

Malak Hajji

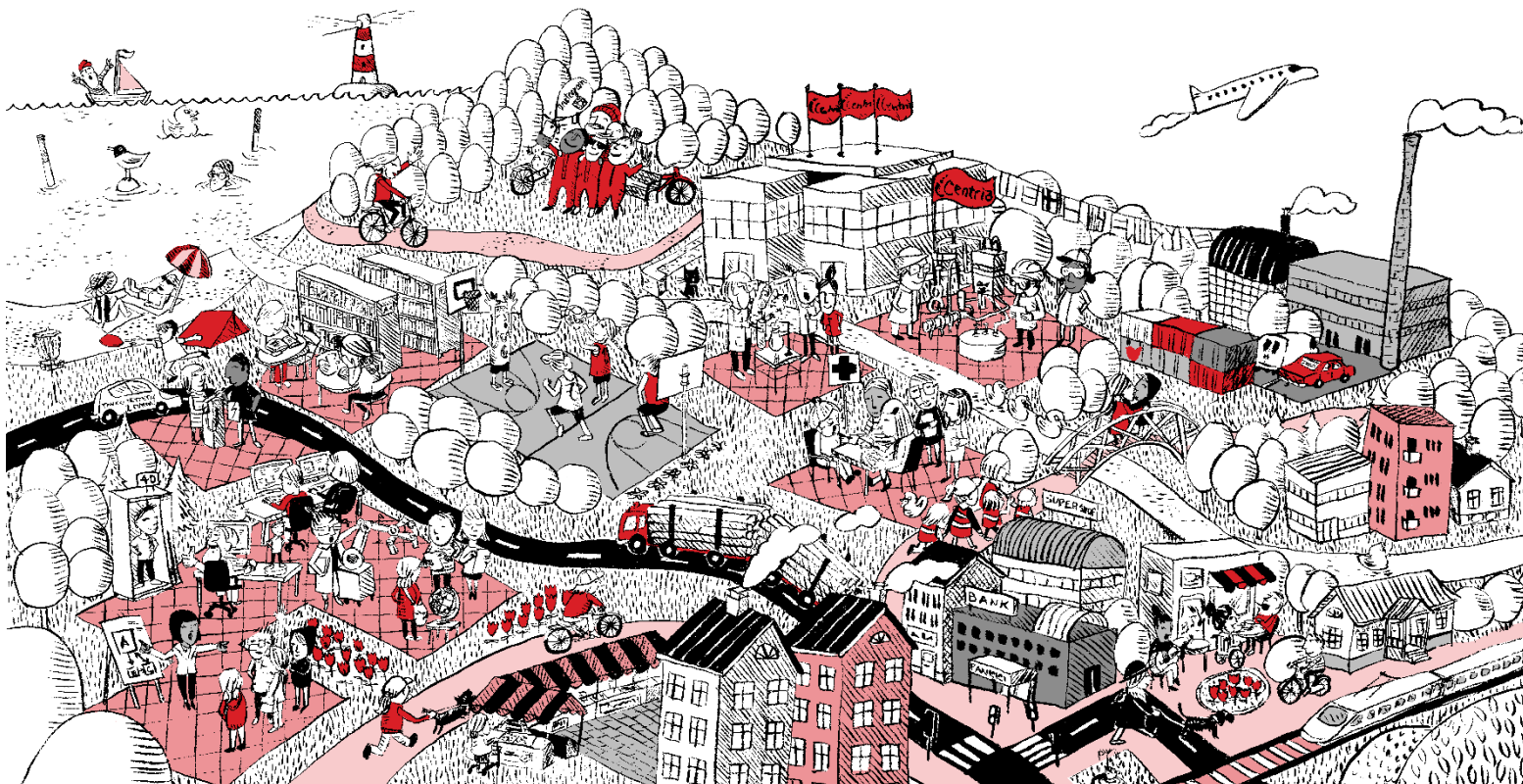
TEXTILES AND FASHION INDUSTRY IN THE WORLD'S CIRCULAR ECONOMY

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ABSTRACT

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Name of Thesis TEXTILES AND FASHION INDUSTRY IN THE WORLD'S CIRCULAR ECONOMY		
<p>This thesis discusses the circular economy concept as a new industrial revolution that strives to minimize raw material intake and waste output to the environment by closing economic and ecological resource loops. The study's goal is to promote sustainability and environmental consciousness in the fashion industry, as well as to find the value of product design and business model strategy in the fashion industry for adopting circularity, decreasing waste, and reducing overconsumption. This paper discusses the circular economy concept's prospects for sustainable development. The theoretical section of the thesis explains the phenomena of the textile industry, the circular economy, the history of the concept's evolution, several suitable business models, and chances for global advancement. The research portion of the thesis investigates the hurdles, scenarios of possible transformation, and viewpoints that businesses encounter during the implementation process of the circular economy for its potential strategic sustainable growth. The quantitative technique is the fundamental methodology for the research, and it proposes a procession framework for fashion businesses to adapt circular economy to their operations.</p>		

Key words

Business model , circular economy, csr , linear economy, sustainability,

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1 INTRODUCTION

Textiles have long been an integral part of our daily lives and society, with a wide range of products spanning from fashion and apparel to healthcare, industrial materials, and automobile upholstery. We live in a world where many ethical and moral principles are no longer followed by industries, particularly the fashion sector. Consumers, investors, shareholders, and other stakeholders are becoming more conscious of the situation's urgency and are increasingly lobbying for and appreciating responsible production practices. Companies must consequently reconsider their production processes in order to adhere to responsible practices in terms of the ecological, social, and economic factors, as well as the long-term viability of their operations. Indeed, the fashion industry is a sector with a high environmental impact; it entails a long and sophisticated supply chain that is linked to high water and energy consumption, chemical use, water and air pollution, trash production, and finally micro plastic generation. In particular, textiles and clothing waste has become a major global issue, making it an intriguing topic for me to pursue as a thesis.

This thesis aims at analyzing the sustainable practices and the transition to a circular economy in the fashion, as well as discovering the importance of product design and business model strategy for circularity implementation, the waste minimization and overconsumption in the fashion industry then suggesting a processual framework for fashion brands to adapt circular economy to their operations using a qualitative research based on collecting secondary data then visually presenting the research findings, the study will be completed by exploring theoretical models and secondary data, with limited business examples, and is thus conceptual for implementing full circularity. Nonetheless, the study gives a summary and insight into the intersection of fashion and circularity, which could be examined further.

1.1 Research background and basis

The circular economy concept contains two long strands: the first is concerned with the movement of materials through an economy, and the second is concerned with thinking about the economic conditions that can cause such a flow. These two intellectual streams have a symbiotic relationship with the present environmental movement that dates back to the 1960s and 1970s. The materials strand arose from the notion of 'industrial ecology,' which, along with the related phrase 'industrial symbiosis', was used in economic geography in the 1940s to define the determinants of industrial site in order to maximize resource consumption and reduce waste. Then, in the 1970s, the concept of Circular Economy (CE) arose with the goal of lowering the consumption of inputs for industrial production, but it has since proven to be potentially applicable to any resource. CE advocates a change in the "extraction-production-disposal" paradigm of linear economy (LE), which is now used on a huge scale in the industrial environment, by employing the natural cycle model to make human activity more robust. This concept has gained support in public policies such as those of the European Union (House of Commons, 2014) and has been applied as a national development strategy in China.

Severe anthropological and environmental impacts are occurring as a result of the estimated population growth of 9 billion people by 2050, such as a decrease in biodiversity, which worsens the ecological imbalance on a large scale, and a scarcity of raw materials due to demand extraction by millions of inhabitants, which causes fluctuations in market prices and instability in the global economic system.

1.2 The Emergence of the idea

Natural resources have been and continue to be the cornerstone of life and economic prosperity in our globe for generations. The issue of natural resource scarcity is significant in the context of economic expansion and industrial scale. Economic growth is required for humanity's demands to be met. Economic growth should be a long-term trend in the economic system's sustainable development, the process of gradual rise in real production of goods and services in the long run without disrupting the equilibrium state in the short run.

The issue is that mass consumerism, rising living standards, increased global population, and the linearity of our economic system result in a scarcity of natural resources, social inequity, and environmental damage. Of sure, a portion of the population's living standards have improved dramatically over the last 50 years, but environmental challenges have also increased: global warming, air and water pollution, the disappearance of certain species of animals and plants, mass deforestation, desertification.

As a result, such fundamental questions become urgent: how can economic and social progress be produced without jeopardizing the planet's natural balance? How should resources be distributed between developed and underdeveloped countries? And the essential question: how can we ensure that the Earth is healthy for future generations?

1.3 Thesis problematic

The formulation of research main problematic and second questions was carried out after a detailed study of the theoretical part, which is presented below in this thesis.

After stating the central general question: Can the Circular Economy replace Linear? More specific issues were identified such as:

- How difficult is it for companies to move to the circular economy direction, what is the main barrier?
- Is there a future for the circular economy development?
- How Investing In Sustainability Will Impact Fashion's Future ?

It's critical to have a forecast. We need to know where we're heading and why this concept is important to us. If the world continues to consume so many resources and grow at such a quick pace, our future generation will not be able to enjoy a full life. We require changes in the structure of conduct, perspectives, the economy, and development.

1.4 Conceptual framework of the research

Circular economy is gradually gaining traction in a variety of study sectors. The foundation concepts of circular economies are based on a distinct view on, and management of, resources,

with the idea that ever-increasing economic progress and profitability can occur without ever-increasing environmental pressure. As a result, as the sector with the biggest environmental impact, the built environment has a lot to contribute. However, the few documented cases of current circular economy research in the built environment appear to have simply substituted the 3R principle (reduce, reuse, recycle) with the new 'buzz-word'. In this study, we suggest that if the circular economy is to live up to its promise of being a new paradigm for sustainability, a radically different research methodology is required. As a result, we suggest a paradigm for developing building research from a circular economy standpoint. The framework is based on six pillars and recognizes the importance of interdisciplinary research as well as bottom-up and top-down initiatives in facilitating the transition to 'circular' buildings. Despite its theoretical nature, the framework has been tested against current discourse on buildings and circular economies, and it has proven to be a powerful tool for clustering existing projects and highlighting missing interdisciplinary ties. As such, it can serve as a useful beginning point for contributing to the theoretical underpinnings of building research within the new paradigm of circular economies, as well as shaping future research directions.

2. FASHION INDUSTRY

The fashion sector includes a wide range of smaller and more specialist industries. People frequently associate it with retail/online businesses, design firms and companies, and fashion periodicals. However, there are other artisans and industries involved in the production of clothing. Those who produce and sell fabric and notions are evident, but there are also flower makers, embroiders, seamstresses/tailors, and many others. Models, stylists, hair stylists, make-up artists, model agents, photographers, and a slew of other non-fashion businesses all contribute to the greater fashion eco-system.

Change occurs quickly and frequently in many businesses, particularly those focused on the customer. The industry and the customer are always changing. Fashion retailing is no longer limited to huge fashion firms, fashion publications, and retail stores/catalogs, but has developed with the introduction of TV channels that offered a variety of commodities, including fashion, and later with the Internet and online shopping.

The development of the Internet has had an influence on all aspects of the fashion business, not just the selling end. It plays a role in supply chains, advertising, communications, brand awareness, and other areas, and it has blurred the distinction between company and consumer. Social media outlets have become significant not just for selling fashion, but also for anticipating and defining future trends. Bloggers and other influencers can help sell things, but they can also be utilized by "Fashion Forecasters" who look at Instagram, other social media platforms, and street-style blogs to predict what's next.

With all of this growth, the fashion industry became the second largest polluter in the world just after the oil industry. And the environmental damage is increasing as the industry grows. It accounts for up to 10% of global pollution. However, the industry continues to grow, despite

rising awareness of the environmental impacts, in part owing to the rise of fast fashion, which relies on cheap manufacturing, frequent consumption, and short-lived garment use.

2.1 Industry overview

The fashion industry is divided into four distinct levels. The first is the primary level, which consists of raw material producers. This level includes the whole creation of cloth and yarn, as well as other materials needed to manufacture garments and apparel in accordance with a particular design.

Textiles can be natural or man-made. Man-made textiles are typically thought to be more polluting than natural fibers; however, this is not always the case (Weetman 2017: 168-170). Moving on to the next level, garment makers. Most fashion brands operate at this level since they create clothing and buy raw materials from primary level producers. There are significant disparities amongst players in this industry, ranging from high-end luxury, haute-couture, and made-to-measure fashion to fast-fashion enterprises. As an example, consider two well-known fast-fashion companies: the H&M Group, which owns brands including as H&M, Weekday, and Monki, and the Inditex Group, which owns Zara, Bershka, and Stradivarius, among others. Following the creation of garments, the third level of the sector is retail. The clothing is delivered to retail stores and made available to consumers at this level. Some companies, such as the previously mentioned H&M and Inditex, own their retail shops and operate at this level of the sector as well. The fourth and final level is the auxiliary level, which includes players such as the media, consultants, and organizations that function in all of the above levels at the same time, providing support services. Companies at this level of the sector work in areas such as fashion public relations, media, and advertising. All stages of the fashion business comprise distinct yet interconnected industries (K. 2017; Britannica 2019).

2.2 Industry in the corona era

It has been a difficult period for every area of the economy. Governments shut down production companies, shopping malls, and stores to slow the spread of the virus. The fashion/clothing business, one of the world's largest, with \$2.5 trillion in global yearly revenue, found itself

especially vulnerable to the pandemic's harmful effects. As more people work from home and spend the most of their time at home, getting dressed has become less important. Furthermore, because occasions such as weddings, celebration parties, and vacations were canceled or postponed, demand was reduced. As an outcome, the average market capitalization of clothing, fashion, and luxury firms fell over 40% between the beginning of January and March 24th, 2020, according to the BOF's *The State of Fashion 2020: Coronavirus Update*.

Lockdowns expedited and boosted the expansion of e-commerce, serving as a warning that crises can offer new avenues for growth. “The sudden closure of all apparel retail stores across all major global markets has shaken up the channel mix in an unprecedented way this year. It’s five years’ worth of growth achieved in about six months,” said Bernstein’s Aneesha Sherman. As a result, when individuals had to stay at home in 2020, they began purchasing garments online. Fast fashion retailers such as H&M reported a 36 percent increase in online sales between March and May. The international sales of the online retail giant ASOS Group increased by 17%, while Europe's largest e-trailer Zalando expects earnings to reach a record €300 million this year in online shopping. Inditex, the world's largest clothes retailer company, saw online sales increase by 50% year on year throughout the quarter, and by 95% year on year in April. However, these figures are insufficient to save the fashion industry because, previous to the COVID-19 epidemic, 80 percent of fashion industry transactions took place in physical locations. In that environment, after being hammered in every aspect of the business, from manufacture to demand, and in light of the global economy's most recent condition, it does not appear that people's quick fashion approach and perception will remain the same for a long period of time. However, the level of pollution caused by the fast fashion industry (prior to the pandemic, the fashion industry produced approximately 1.2 billion tons of carbon emissions per year) remains, and the current period is seen as the best time to rethink what the fast fashion industry truly stands for. As Vogue’s Anna WINTOUR said “And I think it’s an opportunity for everybody to slow down, produce less, and really make the world over fall in love with the creativity and passion of fashion.”

This business is characterized by an internationally integrated supply chain, and while China remains a big supplier of fashion goods globally, as seen in Figure1, it has also emerged as a significant consumer of this industry.

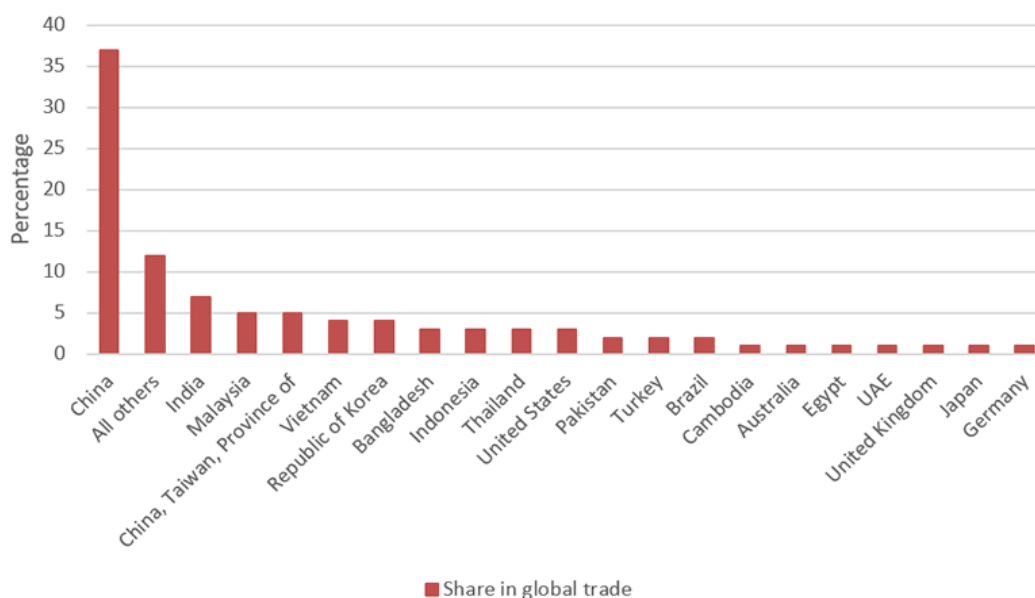


FIGURE 1. Share in global trade

2.3 The environmental cost of Fashion

With a global worth of more than 2.5 trillion USD and a workforce of over 75 million people, the fashion sector is an essential aspect of our economy. Clothing output more than quadrupled between 2000 and 2014, demonstrating the sector's extraordinary rise over the last few decades. People bought 60% more clothing in 2014 than in 2000, but they only kept them for half as long. (McKinsey & Company, 2016).

While the fashion business is thriving, greater attention has been drawn to the industry's amazing spectrum of negative environmental repercussions. Fashion production accounts for 10% of global carbon emissions, dries up water supplies, and pollutes rivers and streams. What's more, 85% of all textiles are thrown each year (UNECE, 2018), and washing some types of clothes sends significant amount of micro plastics into the ocean.

These are some of the Environmental Footprint of Fast Fashion

Every second, the equivalent of one garbage truck full of garments is burnt or deposited in a landfill. (UNEP, 2018)

Plastic accounts for about 60% of all materials used in the fashion industry. (UNEP, 2019)

Washing clothing releases 500,000 tons of microfibers into the ocean each year, the equivalent of 50 billion plastic bottles. (Ellen MacArthur Foundation, 2017)

The fashion sector accounts for 8-10% of global carbon emissions, which is more than all international flights and marine transportation combined (UNEP, 2018). If the fashion industry continues on its current path, its contribution of the carbon budget might rise to 26 percent by 2050. (Ellen MacArthur Foundation, 2017). The fashion sector consumes 93 billion cubic meters of water every year, enough to cover the requirements of five million people, adding considerably to water scarcity in some areas (UNCTAD, 2020). The apparel sector is responsible for approximately 20% of all industrial wastewater contamination globally. (WRI, 2017). Fast fashion has a human cost as well: textile workers, mostly women in poor nations, are sometimes paid pitiful pay and pushed to work long hours in deplorable circumstances. (UNEP, 2018; WRI, 2019). In many places, these conditions create infringements on human rights (Human Rights Watch). The use of chemicals in clothing manufacture also raises major health issues, both for industry employees and for customers. The previously mentioned pollution has additional health consequences. The environmental and social costs of the fashion industry push us to reconsider fast fashion and emphasize the importance of more sustainable business models and practices.

2.4 Corporate social responsibility in the fashion industry

CSR is a voluntary process on which each company determines its strategy. What is the role of the CSR in a company? Why the development of this strategy worth for the company?

Brands put forth a lot of effort to promote their positive image. They can accomplish this in a variety of ways. Today's consumers, particularly millennial, expect businesses to not only have a positive image but also to have a beneficial influence. This is an example of corporate social responsibility. Corporate social responsibility is defined as the practice of achieving long-term development by providing economic, social, and environmental benefits to all stakeholders. It is also a very powerful fashion brand. Fashion businesses have gotten increasingly interested in promoting their corporate social responsibility efforts through various media platforms. Consumers and shareholders expect brands to be socially responsible now more than ever. In a 2015 Global CSR Study, it was found that 90% of consumers would boycott a company if poor

business practices were utilized, and 91 percent of worldwide customers expect businesses to act ethically in order to address a wide range of social and environmental challenges. Major fashion labels have taken notice and have used a variety of communication methods to further promote their corporate social responsibility efforts.

When done right, CSR can be a very effective tool for communication professionals. Sustainable fashion is a hot topic as well as a well-known CSR strategy. Today, marketers are constantly pushing this through a variety of media outlets in order to reach as many people as possible. It is not only effective for brands to convey how they are ethical and socially responsible; it also generates a positive brand image and helps build relationships with all consumers and stakeholders.

3. THE CORNERSTONE OF SUSTAINABILITY

The study of how natural systems function, remain diversified, and provide everything required for the ecosystem to remain in balance is the definition of "sustainability." It also recognizes that human civilization necessitates resources in order to sustain our modern way of life. We currently live in a modern, consumerist, and primarily urban world throughout the developed world, and we utilize a tremendous amount of natural resources on a daily basis. Sustainability and sustainable development are concerned with balancing competing requirements our desire to advance technologically and economically, and our need to safeguard the surroundings in which we and others live. Sustainability is about more than just the environment; it is also about our collective health in ensuring that no people or areas of life suffer as a result of environmental legislation, and it is about examining the long-term consequences of human actions and asking questions about how they can be improved.

3.1 Relationship between the circular economy and sustainability

Throughout evolution, man as a part of nature and nature as his original surrounding have been in ongoing interaction. Humans assured supplies for life, reproduction, and so survival and development through this relationship. Man has exploited material resources from the environment to an ever greater extent by learning from nature and accumulating knowledge for generations, and made commodities for his own use by applying various technologies acquired during the evolution. We can say that all of the objects, goods, and other things that surround us are derived from material resources found in man's natural surroundings. One of the most important discoveries made by man is that whatever he requires may be produced utilizing resources from that environment, assuming he has acquired the relevant technology. Throughout history, and until recently, resources were thought to be limitless. Some resources, however, are restricted. The word "renewable" resources is frequently used, usually referring to solar energy, wind energy, water energy, and so on. However, the term "renewable" isn't

totally appropriate. Solar energy, in particular, is constantly emitted and is not replenished. The same is true with wind energy. Water energy is renewable in proportion to the renewal of water quantity in specific water courses. Nature's material resources, such as diverse minerals, are finite. Their usage in the manufacturing of items for human consumption has an environmental impact, some of which have negative consequences on the environment, in addition to the consumption of finite natural resources.

3.2 Reduce, Reuse and Recycle

To transition from a linear to a circular economy, we must maximize the efficiency of each process in a product's or service's life cycle. Waste management has risen to the top of the priority list. The circular economy is distinguished by the "3R" - Reduce, Reuse, and Recycle. Not only does the transformation necessitate changes in technology, which should be kept to a minimum, but also in creative areas such as design, advertising, and digital technologies.

Table 1. Learn the 3 R's - Reduce, Reuse, and Recycle. (Evans 2019)

Principles	Goals	Methods
Reduce	Controlling and balancing renewable resources allows us to save and grow our ecological integrity.	Recycling, virtualization, sharing, and rejuvenation are all examples of renewable and finite resources. Inventory control.
Reuse	To maximize manufacturing resources, looping processes and more efficient usage of commodities, materials, and their distinct components are used.	Reuse or sharing, optimization, and looping are all terms that can be used to describe these concepts. Four looping cycles exist: at the consumer (sharing), service provider (reuse), producer (recovery and repair), and component level (recycling).

Recycle	Identifying and disposing of hazardous tools and methodologies	Minimization of systematic losses and negative economic repercussions
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3.3 Purpose of a circular economy

The previous section reported a wide range of perceptions about how the circular economy is envisaged, defined, and meant to achieve. This section attempts to synthesize the ideas presented in the preceding sections into a coherent narrative, many of the aspects of which will be examined further in the remainder of this study. Most notably, the goal of transitioning to a circular economy is to decrease the depletion of precious natural resources, reduce environmental harm from virgin material extraction and processing, and reduce pollution from material processing, usage, and end-of-life. The primary means of accomplishing this is to increase the efficiency and productivity of resource use while decreasing the amount of material disposed of. This, in turn, will necessitate new business models that incorporate closed supply chains, regenerative design, and reverse logistics to extend the life of products, thereby retaining the value in their materials and the overall value derived from them for a longer period of time, resulting in fewer materials ending up as waste. Such business models must be financially sustainable, which is now hampered by a slew of impediments. Removing these will necessitate major changes in the economic context in which they operate, changes that will necessitate a variety of public policies as well as changes in company organization.

3.4 Transitioning from a linear to a circular economy

Transition, in the broadest sense, refers to processes by which states and peoples attempt to attain economic growth and development, as well as to approach the developed world countries, mainly those of North America and Western Europe, in terms of social welfare. Although the term is typically associated with developing countries aiming to achieve the aforementioned goal, there is no reason why the transition as a phenomenon should be limited to the developing world. Rich states, in particular, strive to maintain optimal conditions for social development and new, greater economic growth to the maximum extent feasible, resulting in a higher quality of life and a higher standard of living for their residents. It should be noted that some nations refused transition under strict neoliberal criteria, which resulted in fascinating results while also

providing an alternative as a framework for study and re-evaluation of the neoliberal economic idea. When looking for alternatives to the stringent restrictions of the neoliberal economic idea, the necessity for a more rapid rejection of the neoliberal economic concept emerges first. In the search for new solutions, it is becoming increasingly clear that there are significant limitations in the availability of valuable material resources, as well as the fact that environmental protection demands are increasing all the time, and that it is no longer possible to ignore these facts.

As a result, it is possible to say that circular economy is a new revolutionary concept of the twenty-first century economy, providing a high-quality answer to the global environmental crises and climate changes. Circular economy is a fundamentally different approach to all economic activities, not just in terms of sustainable resource extraction, but also in terms of social responsibility and more uniform economic development. In this way, the concept of linear economy is effectively abandoned since it has become too costly and unsustainable in terms of long-term competitiveness. The basic assumption in the transition from a linear to a circular economy as shown in Figure 2 is a feedback circle that returns collected and recycled waste as a valued raw material back into the production cycle. Depending on the technological qualities, a single type of trash can be recycled numerous times and utilized in following production process cycles.

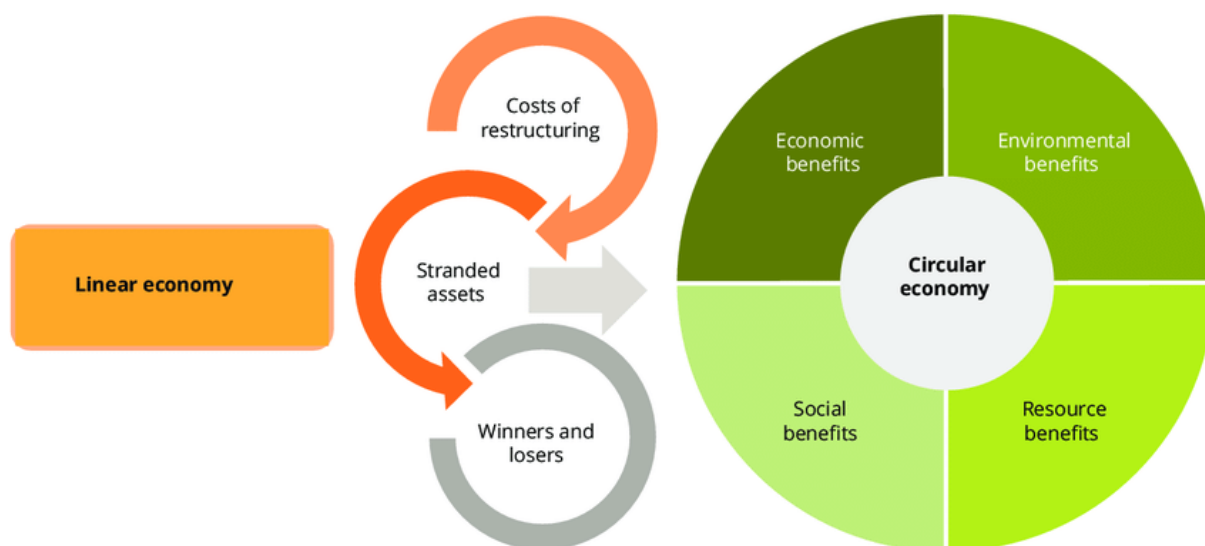


FIGURE 2. EEA Report No 2/2016 (McKinsey 2015)

4. RESEARCH METHODOLOGIES

The aim of this chapter is to report the findings of the specific study and describe what was accomplished in a methods section.

4.1 Target Group

The research is split into several important phases. First, an expert interview was chosen as a means of carrying out this study; interviewing experts in the field of textile industry was chosen as a method for a research component of the thesis. An expert interview is a qualitative research approach that consists of a dialogue with a knowledgeable professional on the issue of the circular economy and a researcher. The expert is from the H&M Company and is familiar with the specific aspects of the thesis's research issue.

This company was chosen based on a variety of criteria. First and foremost, the company should be involved in the textile industry and have prior experience with the development of a circular economy. Within the scope of this concept, it must have a business structure. Second, the company's size and age were critical considerations.

Small presentation of the company:

H&M is a Swedish international apparel retailer based in Stockholm. It is famous for producing fast-fashion apparel for men, women, youth, and children. As of November 2019, H&M operates in 74 countries, with over 5,000 stores operating under several business brands and 126,000 full-time equivalent employees. H&M announced in April 2021 that actress Maisie Williams will join the brand as a global sustainability ambassador to assist lead the company's effort to utilize entirely recycled or sustainably sourced goods by 2030. The actress's first effort will also partner with the computer game Animal Crossing, with Williams transforming into a digital game character to preach the advantages of recycling. H&M announced a temporary rental clothes service in May 2021, allowing men to hire suits for up to 24 hours for job interviews. It originated in the United Kingdom and was being tried in the United States.

4.2 Research methods and Data collection

The major criteria for choosing the expert for the interview were competence and credibility. While in Stockholm, I did one interview to determine expert opinion. Respondent was chosen by reviewing the websites of the most fascinating enterprises in Europe's circular economy, as well as professional qualifications listed on LinkedIn.com.

During the interview, I reached an agreement with the expert to publish his responses in this study without identifying his identity for privacy considerations.

The theory of the concept under examination was used to prepare for an expert interview. Four significant concerns for analysis were highlighted as a result of this. The inquiries touched both the expert's personal view and the company's approach. Each question's wording allowed for free assertions and thoughts on the subject.

4.3 Analysis of the research answers

Following a thorough examination of the theoretical section, which is presented in this thesis, research questions were developed. More specific concerns were discovered after stating the core general question: "Can the Circular Economy Replace Linear?" The following is a list of the four primary research questions, as well as their significance to the research.

“How new is the circular economy concept for you?”

Objective: This question allows us to get to know the respondent and learn about his personal experiences with the circular economy concept. It presupposes a free formulation of the solution with precise statistics. The response to this question gives an idea of how long the expert has been working on the study concept.

Response: I first heard about this concept three or four years ago; it's still very new to me as a concept, and I think it's a fascinating approach.

“Why did H&M start to develop in the circular economy direction?”

Objective: The studied company has its history of sustainable development. To demonstrate the possibility of sustainable development in the frame of the circular economy concept to other companies throughout the world, we need to learn the ways of development of the leading companies: motive, mission, and vision.

Response: H&M saw that the world needs to make the transition towards the circular economy not only as kind of operational model but also as an economic model. They have done a lot of work around sustainability and corporate social responsibility, but when they started, the circular economy was the big goal. At the time when sustainability team started, which is nearly now three years ago, there was a little discussion about the circular economy. But now the time is with us, and it is moving in the right direction. Now it is easier to talk about the circular economy and use the term, since much more projects are going around it.

“How difficult is it for companies to move to the circular economy direction, what is the main barrier?”

Objective: The shift to something new is often fraught with difficulties. Based on the expert's personal experience and company experience, this question aims to demonstrate the reader the issues that companies and the world may encounter during the transition from a linear to a circular economy. Identifying the key barriers and being prepared for them is often enough, and then the best approach may be established.

Response: I don't think it's tough since the first step is for the company to begin exploring the circular economy concept, and the second step is to explore and understand which concepts are most important to them. We're discussing the new economic model. The circular economy encompasses a wide range of concepts, not all of which are applicable to every business. The first sound suggests that we need to change everything and that no one can do it, but this is not the reality. Companies can draw out their journey and receive a roadmap step by step. It is far more important to plan than to face enormous obstacles. One key impediment could be that it is a completely new business model; from the outset, there will be winners and losers because some organizations may lose their old business. They must shift to a different type of concept. Companies must consider these concerns from a strategic standpoint. One issue is that they cannot implement the circular economy on their own. They require a network and an ecology. This necessitates trust in their spouses. One aspect of the circular economy is the distribution

of value: who gets what and who doesn't. It requires a whole new economic strategy. "Does the circular economy have a future?" It's critical to have a forecast. We need to know where we're heading and why this concept is important to us. If the world continues to consume so many resources and grow at such a quick pace, our future generation will not be able to enjoy a full life changes in the structure of behavior, beliefs, the economy, and development are required. Experts in this field weigh in on the prospects for the growth of the circular economy concept. The circular economy is the way of the future. It will have a significant impact on how firms operate in the future. It gives chances for businesses to try to close the loop, it provides an opportunity to preserve materials and add new value to clothes that have reached the end of their useful life.

5 ANALYSIS OF THE EMPIRICAL STUDY

“With our size comes responsibility. The way fashion is consumed and produced today is not sustainable. We have to transform the industry we are in. Our ambition is to transform from a linear model to become circular.”

- Pascal Brun, Head of Sustainability at H&M

Retail firms such as H&M have built a business model that delivers stylish products at an accessible price to the consumer through fast fashion. Hennes and Mauritz (H&M) was formed in Sweden in 1947 with the goal of providing low-cost clothes. As of 2019, 57% of the group’s materials are recycled or sourced in a sustainable manner, on track to reach 100% by 2030. H&M, as a leader in affordable fashion shopping, has gone a step further by rethinking their product development life cycle. They seek to lead the industry in terms of sustainability by utilizing the circular economy strategy. H&M's value proposition stems from the company's goal of providing affordable contemporary clothing.

They achieve this by not employing any factories, keeping inventories to a minimum, and establishing a responsive just-in-time production system. As a result, H&M maintains a high level of manufacturing for in-season clothing, which sells like hotcakes. The responsiveness is emphasized by the flexibility given by just-in-time production.

H&M's circular economy strategy seeks to optimize the value produced from resources at each level of the value chain. It goes beyond mere recycling and delves into the sourcing, treatment, and design processes involved in the creation of clothing.

Aside from maximizing the use of existing materials, the circular approach has led in the development of new business models for overhauling each stage of a garment's value chain. Although the company is still a long way from reaching their lofty goals, its existing supply chain and circular initiatives serve as a work-in-progress roadmap for other industry players to build on for a more sustainable future in the garment sector.

5.1 New business models

Actions done to efficiently utilize resources necessitate innovative adjustments to business strategies. Self-disruption in business models was listed as one of the top goals for fashion companies in 2019, indicating a need for change in the industry by 79 percent of top fashion executives (Business of Fashion 2019). This shift is being fueled by technological advancements and consumer demand for novelty. Traditional brands must disrupt their own operations in order to remain adaptive and competitive in the current day.

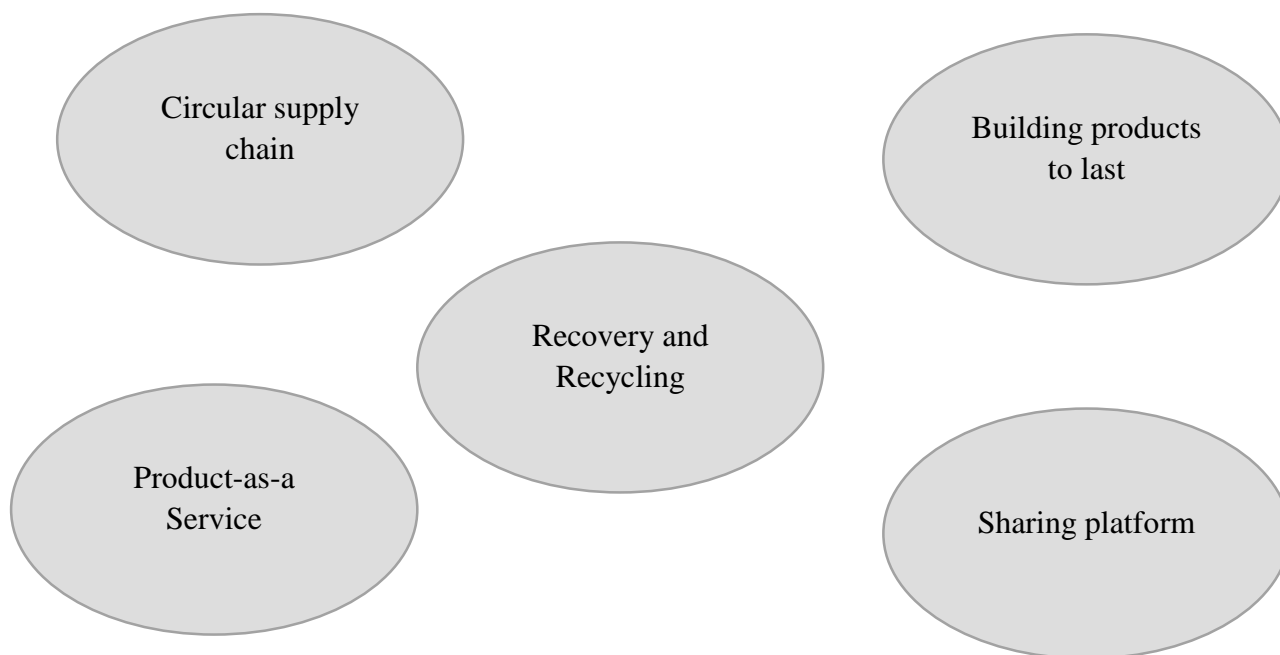


FIGURE 3. Circular Business Models (Esposito et al. 2018)

The five business models represented above (figure 3) attempt to convert firms' waste into value and are intended for long-term success in order to assist businesses in implementing circular models. By constructing a business model based on circular economics principles such as circular supply chain, recovery and recycling, building products to last, sharing platform, and product-as-a-service, a company can reduce its material use by 90% and increase its gross profit by 50%, leading to the creation of circular growth. These imaginative business models can be used to the fashion sector, where the four levels create, make, and sell products and materials. By changing the way companies conduct business in the industry, the companies shift away from linear consumption aids in the reduction of negative consumption habits and unethical behavior within the fashion industry, as well as the creation of opportunities to revolutionize

the market as seen now. Major changes in business models necessitate top-down perspective shifts, highlighting the necessity for managerial vision-driven disruption in firm actions.

The waste is changed into a useful resource in the recovery and recycling model by identifying ways to reuse waste generated throughout production cycles and integrating the new material back into the business model's production stage.

The most serious problem in the fashion industry is textile waste. It is a byproduct of production that leads in clothing being improperly discarded to 25 landfills (Ellen MacArthur Foundation 2017). One technique to use this business model in the fashion sector is to sort and process garments and textiles by color, then chemically rework the fibers to make new yarn, and then produce new fabric material. Textiles and clothing can have much longer lifespans and escape being burnt or disposed of by enterprises who participate in these types of manufacturing operations. Returning textiles to the primary level of the fashion business advances circularity and reduces textile waste, as well as saves water by growing less cotton for textiles (Pölkki 2017). Major retailers, like as the quick multinational H&M, have taken steps toward this business model by providing clothing recycling options in their shops. Fast-fashion brands held by the H&M business, such as COS, Weekday, and Monki, as well as all other brands owned by H&M, account for a significant portion of the fast-fashion industry in Northern Europe. The parent company's commitment to environmental consciousness extends to the company's brands. 57 percent of the H&M group's resources utilized to make their products are obtained responsibly or created from recycled materials (H&M 2019a). Actions like those performed by the H&M group inspire others to take more sustainable actions, which reflect well on the firm and help to lessen its environmental effect on the globe (H&M 2019b; H&M 2019c). The circularity of resources has been observed to reach even big fast fashion operators such as H&M, providing hope for the future of sustainability in fashion and its entry into mainstream purchasing behavior. Having huge international fast-fashion companies understand and adjust their ways to more sustainable practices provides information into the consumers as well. Companies are making efforts to shift toward these processes as consumer demand for sustainably sourced clothes grows.

New efforts are being developed as part of the circular business model to improve each stage of the value chain, from material development to re-use and packaging. In addition, H&M created Treadler, a B2B service that helps other garment retailers expedite sustainable improvements in their value chains by providing access to its own supply network.

Following the unveiling of H&M Group's circular economy and climate-friendly ambitions, with the goal of establishing a circular economy across its whole business, the group aimed to expand on this work by creating a path for a 'circular ecosystem.' This strategy adds to the country's climate and biodiversity goals. The H&M Group's aim to create a "circular environment" is built on three pillars:

- Circular products: Making long-lasting items using safe, recycled, and more sustainably derived materials (either naturally produced, farmed, or created through renewable technologies) that can be recirculated several times.
- Circular supply chains: Product recirculation systems that support circular industrial processes and material flows.
- Circular consumer journeys: Making it easier to experience and participate in a circular economy in which things are used more, repaired, reused, and recycled.

5.2 CSR leadership

H&M Hennes & Mauritz Retail Private Limited is a global fashion and design conglomerate. As a responsible company, it has participated in social initiatives that help to improve the quality of life in the communities in which it operates since its foundation. Activities will be performed to meet diverse needs in the communities in which it operates, in accordance with its overarching sustainability objective.

H&M has taken the lead in introducing circular economy sustainable practices. The brand has introduced a paradigm shift in the way clothing is created and worn. That is, without compromising its core value proposition of supplying trendy and affordable clothing to customers. While overhauling its own supply chain and implementing other sustainable initiatives, H&M has made charitable donations to the sum of EUR 1.7 million by 2013 for every kilogram donated to the brand. Furthermore, the business has invested in start-ups that can drive technical progress at every stage of the value chain. Renewcell, for example, created a way for reusing wasted cotton pulp to create new fabric fibers. H&M's Conscious Exclusive Collection made use of the same repurposed cloth.

5.3 Product design

Over the last two years, Circulator, a guide and tool have been built and validated to assist product teams in making products that can be managed to keep in circulation, have been constructed with more sustainably harvested components, and are durable and/or recyclable depending on the product purpose. H&M's brand Circular Design Story collection, used an initial prototype of the Circulator tool was used to investigate circular design guidelines for various product kinds. Similar initiatives promoting circular product design are including:

- Jeans Redesign project, where H&M brand, Weekday and Monki are redesigning jeans fit for a circular economy.
- Monki's circular collection (Jan 2021), in collaboration with circular.fashion, featuring timeless items designed to be recycled.
- ARKET's primary focus is on timeless durable designs.

For the material choices; choosing the right raw materials is paramount. Following its material categorization, H&M Group prefers materials that are renewable, recyclable, preserve natural resources and help sustain biodiversity, have a much lower environmental footprint than equivalent raw materials, and safeguard animal welfare.

Product design is extremely important in the fashion industry's efforts to transition to a circular economy. With today's fast-fashion products being badly designed and intended for short-term use, problems arise as garments are discarded owing to low quality. The business models presented (figure 3) all rely largely on designing sustainable products. By designing with circular economy ideas in mind, resource loops can be slowed to build items that last longer and can be re-made to serve a second purpose when the first lifespan expires. Resource loops can be greatly slowed down by implementing new design ideas (Bocken et al. 2016; Weetman 2017: 186-192), as seen below (table 2).

TABLE 2. Design strategies (Bocken et al. 2016)

Slow loops	Close loops
Designing long life	Designing for a technological cycle
Designing product life extension	Designing for a biological cycle
	Designing for dis- and re-assembly

Designing for long-life cycles of products is the first strategy to slow down resource loops.

Designing for attachment and trust means creating goods that will be trusted and loved for a longer period of time.

Designing for dependability and durability specifies the physical durability of the product, ensuring that it will not deteriorate quickly or fail within a specific time frame. With these product design principles in mind, the product is more likely to last longer (Bocken et al. 2016; Weetman 2017: 186-192). The second design method for slowing down resource loops is to plan for product life extension. Designing for ease of maintenance and repair, upgradability and flexibility, standardization and compatibility, and dis- and re-assembly are all part of this.

Designing for ease of maintenance and repair allows items to last longer by maintaining them in usable shape and preserving the product's core functions. With the upgradeability and adaptability design philosophy in mind, products are created in such a way that they can be improved and changed in the future, allowing for additions to the existing product's features. Standardization and compatibility design allows products to have interchangeable repair components as well as be convertible with various interfaces and platforms. Finally, the design for dis- and re-assembly focuses on the product's ability to be easily disassembled and rebuilt in the future for new applications.

5.4 Waste management

Waste management and resource efficiency are critical for the fashion industry to reduce garment waste, with recycling and reuse being the most popular methods. Both of these steps help to reduce the demand for extra resources while also playing a significant part in resource and waste management while concentrating on minimizing consumers unsustainable purchasing to ensure product lifespan (Kant 2016; British Standards Institution 2017: 4-6, 22)

The first circular economy concept, covering resource and waste management, is an important component to consider while transitioning to a circular economy, with adequate and efficient resource and waste management essential to loop resources and construct a resource management strategy. Similarly, the CEOs of major fashion companies are being pushed toward smarter and more effective resource management. One of the four primary priorities for urgent implementation for fashion companies, according to the Global Fashion Agenda, is the effective

use of water, energy, and chemicals. The primary influence seen here is on the primary level of the fashion sector, with textile manufacture and treatment. Denim, for example, requires a lot of water and treatment, which is bad for the environment. Supply chain efficiency and accountability are required to offer an effective resource management plan for waste reduction and the transition to a circular economy. (Global Fashion Agenda 2019; MacArthur Foundation 2017)

5.5 System effectiveness

To maintain a previously established circular economics system, system efficacy must be re-evaluated to ensure the most advantageous utilization of the circular operations. Developing and monitoring the existing frameworks further allows 29 firms to be aware of and design out unwanted externalities. This necessitates taking into account all of the previously described features of the framework and striving to eliminate the flaws (MacArthur Foundation 2015). In 2018, the European Commission developed a framework for tracking the transition to a circular economy, which included ten indicators organized into four major categories to consider. Production and consumption, waste management, secondary raw materials, and competitiveness and innovation are the four domains (Bourguignon 2019). The full list (Figure 4) of the indicators provided by the European Union is seen below.

Circular economy monitoring framework

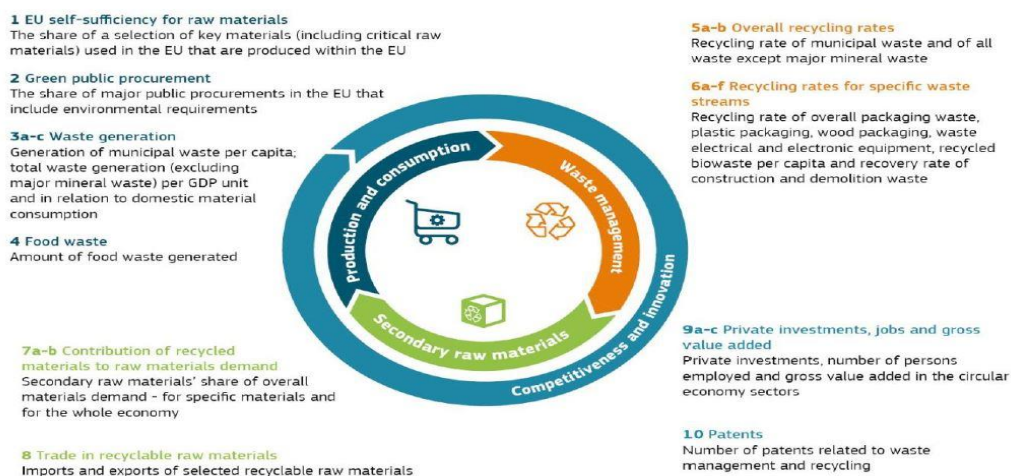


FIGURE 4. Circular Economy Monitoring Framework, (European Union Online 2018)

6 SUMMARY OF FINDINGS

The goal of this study was to provide a deeper understanding of the circular economy and its support to strategic sustainable growth in the textile industry. Furthermore, real-world examples of organizations transitioning from a linear to a circular economy model, as well as their transformation motivations and hurdles, were investigated and shown in the thesis. The study questions are outlined, together with recommendations for further research and findings.

During the thesis research, a great amount of practical knowledge was acquired, which resulted in a deeper grasp of the circular economy idea. The study found that, despite the concept's novelty, implementing the circular economy in business provides economic, social, and environmental benefits. The thesis' theoretical section investigated the phenomenon of the circular economic notion, as well as many appropriate business models. According to the findings of the study, most businesses do not adhere to the goal of being a circular business. Their shift was motivated mostly by a strong sense of social duty and a desire to make the world a better place. Everyone can take the first step toward rejecting the linear economy. All actors, including the commercial sector, governmental sector, and society, can work together to bring the globe to a state of sustainable development. We require proper legislation, public knowledge, and a high level of corporate social responsibility.

Overall, the evaluation demonstrated the significance of fashion evolving toward circularity to be found in business model disruption and product design, allowing products and materials to be looped to circularity. To bring circular consumerism to the public, firms should embrace the growing need for sustainable goods in their communication and marketing. New business models and the disruption of old ways of consuming on a linear approach suggest that established fashion companies may see their revenue drop drastically in the future if they do not adjust to these changes.

The study discovered the significance of product design and business model strategy in the adoption of circularity in the fashion industry.

The thesis proved that the circular economy concept offers significant prospects for global economic development, both locally and globally. There is a need to refine the approach and

find solutions to a number of growing difficulties. We have the ability to build and sustain a better future for ourselves and future generations. The circular economy emphasizes material reuse and the generation of value-added products through services and intelligent solutions, which creates several economic prospects.

This study's contribution is limited to information and time frames. At the time of writing the thesis, the study was based on widely available literary knowledge. The research portion of the thesis comprised expert interviews, which are always subject to restrictions. The chosen specialists possessed remarkable industry knowledge gleaned from their own experience and previous research. The expert interview, on the other hand, lacked a defined structure, in contrast to, say, multiple quantitative surveys in which the same questions are asked of all respondents. The subjectivism of the perception of the research data, constrained by the framework of the theoretical information collected throughout the investigation, was the study's shortcoming. Different factors, such as time constraints, may also have an impact on the research outcome, which may differ from the human factor in both positive and negative ways.

The circular economy concept is still in its early stages, and there aren't enough researchers to go around. Future research should investigate the benefits of various types of business implementation under this notion, as well as methods of mutually beneficial cooperation between enterprises from diverse sectors of the economy, including means of boosting economic, environmental, and social well-being. The influence of circular economy and sustainability models should be comprehended through producing value for all stakeholders. The goal for future research is to identify the "win-to-win" criterion that balances the interests of stakeholders while also ensuring the long-term viability of development. It is vital to investigate worldwide company collaboration. Also relevant are the issues of coordinating the proper logistics for closing the loop. Nowadays, the circular economy is gaining traction in both the public and commercial sectors. As a result, the need for future circular economy research is timely and promising. We have numerous hypotheses and patterns for transitioning from a linear to a circular economy, but they are all quite broad; we need more real-world examples. So far, we've been discussing distinct closed procedures. An attempt to make the idea a general line for the future growth of the world economy, but we have every possibility to make the idea a general line for the future development of the world economy.

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