macroeconomic patterns have been discussed. The empirical findings show that the regime is pressured by different demands from the younger generation and from the fact that the younger generation is spending an increasing amount of time online. The regime is also pressured by geopolitical instability and potentially by a “green” mindset shift from governments and society.

In the findings regarding the macroeconomic trends, the impact of the coronavirus pandemic on the regime of the Dutch fashion industry has been discussed. During the two internships that were performed by the researcher, it was observed that when the covid virus first hit globally, both companies initially expected that this was the moment the entire fashion industry was going to change for good. However, although the fashion industry has been hit hard, the actual transition did not happen. Incumbent Firm 1 does explain that digital innovation, for example 3D designing has gone “a 100 miles an hour” which can certainly be attributed to covid. In that sense there has been a transition in the fashion industry but the transition analysed in this thesis, towards a circular economy, has not been forthcoming. Because of the above, it can be concluded that landscape trends definitely pressure the regime but do not create major pressure on the regime which does not lead to destabilisation of the regime. Therefore, the dealignment and realignment pathway is currently not the case in the fashion industry.

Finally, the level of influence that the niche business model innovations have on the regime determines whether the reconfiguration or the transformation pathway is the case in the fashion industry. If there is a symbiotic relationship between the new entrants with a circular business model innovation and the regime which triggers regime adjustments due to landscape pressures, the reconfiguration pathway is the case, if the niche innovations do not influence the regime as they are not scaled enough which results in the incumbent actors gradually adjusting the regime because of landscape pressures, the transformation pathway holds true in this case. The empirical findings show that the regime is slowly changing (the introduction of new policies, changing consumer behaviour of a growing group of consumers and interest from some fast fashion companies in the new entrants) but due to several barriers for scaling, the Dutch new entrants with a circular business model innovation have a limited influence on the regime of the Dutch fashion industry. This means that the regime of the Dutch fashion industry is currently following the transformation transition pathway.

However, as discussed in the theoretical framework, a transition may shift between pathways. Due to the complexity of the fashion industry, it is less likely that the landscape trends and changes will eventually lead to a dealignment and realignment pathway. However when the new entrants develop more best practices or scale their business model innovation, the transition could shift to a substitution or reconfiguration pathway.

Chapter five - Conclusions

This chapter will provide conclusions to the main research question.

This thesis has set out to answer the question:

To what extent, how and why does circular business model innovation by dutch new entrants contribute to a transition to a circular economy in the fashion industry?

To answer to what extent and how the circular business model innovation by the Dutch new entrants contributes to a circular fashion industry, the analysis on the type of transition pathway is of importance. The findings of this research have shown that there are many different actors, influences involved in the transition towards a circular economy in the fashion industry. All the actors, trends and influences are interconnected and play a role in either facilitating and pushing or slowing down/hindering the transition. But to what extent do the Dutch new entrants play a role in this transition?

The four types of circular business model innovation (Lease, subscription-rental, swapping and remanufacturing) could offer a solution for the problems that the fast fashion companies are facing or might be facing in the future (geopolitical instability, new policies that potentially affect the current way of doing business by the fast fashion companies and increasing demands from society). However, the analysis in Chapter 4.5 has shown that the Dutch fashion industry is currently following the transformation pathway which means that the regime is slowly changing (the introduction of new policies, changing consumer behaviour of a growing group of consumers and interest from some fast fashion companies in the new entrants) but that due to several barriers for scaling which will be elaborated further on, the Dutch new entrants with a circular business model innovation have a limited influence on the regime of the Dutch fashion industry. **Thus, the extent to which the circular business model innovation by Dutch new entrants contributes to the Dutch fashion industry's transition towards circularity is limited.**

However, even though the 4 Dutch start-up companies have not been able to scale and their influence on the regime of the fashion industry is limited, the empirical findings show that they do contribute to the transition by fulfilling an exemplary role and by pioneering. As shown in chapter four, some incumbent firms are already monitoring what the new entrants are doing because as the new entrants invest in testing and improving the circular business models, they do a lot of research and development work which then no longer needs to be done and invested in by the regime actors. Besides, the 4 new entrants also realise that as they are not scaled enough to make a big impact on the fashion industry, their current role is to show the regime alternative business models in practice and this way serve as an example for the regime. **Thus, how the Dutch start-ups with a circular business model are currently contributing to the fashion industry's transition is by fulfilling an exemplary role.**

As stated above, the contribution of the circular business model innovation by new entrants to the fashion industry's transition towards CE is limited. Until now, the Dutch start-up companies are contributing to the transition by pioneering. However, they have not been able to put major pressure on the regime of the Dutch fashion industry due to barriers for scaling. The empirical research on all the elements in the regime has helped to identify these barriers for scaling which provides as an answer to the question why the contribution of the start-ups is limited.

The first reason for the limited contribution is missing technological innovation in the niche which, according to the empirical findings and the conceptual model is of great importance for making the circular business models scalable.

Furthermore, regarding the landscape, due to the coronavirus pandemic the Dutch start-ups, like the entire fashion industry, had a difficult time, business wise, which prevented them from being able to scale. Also, despite the fact that the fast fashion companies know that there are risks involved, the trend of globalisation is still ongoing, allowing the fast fashion brands to continue their business model and offer their customers fast trends for a very cheap price making it difficult for the Dutch start-ups to compete with the companies in the regime.

Finally, regarding the regime, the empirical research has shown that on a national but also international level, there is currently lack of targeted and beneficial legislation for the Dutch start-ups with a circular business model, for example tax benefits. Furthermore, the empirical data has shown the importance of external investors to scale the circular business model innovations. However, due to a number of large barriers: Misaligned incentives in the fashion industry, Limited awareness of the opportunity, Absence of a structured innovation process, Lack of experience and technical expertise, Incorrect perceptions regarding pricing and externalities and Inadequately structured exclusivity, external investors are reluctant to invest in the start-up companies. Finally, there is currently not enough support from consumers for the innovative start-ups. Due to greenwashing by the companies in the regime, the consumers are misinformed and keep supporting and buying from these companies while they should support the start-up companies as this would contribute to the scalability of the innovations.

As a consequence of the above mentioned barriers: **the resistance in the regime, some trends in the landscape and the lack of technological innovation in the niche, the Dutch start-up companies with a circular business model are hindered are hindered from scaling up and providing best practices for the companies in the regime. As a result, the Dutch start-ups with a circular business model have so far not been able to make a major contribution to the transition of the fashion industry to circularity.**

Chapter six - Discussion

In this chapter the limitations of this research will be discussed. After, the researcher will critically reflect on the lens and theories that have been used to answer the research question. Finally, the recommendations for future research and practice will be discussed.

It is recognised that this research has some limitations. One limitation is the broad span of the research. As industrial transitions is such a complex topic, containing many different elements and aspects, it has been difficult to keep the research focused and to not stray from the main research question. Second, even though the researcher tried to have a diverse group of interviewees that represented the different levels in the MLP, due to limited time certain parts/groups of the industry were not included in the interviews. Besides, due to, among other things, COVID-19 and the elections in The Netherlands, the researcher was not able to do all the interviews that were originally planned, for example with politicians, fashion consumers and financial institutions. Third, because the conceptual framework involved so many different elements that needed to be investigated by empirical data, only the most prominent influences, actions and interactions and barriers for an increase in the influence by the Dutch start-ups could be discussed. However, it is to be noted that the fashion industry is larger and more complicated than it has been presented in this thesis.

Finally, the researcher also recognises the limitations of and criticism on the theories that have been used in this thesis. For example when reviewing this research from a social justice perspective. Social justice has been defined as “full participation in society and the balancing of benefits and burdens by all citizens, resulting in equitable living and a just ordering of society” (Buettner-Schmidt & Lobo, 2012, p. 954) An important element in this thesis has been the fashion industry’s transition towards a CE. However, in reviews on the CE concept, a weakness of the concept that has been pointed out by a few authors is that the concept lacks the social dimension while social dimension is a very important area in the domain of sustainable development (Padilla-Rivera, Russo-Garrido & Merveille, 2020; Murray, Skene & Haynes, 2017; Geissdoerfer et al., 2017). Recently the social impacts of the CE concept are receiving more and more attention in discussions about the transition towards a circular economy but the conceptual relationship between the CE concept and the associated social impact is unclear and little research on this relationship has been performed (Padilla-Rivera, Russo-Garrido & Merveille, 2020). So far, the main focus with regards to the CE concept has been on the economic system that provides primary benefits for the environment, either through resource efficiency or environmental efficiency, and the benefits to society were often only mentioned implicitly (Wempe et al., 2021).

However, especially in the fashion industry, the social dimension is an important element of the industry’s transition. Because of this, the question whether the circular economy concept is the ultimate solution that can solve all the problems created by the fashion industry arises. Next to issues related to equality and social inclusion, the fashion industry is especially known for the poor working conditions connected to the industry, creating social burdens in every phase of the value chain (Jaeger-Erben et al., 2021).

For the CE concept to become a holistic framework, the social impacts of circular strategies must be taken into account and when analysing the transition towards CE, a framework in which existing production structures, businesses, models, products and consumption practices undergo a fundamental change should be used (Lammi et al., 2019). Other authors argue that incorporating the sustainable development goals (SDG's) into the CE concept could be a very promising solution to incorporate the social dimension into the concept (Borrello, Pascucci & Cembalo, 2020).

The inclusion of other important dimensions, like social justice but also for example also cultural aspects and governance, in the CE concept could lead to better informed decision making with regard to circular economy strategies (Padilla-Rivera, Russo-Garrido & Merveille, 2020) However, more research on the conceptual relationship between social justice but also other important dimensions and the CE concept and tools and metrics to measure the corresponding impacts is crucial.

Future research could be conducted to take away some of the limitations of this research. First of all, as this research only discusses the most prominant barriers to scaling circular business model innovation in the Netherlands, due to the size of the paper and noting that the fashion industry is a lot more complex than it has been presented in this thesis, further research on the barriers for scaling circular business model innovation by start-ups in the fashion industry that includes all the stakeholders that have not been involved in this research (e.g. NGO's, government agencies and factory workers) would be valuable. Besides, instead of a broad span, for more focussed research topics, each barrier could be examined separately to discover the needs for overcoming the barriers which could help the start-up companies to scale and further accelerate the transition in the fashion industry. Besides, to overcome the missing social dimension in research into circular business innovation and transitions, more research into the interlinkages of social justice into the circular economy concept is needed. This way, the limitations of this research could be overcome.

Finally, as this research included a secondary aim of giving recommendations to Dutch start-up companies in the fashion industry on how they can effectively contribute to the creation of a more circular fashion industry, the practical recommendation will be discussed. Namely, next to the role of being pioneers and potentially shifting the regime through scaling and this way breaking through and shifting the regime, with circular business model becoming "the new normal", the empirical research has shown that there is another role for circular fashion start-ups in the fashion industry's transition: acting as sustainable fashion activists. From the empirical research it became clear that the fashion industry is currently missing activists that inform and influence society and push for new laws and regulations regarding sustainability in the fashion industry. As the Dutch new entrants already have an inspiring story through their business model and passion for changing the industry this role could be fulfilled by the Dutch new entrants with a circular business model. By being more vocal and this way influencing the elements that currently form the barriers for the start-ups to scale up, the Dutch start-ups also contribute to the transition of the fashion industry to circularity.

In the end, the three roles for circular start-ups in the transition that have been discussed should be considered as a package role as they are all linked to one another. Besides, as the conceptual model shows, all the elements in the transition are linked which means that every actor could make an important contribution to the transition and collaboration between these different actors is important to achieve a circular fashion industry. On a final note, it is important to realise that creating a circular fashion industry is not the end goal but the mean to reach the end goal. The end goal should always be to create a fully sustainable society through deep structural changes.

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Appendices

Appendix A

INTERVIEWGUIDE

Thank you for taking the time to contribute to my research. I will start by introducing myself. My name is Dionne Heuts and I am a master student in corporate sustainability at the Radboud University in Nijmegen. Because of great interest in the fashion industry, I am writing my thesis on the role of circular business model innovation by start-ups (which I call new entrants) in the fashion industry's transition towards circularity.

In my thesis, I do not name any of the interview candidates by name, but I have divided them into three categories (Industry Experts, Incumbent Firms and New Entrants with a sustainable business model) Given your background in the fashion industry I would like to include you into the …… category. With your permission of course.

Also, With your permission, I would like to record the interview. The recording will be treated confidentially and will not be published, I will only use the recording to transcribe the interview afterwards. If you don't want to have something on tape during the interview, that is of course always possible.

Before we begin, I would like to emphasize that you can interrupt me at any time for questions or clarification.

The interview is supposed to last about 30-45 minutes.

Introduction respondent

1. Could you give a short introduction about yourself and your work?

Circular transition

2. My research focuses on the circular economy. Could you please explain your view on and understanding of the circular economy?
3. Do you believe that the fashion industry is heading towards more circularity?
4. According to you, what are the most important pressures on companies in the fashion industry to engage with sustainability and circularity?

Business models

5. How do you think that the current business models of companies should be changed/altered to become more sustainable and circular?
6. Do you think that it is possible to scale up the new business models that you described?

7. In addition, do you think it is possible for other players (large / small) in the fashion industry to adopt such a business model or add it to their own business model?
8. Can you give examples of business models that you see around you that focus on sustainability / circularity?
9. How do you see the role of technology in the creation and development of these new business models?

Fashion startups

10. How do you see the role of start-ups in the fashion industry specifically in the transition towards circularity?
11. Do you believe that innovative fashion startups have an impact on established players in the fashion industry? If so, how do they respond to these start-ups?
12. Do you think that the new innovative circular business models of start-up companies could become the new normal in the industry?

Other influences

13. In line with that, Could you maybe give some sort of prediction about how you think that the fashion industry will look like/what has changed, in about 10 years time?
14. Finally, who or what do you believe are other important players that drive the transition towards circularity in the fashion industry? (government, consumers)

Appendix B

SCHEME OF CODES