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**CIRCULAR BUSINESS MODELS IN FASHION INDUSTRY COMPANIES IN ESTONIA
AND FINLAND**

Bachelor's thesis

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I hereby declare that I have compiled the thesis independently and all works, important standpoints and data by other authors have been properly referenced and the same paper has not been previously presented for grading.

The document length is 10020 words from the introduction to the end of the conclusion.

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ABSTRACT

Circular economy principles are being implemented in the fashion industry since it significantly contributes towards environmental degradation, which calls for sustainable changes. Circular economy (CE) initiatives are in place in the fashion supply and value chain networks. Nevertheless, the transition towards a perfect (CE) is slow. Therefore, this thesis aims at researching the adoption of circular business models in the fashion industry in Estonia and Finland and suggest circular business model innovations that can be embraced by fashion companies. The research problem addressed is the existing knowledge gap on how stakeholders in the fashion industry can adopt circular business models by eliminating barriers and utilizing drivers.

To achieve the objective, these research questions were answered: 1) How are fashion brands incorporating circular business models, and what practices are they leveraging in this transition? 2) What are the enablers and barriers to the adoption of circular business models in the fashion industry in Estonia and Finland? 3) How do digital technologies function as drivers toward a circular economy in the fashion industry

A descriptive research design was employed based on the study topic's nature. Qualitative primary data were collected by interviewing five participants who were purposively selected from leading fashion brands in Estonia and Finland. A set of 20 open-ended questions served as the data collection instrument. Two interviews were conducted via one-hour video calls, whereas three were done through email because these interviewees preferred this method, it was a one-time contact, all questions were sent and interviewees responded. The interviewees' responses were used to shed light on the research topic.

The research established that fashion brands in Finland and Estonia are adopting circular business models. More so, sustainably produced fashion products are gaining popularity. This has motivated fashion companies to come up with eco-friendly designs, incorporating circular design principles and upcycling practice. Besides, manufacturers and customers are collaborating

to increase products' lifecycle through repairs to retain their value. Environmentally friendly approaches to waste disposal such as reusing, recycling and reverse logistics are being used, contributing to waste reduction and the establishment of closed loop systems. More so, technological innovations, including green technology and digital platforms, are serving as a driver towards a circular economy in the fashion industry.

Keywords: Circular business models, fashion industry, Estonia, Finland

INTRODUCTION

The fashion industry has long been criticized for its detrimental environmental and social impacts, contributing to greenhouse gas emissions of about 10%, water pollution from wastewater discharge of approximately 20%, and unethical labor practices in developing countries (Revolution, 2018, Papamichael, et al., 2023). As a result, there is an urgent need for the fashion industry to embrace circular economy principles, which seek to eliminate waste and pollution by promoting practices such as reuse, repair, refurbishment, and recycling (Gillabel et al., 2021; EEA, 2021).

The adoption of circular business models in the fashion industry can take various forms, including developing long-lasting products, offering rental services, facilitating re-use markets, and using recycled resources (Colucci & Vezzoli, 2020; EEA, 2021). However, the transition to a circular economy in the Estonian and Finnish fashion industry has been encountering enablers and barriers. This makes it necessary to conduct a study that will cover the adoption of circular business models in these nations, where the fashion industry is a major economic hub.

The research problem addressed by this thesis is to bridge the existing knowledge gap on how stakeholders and shareholders can overcome barriers to adopting circular business models. One of the main barriers to adopting circular economy principles in the fashion industry is the resistance from established businesses that are entrenched in traditional linear models and hesitant to adopt new technologies and processes due to perceived costs and risks (Gillabel et al., 2021). The thesis will recommend ways in which every key player can leverage enablers. This will in turn serve as a practical blueprint towards a circular economy in the fashion industry

This thesis aims at exploring the adoption of circular business models in the fashion industry in Estonia and Finland and suggest circular business model innovations that can be embraced by organizations that have ventured in the fashion sector, irrespective of their size and target market. The study focuses on Estonia and Finland because both countries have demonstrated a strong focus on sustainability and a commitment to transitioning towards a circular economy (Küttim et

al., 2023; Aaltonen, 2020). These countries offer a unique context for investigating the adoption of circular business models within the fashion industry, as well as examining the associated barriers, enablers, and the role of digital technologies in facilitating this transition.

In order to fulfill the research aim, this study sets out to answer the following research questions:

- I. How are fashion brands incorporating circular business models, and what practices are they leveraging in this transition?
- II. What are the enablers and barriers to the adoption of circular business models in the fashion industry in Estonia and Finland?
- III. How do digital technologies function as drivers toward a circular economy in the fashion industry?

To achieve the research aim, primary data were obtained through interviews conducted using a questionnaire consisting of 20 open-ended questions. The participants consisted of five key stakeholders from companies operating in Estonia and Finland. Three were from companies based in Estonia and two from Finland of five participants who took part in the study. This approach helped to gather first-hand insights into the advancement towards a circular economy within the fashion industries of both countries.

The thesis is structured in chapters and subchapters to make it easily readable and have a flow of ideas. The abstract is an overview of the entire research. The consequent chapters are introduction, theoretical framework, research methodology, presentation and discussion of findings, conclusion and recommendations consecutively. Lastly, references and appendices, which will highlight all theory sources referenced throughout this thesis in APA 7th edition format and include transcripts from interviews conducted during data collection respectfully.

1. THEORETICAL FRAMEWORK OF CIRCULAR BUSINESS MODELS IN THE FASHION INDUSTRY

In this chapter, a theoretical overview of the current literature for the following will be given, i) circular business models ii) circular business models innovation iii) sustainability and circular business models in fashion industry iv) use-oriented product service approach in the fashion industry v) barriers and enablers in the adoption of circular business models in fashion industry. These will serve as a guide to the empirical part of this research and will summarize the findings of other researchers. Lastly, the researcher shed lights on the state of the fashion industry in both nations being studied to provide context to the research.

1.1. Circular business models

A circular economy is founded on an economic system where businesses are modelled to enhance products' lifecycle by manufacturing durable products, minimizing resource wastage, reusing and recycling factors of production throughout the value chain. A substantial number of people and businesses operating at micro, meso and macro levels work geared towards promoting sustainability (Coelho et al., 2020). However, there is a dire need to popularize the circular economy agenda in the fashion industry. Circularity fosters environmental quality, economic wellbeing, and social equity for the good of the current and future generations.

The notion of a circular economy and business model changes in this thesis is drawn from theoretical paradigms proposed by the European Environment Agency's report "Business Models in a Circular Economy" (hereinafter: EEA, 2021). As per the report by EEA, a fashion product's lifecycle is categorized into five stages namely: raw materials, designing the product, manufacturing and distribution, usage aspects, and after-life considerations. Across all five stages, it is possible to point out the changes in line with technological innovation, business approaches innovation, and social innovation.

The three Rs (Reduce, Reuse, and Recycle) have been considered as the best solution to problems posed by human civilization waste products. Nonetheless, they have proven ineffective because environmental degradation has exacerbated, and wasteful consumption is still high. As a result, the 10 Rs models are being developed. Organizations may adopt different Rs, but they have similar foundations revolving around avoiding to creating waste, getting the most out of materials, and extending products' lifetime (Reike, et al., 2022). Varying different circular business models are created depending on how sustainable strategy (Rs) they adopt. 10Rs hierarchy has three categories that include design (refuse, rethink, reduce), consumption (reuse, repair, refurbish, remanufacture, and repurpose) and return (recycle and recycle) (Hatzfeld, et al., 2022).

3 Rs of Design: designing business models

These business models are making significant strides because they are designing and redesigning the way the clientele consumes.

Refuse - fashion companies are in a position to refuse to engage in activities, which are against the tenets of a circular economy, such as excess production and resource wastage.

Re-think- it refers to helping customers change their perception of products to champion for long-lasting or shared use. Companies are aiming at encouraging their customers to consider the benefits of using their products sustainably (Hatzfeld, et al., 2022).

Reduce - fashion companies are focusing on producing what they actually need. This means that they avoid having excess inventory, which is a form of wastage (Hatzfeld, et al., 2022). Therefore, retailers and end consumers are supplied with enough stock as per demand.

5 Rs of Consumption: minimizing the negative effects of using

Life is supported by consumption. Therefore, businesses should provide fashion products that can be consumed sustainably.

Reuse - fashion companies and consumers are popularizing reuse of products. This is a step forward towards zero-waste consumption. This reduces cost for producers and consumers at large.

Repair - there is a gradual rise in repair shops that restore used products to extend their life. This has created another business opportunity, especially for SMEs. Manufacturers have also launched repair services at discounted charges (Reike, et al., 2022).

Refurbish - this involves revitalization of old products that have been disposed. For instance, faded colouring can be restored, and the clothes turn out as good as new. This gives the product its original value.

Remanufacture - remanufacturing is about creating new products from what has been discarded. Technology is being used to curb obstacles posed by degraded materials (Reike, et al., 2022). The target is to prevent textile waste from ending up in landfills and incinerators.

Repurpose - in case a product can neither be repaired nor refurbished, it does not mean that it is garbage (Reike, et al., 2022). Through upcycling, waste products are fixed to create new forms of values.

2 Rs of Return: eco-friendly waste disposal

In the event that it is impossible to repair or reuse a product, the returning materials can be used in a resource cache or an energy source.

Recycle - materials can be recuperated from leftovers through chemical or material recycling (Khaw-ngern, et al., 2021). Raw materials can be derived from what have been discarded and do away with the need for activities such as mining that have negative environmental and social repercussions.

Recover - this is the final R. It is the last resort if the other Rs cannot be employed. For example, incinerating combustible garbage can to provide energy (Khaw-ngern, et al., 2021).

Taking on circular business ideas means fashion companies must rethink their entire supply and value chain. This covers the products' lifecycle, from manufacturing to end-of-life (Gillabel et al., 2021). This transition means that companies are tasked with offering solutions to challenges posed by disposal of waste products through eco-friendly use of resources, warranting durability, re-use and recycling to conserve the environment (Michelini et al., 2017). Circular business models come along with numerous advantages such as a social wellbeing, equitable sharing of opportunities, and environmental conservation (Gillabel et al., 2021).

However, shifting to a circular business approach encounters challenges. For instance, some stakeholder might resist changes as it forces them off their comfort zone (Küttim et al., 2023). Additionally, circularity also requires additional capital to incorporate new technologies and transform supply chains which might appear seem risky and expensive (Gillabel et al., 2021).

More so, it is challenging to get the society to get on board with the idea of reusing and recycling waste products, which have been considered valueless over time. For instance, fashion companies are supposed to come up with awareness campaigns to sensitize their customers on the benefits of adopting good waste disposal practices. Notably, offering rewards and incentives to customers who recycle products has proven to be effective (Rauturier, 2019).

Adopting new business practices is key for moving to a circular economy. By using these new models, companies can conserve the environment, get a high return on investments and stay ahead of the competition (Gillabel et al., 2021). For example, renting apparels to consumers such as tuxedos and wedding gowns when needed is a source of steady money and builds strong customer ties (Michelin et al., 2017).

Circular business models have been developed in numerous areas. They prevalently come in the following designs:

1. Circular supplies: companies should prioritize the use of materials that have been recycled and reused. More so, fashion companies should prioritize working with suppliers who produce or source materials sustainably (Gillabel et al., 2021).
2. Producing long-lasting and reliable products: This entails developing products which are resistant to wear and tear. Fashion companies should use sturdy materials and suitable

designs (Küttim et al., 2023). They can also offer repair services to make their products usable for a longer period.

3. Leasing and sharing fashion products: this strategy allows people to lease attires, as they need. For illustration, clothes rental websites, fashion libraries and lending to other has gained popularity (EEA, 2021). This will motivate companies to create durable products, thus eliminating wastage.
4. Eco-friendly waste disposal: This involves re-using and recycling products which have been disposed and making the resources used to manufacture them useful again (Küttim et al., 2023). Companies can run bring-back schemes, make closed-loop supply chains, or work with recycling centres (EEA, 2021).

Additionally, the development of circular business models may imply changes in regulations and policies that will create a setting that favors this new model of circularity. It is the government's responsibility to provide incentives, set standards, and implement policies that encourage the use of circular practices by bringing in measures such as extended producer responsibility schemes, eco-design regulations, and tax allowance for circular activities, laden up with the good name of circular economy (Küttim et al., 2023).

Circular business models are the ultimate formula to changing how businesses operate since they establish a way of creating, delivering and capturing value. Through the aspiration of these models, organizations not only need to make significant contributions to environmental sustainability but also to create new economic opportunities and maintain a competitive advantage (Gillabel et al., 2021). Overall, to actualize the transition, all stakeholders need to take part in the process.

1.2. Circular business models innovation

A business model is a combination of content, structure and management of operations aimed at creating value by exploiting business opportunities. It becomes part of an interconnected system within a supply and value chain characterized by the products it offers consumers. The business model adopted shows how the company creates and maintains economic value. Macro and micro business environments are volatile and unpredictable. Thereby, businesses must adjust to new

trends and dynamics to provide a solution to social-economic problems. This leads to different forms of business model innovations.

As per this point of view, business model innovation is being considered in circular economy literature. CE values can be introduced into business models by existing firms or new startups (Pieroni et al., 2019). Configuring value chain and value creation structures with CE principles increases sustainable production and consumption trends (Hofmann, 2019). This is accomplished by redefining and redesigning how value is created, captured and delivered. A business model in a circular economy offers value by reducing, reusing, and recycling materials required in production, distribution and consumption. This calls for designing closed-loop systems that allow resource and material efficiency. According to Urbinati et al. (2017), circular business models have three dimensions, which include value creation, value capture, and value transfer. The value herein is tangible or intangible (Centobelli et al., 2020). This results in disruptions, risks and challenges in balancing every dimension of sustainability.

Consumers take a prominent role in CE business model because they act as providers and users of resources (Urbinati et al., 2020). Their engagement in purchasing, maintaining and taking care of products, and how they dispose waste after use makes them key stakeholders. More so, the value of a product or service is retained after it is used. This calls for interaction between all members of the value chain.

This innovative process requires companies to adopt, explore and adapt a design model instead of basic planning and execution. There are two major phases in creating a CE business model, which are development (search for business opportunities), and sales stages (business growth). The initial stage entails designing prototypes and identifying potential target clientele for market validation. The second stage starts after sales commence, and the company aims at achieving rapid growth to acquire and retain a viable market segment (Freytag, 2019). Through value creation to serve the target client base, the company shapes the ideal business models where such value streams can operate seamlessly (Bortoloni et al., 2021). Effective implementation of innovative ideas is indispensable, especially in the competitive fashion industry. The new business models are a source of actionable remedies to environmental and social predicaments.

Startup business that are aligned with circular economy principles are termed as circular-born according to Colucci and Vecchi, 2020. They have business operations that are governed by

sustainability principles and values, which are promoted through inventiveness and collaboration within their networks. Remarkably, start-ups are flexible, which allows them to propagate technology in the market at a high speed. Hence, the innovations developed are quickly assimilated into the fashion industry in pursuit of a circular economy.

1.3. Sustainability and circular business models in fashion industry

A circular economy in the fashion industry aims to minimize waste, and pollution, and maximize resource utilization by promoting leasing, sharing, repairing, reusing, recycling, and refurbishing (Küttim et al., 2023). Sustainability is the capacity to maintain a particular process over time. In the fashion business context, sustainability pursues to avert the exhaustion of physical and natural resources to save them for future use. In fashion and textiles, there are numerous initiatives such as regenerative agriculture to produce organic materials such as fibers, dyes and colorings. This provides higher quality apparels and eco-friendly production methods. Producing high quality means that the clothing are long-lasting and repairable, yet they can be thrifted or recycled.

The linear economy is dominated by high requirements of natural resources, which in turn leads to production of large waste volumes (Mishra, et al., 2021). This has negative effects on the environment due to pollution. High consumption of goods and generation of waste characterize the fashion industry during production, over the product's lifecycle and after use phase. For illustration, production of cotton uses insecticides, fertilizer, and herbicides that cause water pollution if they end up in waterways (Mishra, et al., 2021). Additionally, treatment of textiles leads to a substantial percentage of industrial water pollution across the world. Businesses ventured in the fashion industry are striving to innovate practices, which minimize wastage of resources and increase product's lifespan (Mishra, et al., 2021). Their success is influenced by policies and technologies in place.

At the core of a circular economy in the fashion industry, innovations are being made to come up with business models that target to mitigate wastage of resource and environmental degradation at different levels (Jacometti, 2019). The main barriers and drivers that determine the adoption of

sustainable business models are technological, social, policy, and market forces (demand and supply).

Rapid changes in the fashion industry are fostering sustainability. A significant number of organizations are making efforts to come up with long-term business approaches to redefine our future. There is widespread awareness regarding the negative effects of environmental degradation and climate change. The fashion industry is one of the most notable adopters of cutting-edge technologies and is targeting to become a pioneer of the trend towards achieving eco-friendliness. A higher number of people across the globe are pressuring companies to uphold ethics of the production process used by clothing manufacturers (Kapani, 2021). For illustration, sustainable fashion trends are gaining popularity among Generation Z (10–25 ages) (Kovacs, 2021). Thereby, based on this mindset, a considerable number of manufacturer companies have restructured their manufacturing methods. For example, H&M has launched a sustainable fashion line named “Conscious” while Stella McCartney is leading in terms of sustainable production (Aras-Beger, et al., 2020). This shows that sustainability is being applied in the fashion industry as consumers and companies are championing for sustainable products.

Bocken et al., 2016 proposes three approaches, which are, narrowing, slowing and closing resource flows (Bocken et al., 2016). Narrowing resource flows involves minimizing the resources used on every product to cut on resource demand, which has been integrated in resource demand overtime. Nevertheless, this technique has proven to be efficient in creating a sustainable economy, since it is associated with excess and unhealthy production and consumption of goods. Consequently, Bocken and colleagues emphasize that the time aspect should be considered while narrowing resource flows, which is applicable in the fashion industry. The apparel sector is associated with fast consumption of fashion product. The fast fashion business model is dominated by scenarios where the latest trends reach the market fast and in large volumes. In most cases, some companies and imitators use low quality materials with a short product life, which increases consumption (Todeschini et al., 2017). Thereby, reducing materials per product is not enough in the transition towards a circular economy.

The time factor ought to be addressed in slowing resource flows. The objective is to make fashion products, which have a long lifecycle. This is made possible redesigning products or introducing services that can extend the period when products can be used, such as repairing and refurbishing (Potting, et al., 2017). Closing resource wastage loops involves recycling materials

after their end-of-life stage. Recycling strategies should be keen to ensure that the extent of quality of the materials being recycled is retained in the process. The last option is to recover energy from materials. However, as per Bocken et al., (2016), recovery is not fit in circular economy because only a minimal part of the resources is regained. Even if this a justified argument in favour of an ideal circular economy, achieving it is not possible.

From a business perspective, it is apparent that fashion companies and industry welfare associations will embrace methods that make their enterprises more sustainable. Nevertheless, these approaches should not have a negative impact on their sales volume and profitability. This limits efficient use of materials, reuse and recycling (Centobelli et al., 2020). Hence, other stakeholders such as NGOs are tasked with stressing on the advantages of circular economy. Regulatory bodies such as governments and the European Union should enforce regulations, which will make fashion companies to meet circular business model standards.

1.4. Use-oriented product service approach in the fashion industry

The clothing industry is characterized by innovations based on the fundamentals of a circular economy. For instance, companies are trying to link consumption and production to create a loop with interconnected resource cycles as a substitute for viewing each process separately. According to Yuan and Shen, 2019, the fashion industry can become more sustainable by the utilizing five key opportunities. They include: (i) reducing negative repercussion in the production and (ii) laundering phases, (iii) prolonging the product's lifespan, (iv) minimizing landfill waste disposal, and (IV) raising the demand for used products. Thereby, product service systems are geared towards addressing these prospects.

Rental business models are emerging in a circular fashion industry. In recent years, the number of companies in clothing rental business has been increasing. Rent the Runway was the pioneer and launched its platform in 2009. The company started by renting out designer outfits at affordable rates. As of 2018, the company had gained more than 9 million registered members and raked in \$100 million in turnover (Yuan and Shen, 2019). Further, in November 2019, H&M joined the bandwagon and came up with a pilot project focused on rental clothes, which lasted for three months (H&M Group, 2019). An outlet store based in Stockholm offered H&M's customers an incentive program that allowed them to rent dresses and skirts from their

Conscious Exclusive collection. Sport retailers like Houdini also started their clothing rental business by giving their clients access to luxury brands, which were sold at premium prices (Chang, 2018).

Fashion retailers have traditionally considered firms that are purely engaged in rental business as competitors. However, the changes in market dynamics has changed their perception because rentals have helped solve the product returns issue, which has been problematic. For decades, customers have been acquiring party apparels, especially from high-end retail stores (Yuan and Shen, 2019). It is an interesting occurrence because the highest number of returns are done after major holidays such as New Year and Christmas. This shows that the clothing were only needed for the festivities. To solve this problem, fashion companies are selling and renting top-tier fashion products, which clients are willing to use numerous times.

As per Chang 2018, changes in consumer patterns have changed as more customers are willing to rent instead of purchasing clothes. Nevertheless, this alternative approach to fashion consumption call for substantial changes in perspectives by business operators, policymakers, individuals, and the society as a whole. Companies are required to comprehend consumer behaviour for successful implementation of product service systems into the fashion industry. The primary target should be to mitigate the negative effects of consumption on the environment.

Awareness among customers is a determining factor because it influences the decisions they make. This should encourage fashion brands to promote sustainable products and limit the number of garments that negatively affect the environment. Consumers are forming informed, connected, and empowered communities that are challenging the firm-centric approach to business practices. Nevertheless, this does not automatically transform customers into people who support service systems. A limited clientele that shares a unique perception of value attached to fashion products welcomes renting, lending, and borrowing. The research done by Armstrong et al., 2015 found that product per service systems is barred by the consumers' readiness to adopt and support shared consumption of apparels. The ownership of fashion products is associated with self-expression and sentimental value. Garments and other fashionable accessories serve as part of an individual's identity and a way of communicating their age, gender, class, status, and cultural background. These consumerism traits are likely to make dematerialization advocated for through sharing and rental sales services challenging.

Armstrong et al., (2015) researched on consumers' views on sustainable product service systems in the textile industry in Finland. They established that young consumers easily adopt innovative, experimental and social approaches such as swapping and leasing. Similarly, sustainable clothing services, which aim at, maintain a product's value such as redesigning, refurbishing, repair/maintenance, and recycling are suitable for older consumers. This shows that if the value standard is stable, then there is a lesser demand for appearance changes. As a result, fashion companies should tailor their services to match their target market tastes and preferences.

1.5. Barriers and enablers in the adoption of circular business models in fashion industry

The switch to a circular economy faces barriers and enablers influenced by various factors that sway to influence the industry. The following is a discussion of the main barriers and enablers.

1.5.1. Barriers hindering the adoption of circular business models

Fashion brands ought to collaborate with all parties involved in the product development process to create a sustainable business. Thus, supply chains are the main contributors towards sustainability. Supply chains in the fashion industry have a complex nature because they involve numerous stakeholders and interdependent processes (Dissanayake, & Weerasinghe, 2021). This has an impact on circularity because it is hard to coordinate all suppliers in the diverse chain.

Scholars have also cited that the inadequacy of knowledge and government policies in the sector is a bar to achieving economic sustainability (Dissanayake, & Weerasinghe, 2021). The existing systems are complicated and bureaucratic. For illustration, the government guidelines in place are clarity that has prevented fashion brands from adopting the desired CE business models. Besides, certifications issued by the government are costly.

Rethinking the design stages of a fashion product development poses a challenge. Some companies do not view reduction, reuse and use of organic raw materials as a strategic priority. Consequently, it is prudent to inculcate ecological practices in fashion design courses curricula. This will equip new professionals with knowledge on how to design eco-friendly product designs. A majority of consumers prefer fast consumption since they have an insatiable taste for high quality and trendy products. Huynh, (2021) noted that in spite of the awareness of

environmental and social effects of their fashion products consumption, a significant number still purchase traditional fashion products.

Recycling processes are expensive, which inhibits their advancement, as they are considered financially unviable. Separating and recycling disposed clothing suffers inefficiencies and high costs (Briguglio, et al., 2021). This affects the available infrastructure to collect clothing from consumers for recycle. Additionally, the prevalence of low-quality fashion products means that most of the value in the waste is lost.

However, the key to overcoming all these barriers and moving circular models of doing business in fast fashion forward is collaboration (Geissdoerfer, et al., 2023). It entails interaction of fashion entities with policymakers, educational institutions, and the other associated actors like establishment of public-private partnerships, knowledge exchange plus collaboration to address the challenges regarding infrastructure development, awareness creation and regulatory framework in the whole spectrum.

Lack of consumer awareness regarding eco-friendly brands and low credibility appropriated on sustainable fashion businesses is a social barrier (Salmi, & Kaipia, 2022). Lack of knowledge sparks insecurity among people. Consumers' knowhow on the matter is limited to energy consumption, reusing and recycling, which hinders how they play their role in the supply chain. It is challenging for traditional fashion brands to create a brand image that portrays sufficient changes towards sustainability. There are high volumes of fake low-quality products, which jeopardizes credibility of apparels despite being produced sustainably.

1.5.2. Enablers facilitating the adoption of circular business models

Strict regulations are enabling the circularity in the fashion industry. Fashion brands are forced to abide by ethical and environmental obligations. Natural resources are becoming scarce and the regulations in place have prevented their exploitation (Jonsson et al., 2020). This has forced companies to develop new production methods to put up with by the enacted legislation. Notably, legal standards and certifications issued are being used to assess suppliers. Besides, they are marketing grounds for promoting eco-friendly products to consumers.

Sustainable fashion brands are profitable. Profit is earned through economic benefits facilitated by sustainable production or the entire business model. Circular business archetypes such as rental firms reduce production and costs incurred in keeping stock (Coscieme, et al., 2022). The goal is to change from acquiring newly produced fashion products to restyling and refurbishing what is available. Eco-friendly designs can adopt a value-based pricing strategy. Selling high quality products attracts premium prices, which increases the profit margin (Hina et al., 2022). Additionally, applying green initiatives generates higher revenues and cuts cost because energy is conserved and wastage is minimized.

Campaigns geared towards raising consumer awareness on environmental conservation is driving circularity. Research shows that the younger generations are opting for fashion products that are manufactured sustainably (Hina et al., 2022). This encourages the embracement of circular economy principles. Circular business models are gaining a lasting competitive advantage. Sustainable fashion brands are gaining a good reputation, which increases demand for their products. This motivates them to innovate new eco-friendly designs. Fast fashion model has been reporting decline in sales (Hina et al., 2022). Consumers are avoiding these brands due to poor quality and mass production, which jeopardizes their uniqueness (Hina et al., 2022). Furthermore, violation of social and environmental regulations hurts their name.

Also, leveraging digital technologies like blockchain, IoT, and AI strategically can help alleviate some impediments by bolstering supply chain transparency, optimizing resource allocation, enabling predictive maintenance, and facilitating product-as-a-service offerings (Antikainen et al., 2018; Chauhan & Patnaik, 2022).

In essence, a holistic strategy addressing both facilitating factors and barriers is indispensable for the fashion sector to transition towards a sustainable and circular trajectory. The success of circularity relies on the receptivity of all stakeholders and commitment towards sustainable business practices. More so, fashion companies and the society at large to accept the associated changes. The decisions made as new capabilities are acquired as technological, social and legal factors either impose or eliminate barriers. Thereby, the supply chain should adopt a strategy that suit their resources and business environment.

1.6. The state of the fashion industry in Estonia and Finland

Estonia and Finland are actively developing strategies to foster sustainability, innovation, and resource efficiency in response to the European Commission's call for enhanced circular economy practices.

The Estonian government has developed a country-wide circular financial system motion plan, which incorporates measures to promote circular practices inside the fabric industry, inclusive of elevating recognition and helping progressive commercial enterprise fashions (Ministry of the Environment, 2022). A report via the Estonian Environmental Research Centre highlights the dearth of infrastructure and technology for fabric recycling as one of the foremost boundaries to a circular economy in the Estonian textile industry (Keskkonnaministerium, 2021). Also, Estonia has some agencies and tasks focused on circular fashion, such as Remake, an organization that produces sustainable apparel from recycled materials, and the Estonian Design House, which promotes sustainable and moral style design (Remake, n.d.; Estonian Design House, n.d.).

Furthermore, Estonia's textile and apparel industry stands out as a leading exporter in the market, the Estonian clothing sector was valued around 310.4 million Euros in 2019, although there was a decline during the Covid-19 pandemic (Fashion industry in Estonia, n.d.). With around 150 apparel manufacturing companies located in various cities, including 58 in Tallinn, 11 in Tartu, and others located throughout the country (Fashion industry in Estonia, n.d.). These companies specialize in manufacturing the common types of clothing for children, men and women, Estonian textile manufacturers are privileged to leverage the nation's advanced technological infrastructure which helps to streamline production processes (Fashion industry in Estonia, n.d.). By integrating new technologies, such as automated silhouette pattern development and embroidery, the fashion industries in Estonia can achieve both efficiency and excellence in quality, this puts Estonia in the front seat in the fashion industry conversations (Fashion industry in Estonia, n.d.).

While in Finland, according to a record of the use of the Finnish Innovation Fund Sitra, the transition to a round economic system in the fabric enterprise is still in its early tiers. However, several initiatives and agencies are jogging towards circular solutions, along with the Finnish Textile and Fashion Association, which promotes sustainable practices inside the organization

(Sitra, 2019). The Finnish authorities have set an aim to emerge as a leading round economic system by 2025, and the textile industry is one of the attention regions. The authorities have added several coverage measures, which include a tax incentive for repair and maintenance services, to help the transition (Ministry of the Environment, 2021). Furthermore, a study using the Finnish Environment Institute found that of the most important barriers to a round economic system within the fabric enterprise is the shortage of effective series and sorting structures for used textiles (Dahlbo et al., 2017).

In addition, it is important to note that in recent years, Finland has become a notable location for apparel manufacturing and export, the nation is known for exporting a number of products such as men's suits, knitted women's suits, activewear, overcoats, babies' garments, t-shirts, and pullovers, among others, which has amounted to 326 million Euros in exports in 2019 (Fashion industry in Finland, n.d.). The industry employs approximately 2000 people with prominent manufacturing facilities located in cities like Helsinki, Turku, Tampere, Oulu, and Espoo (Fashion industry in Finland, n.d.). Even though most of the manufacturers are small to medium-sized enterprises, the variety of clothing made in Finland are sold domestically, with sales summing up to 2706 million Euros in 2019 (Fashion industry in Finland, n.d.). In 2012 and 2013 due to high costs production companies faced some challenges, but there were efforts by the Finnish government to reduce these costs which led to a resurgence (Fashion industry in Finland, n.d.).

With this information, it is fair to say that the fashion industries in Estonia and Finland are in a good state and with more input from stakeholders in due time it will be possible to achieve a completely sustainable industry.

2. METHODOLOGY

This chapter of the thesis describes the methodology of the empirical part of this research. The researcher starts by explaining the approach utilized for the research overall. Then the data collection methods used are explained, as well as the data analysis methods.

2.1. Research design and sampling

Qualitative research design is a study methodology whose focal point is to explore and comprehend complex scenarios and perceptions held by people. A qualitative study delves in highlighting various patterns in human attitudes and beliefs (Busetto et al., 2020). This methodology enables researchers to collect descriptive information about participants' views and experiences. Thereby, this study used a qualitative research approach to explore and provide an in-depth insight into circular business models in the fashion industry in Estonia and Finland. The rationale behind this choice of research technique is to shed light on how and why circular business models are the ultimate approach towards promoting sustainability in the fashion industry.

The participants were selected using the purposive selection technique to take part in the research. The researcher chose five participants from the fashion and apparels industry (Table 1). The selected companies are operating in various sectors within the fashion industry, such as fashion design, apparel, and accessories. These companies were considered fit for the research because of their commitment to sustainability and ethical production. Each company demonstrates a distinct strategy for minimizing environmental impact through industrial upcycling, repair, recycling, responsible sourcing and production, personalized clothing design and much more. Also, these companies were chosen because they prioritize social responsibility, ensuring fair labor practices, employee welfare and community engagement.

Furthermore, after intense due diligence on the study region and industry, the researcher came to a conclusion that the chosen companies are trailblazers within the circular fashion landscape, and

have set a high standard for sustainability and innovation. Their collective efforts not only showcase the creative potential of sustainable fashion but also highlight the region's role in driving positive change within the global industry and thus a valid reason to study their philosophy.

Table 1 Company information

CODE	Country	Sector	Number of Employees	Turnover
Interviewee_1	Estonia	Fashion designs	9	€78 089.11
Interviewee_2	Estonia	Apparels and accessories	7	€89358.12
Interviewee_3	Finland	Fashion	9	€116400
Interviewee_4	Finland	Apparels and accessories	9	€119600
Interviewee_5	Estonia	Fashion	27	€307882

Source: Compiled by the researcher with data obtained from www.teatmik.ee and www.finder.fi

2.2. Data collection and analysis methods

Primary data were collected from the participants' through interviews conducted between 1st March and 14th of April 2024. The interviewees were asked 20 open-ended questions (see Appendix 1). The interview questions were based on the research questions and theoretical frameworks which were used to create a better comprehension of the topic. Thus, the interview questions primarily revolved on circular business models, circular practices to enhance sustainability, and the use of digital technologies as enablers of circularity. This helped acquire accurate primary data to meet the research objective.

In total, five interviews were conducted. The researcher made two interviews via one-hour video calls, these interviewees preferred a video call, the researcher asked questions individually. While the other three were done through email because these interviewees preferred this method, it was a one time contact, all questions were sent and interviewee responded. One of the interviews done via email had slightly different questions because these were the first questions created during the start of the research before they were revised and made final. The opinions of the interviewees were used to represent the study population's views. The participants as

discussed include key stakeholders from some fashion and apparel companies in Estonia and Finland; this helped to enhance the validity, credibility and generalizability of data collected.

The researcher used open-ended questions to collect primary data. This came in handy because the data collected were analysed, and it provided a good explanation behind behavioral patterns that are hard to quantify. The qualitative study design allowed the participants to justify how and why they hold their individual opinions concerning circular business models in the fashion industry.

Thematic analysis focuses on pinpointing, analysing and interpreting themes and patterns within qualitative data (Squires, 2023). It was used to analyze primary data in this research. The participants' responses were organized into coded themes depending on their similarity. This created a logical paradigm for organizing and understanding the data's substance and crucial ideas. Thereby, this form of analysis made it easier to ratify complex views and accounts. Ethical considerations were upheld by obtaining informed consent from participants, ensuring confidentiality and anonymity, and adhering to research ethics guidelines.

The internal validity of the thesis was enhanced in various ways. The academic nature and purpose of this study was communicated to the participants. Consequently, the primary data collected can be considered trustworthy. More so, open-ended questions were used, which allowed the participants to share their opinions openly and accurately.

In the course of research synthesis, a number of themes emerged in relation to the interviewees views and experiences of circular business models in the fashion industry in Finland and Estonia (Table 2). The emerging themes highlighted business founders' and employees' perspectives.

Table 2 Central themes, codes and interview extract

Central Themes	Codes	Interview extract
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Circular business models being adopted	<ul style="list-style-type: none"> - Utilization of leftover materials - Promotion of sustainable practices - Design for ease of maintenance and repair 	<ul style="list-style-type: none"> - “Our company operates by sourcing leftovers from factories and utilizing them in our production process within the same facility” (Interviewee_1) - “We make everything in-house and pay fair salaries to our employees” (Interviewee_2) - “We have implemented policies where we retrieve clothing from customers, repair any damages, and subsequently repurpose them for recycling projects” (Interviewee_1)
Barriers affecting the adoption of circular business models	<ul style="list-style-type: none"> - Lack of separate collection systems for textile waste and lack of recycling facilities - Prevalence and success of fast fashion brands - Not enough government support 	<ul style="list-style-type: none"> - “Estonia currently lacks separate collection systems for textile waste and lacks recycling facilities” (Interviewee_1) - “Finland's fashion industry still faces challenges with the prevalence of fast fashion brands, which find considerable success in the market” (Interviewee_4) - “there could be more support from government” (Interviewee_3).
Enablers of the adoption of circular business models	<ul style="list-style-type: none"> - Investment in research and development - Use of digital platforms 	<ul style="list-style-type: none"> - “We have invested significantly in research and development to overcome these challenges and advance our circular initiatives”(Interviewee_1). - “I would like to mention that we provide ideas on how to wear

		our pieces through our YouTube channel, Instagram, and other platforms”(Interviewee_2)
Digital Technologies as enablers	<ul style="list-style-type: none"> - Use of digital machines - Utilization of data for production and marketing 	<ul style="list-style-type: none"> - “Digital cutting methods optimize fabric usage in manufacturing (Interviewee_4)” - “Production is based on demand, informed by data analysis”. (Interviewee_4) - “To remain sustainable, we've implemented an ERP system” (Interviewee_5)

Source: Compiled by the researcher with the aid of the Interview transcripts

It is challenging to measure external validity in this study because purposive sampling method was used and a low number of participants selected. Besides, the study covered two nations, which limits the application of the findings to the global fashion industry. It is rational to argue that the commitment by fashion companies to sustainability is determined by their size. Small companies do not have sufficient knowledge and resources to operate sustainably (Chang, 2018). Nevertheless, the participants did not include consumers, who are a fundamental party in the circular economy business models. Thus, the participants that were studied does not adequately represent the fashion industry as a whole per se.

Reliability was ensured through the application of structured documentation and thematic data analysis. Thereby, the study results can be linked to certain findings. On the other hand, it is hard to warrant replicability of a study whose data collection instrument was interview because social practices and settings are dynamic.

3. PRESENTATION OF FINDINGS, ANALYSIS, AND DISCUSSION

This chapter presents and analyzes the research findings. After conducting five interviews, the interviewees answered 20 open-ended questions, which were formulated based on the research questions. The interview responses were verified to ensure completeness and detect possible errors. Primary data were thematically analyzed as per the study goals and objectives. The following is a presentation of the study findings based on the underlying themes.

3.1. Circular business models being adopted by fashion companies

The interviewees confirmed that fashion companies in Finland and Estonia understand the tenets of a circular economy business models that are aligned with the theoretical paradigms proposed by the European Environment Agency's report "Business Models in a Circular Economy" (hereinafter: EEA, 2021). For instance, when asked about the source of their raw materials, one interviewee said, "Our company operates by sourcing leftovers from factories and utilizing them in our production process within the same facility" (Interviewee_1), while another said, "In the course of 20 years, we have developed contacts with various companies from which we purchase dead-stock, left-over materials, cut-offs, etc" (Interviewee_3), other interviewees also confirmed to have similar sourcing practice which aids the product lifecycle.

The participants also affirmed their commitment to creating long-lasting wears, one interviewee stated, "most of our pieces have been worn by women for around 10 years" (Interviewee_2), and in terms of designing with holistic approach in mind, one interviewee said, "we prioritize longevity in product design to extend the wearability of each piece" (Interviewee_4). No doubt, these interviewees core values are rooted in promotion of sustainable practices not only concerning the environmental but also in social dimensions, for instance Interviewee_2 said "we make everything in-house and pay fair salaries to our employees", other interviewees are also motivated by the desire to care for the environment and the society as a whole, and this has in turn reshaped their business models.

When asked about the most suitable business model, one interviewee stated, "It is very important that we don't produce leftovers and also that we only produce on demand. So, every time we

produce, we have a buyer for it. This is the most important thing for us” (Interviewee_2), most of the participants also indicated that producing based on demand has been a working business model, which has helped to minimize waste. This eliminates wastage caused by availability of unused inventory after it may have been ordered.

Designing for the ease of maintenance and repair is a business model that resonates with most interviewees, one interviewee said “we have implemented policies where we retrieve clothing from customers, repair any damages, and subsequently repurpose them for recycling projects” (Interviewee_1), this also ensures eco-friendliness across the entire product lifecycle and preserves value while wastage is minimized. Regarding this same topic, another interviewee stated, “we also encourage this practice actively with our customers”, so it does not stop at having the capacity to repair and maintain, but the participants are actively engaging with their customers to raise awareness on sustainable practices.

All the companies adhere to various business models outlined in the EEA report, ranging from design for ease of maintenance and repair, for long-lasting style, for holistic impact and designing products with their full lifecycle in mind.

3.2. Enablers and barriers affecting the adoption of circular business models

Fashion companies are doing all it takes to move towards a circular economy, while there are some encouraging factors to enable them to make the switch, there are also some obstacles affecting their process. Hence, the researcher looked into what the participants think are the major factors enabling and hindering circular business model adoption. When asked about the barriers being faced, one interviewee simply said, “Our government is not supporting circular economy” (Interviewee_1), another interviewee said, “there could be more support from government” (Interviewee_3). This indicates the insufficient role played by the government in enabling the sector, which is now seen as a barrier by most of the participants. Participants also mentioned that there is absence of certain infrastructure that encourages people to be sustainable in regard to the fashion industry, one of the interviewees said, “Estonia currently lacks separate collection systems for textile waste and lacks recycling facilities” (Interviewee_1), this is actually not only in Estonia but across Europe as well. The success of fast fashion is also seen as a barrier by some of the participant, although some laws may be put in place soon to slow down

these fast fashion companies, one interviewee, concerned about this stated that, “Finland's fashion industry still faces challenges with the prevalence of fast fashion brands, which find considerable success in the market” (Interviewee_4), this cuts across Europe and not just Finland. Lastly, some participants also highlighted ethical concerns relating to raw material sourcing, one interviewee, worried about this, said, “we ordered from Italy, the material came from China, this raised significant questions for us, we engaged in discussions with them, requesting proof to ensure that everything was ethically produced. The challenge is sometimes that you can't be 100% certain, even if you want to be” (Interviewee_2). This is seen as a barrier, and not being able to know how a textile is produced hinders transparency and does not aid the adoption of circular business model.

Despite these barriers, a number of factors are still encouraging these companies to move rapidly to sustainable ways. The interviewees stressed the importance of collaboration as an enabler, collaboration has helped to get rid of leftovers in the right way, as one interviewee stated, “If there are some leftovers, for example, we try to give them a new life, we provide them to universities, for example, or to academia for research purposes” (Interviewee_2). Another interviewee said, “our company actively collaborates with institutions such as the Australian Academy of Arts and Tema Lab to explore and implement circularity within our business model” (Interviewee_1). The use of digital platforms also emerged as an enabler, as one of the interviewees expressed, “I would like to mention that we provide ideas on how to wear our pieces through our YouTube channel, Instagram, and other platforms” (Interviewee_2). From the interviewee responses, the researcher was made to understand that there would be no progress in this sector without research and development, as expressed by Interviewee_1 “We have invested significantly in research and development to overcome these challenges and advance our circular initiatives”. Other participants also acknowledge the listed factors as enablers to adopting a circular business model.

3.3. Digital technologies as enablers of the adoption of circular business models

Fashion companies in their transformation towards circular business models are using technological innovations. Thus, the researcher looked into how the participants are leveraging

the benefits of digital technologies. When asked about digital solution used to improve sustainability, most of the participants confirmed that they are making efforts to incorporate new technologies in their operations, one interviewee mentioned how the use of different systems for different task slows down processes but with the implementation of a new digital system more task are done quickly, as expressed, “we've implemented an ERP system and now, with a unified system, we have insight into product and manufacturing efficiency and sustainability” (Interviewee_5). Other interviewees employ the use of data analysis in different ways, one interviewee stated, “Production is based on demand, informed by data analysis” (Interviewee_4), another participant said “we offer B2B customers a very precise report on how much savings is made in CO2 and water in the use of our products over other similar non-circular products have been achieved” (Inteviewee_3). Most participants affirm that these systems have helped to streamline processes, make production decisions and create reports that all help to enable circular practices.

Additionally, in terms of manufacturing processes, some digital tools have helped the participants reduce waste while making new fabric, interviewee_4 stated, “digital cutting methods optimize fabric usage in manufacturing”. With the help of computer controlled machine, all materials used in production can now be cut down accurately to achieve zero waste.

The responses from the participants proved that digital technologies are enablers in the adoption of circular business models. It is prudent for other fashion brands to follow these examples, to conform with the best practices.

3.4. Discussion of results and recommendations

In the aspect of understanding and embracing circular business models, the interviews proved comprehensive expertise of circular financial system concepts among the participants, reflecting their dedication to minimizing waste by the reuse, repair, recycling, and refurbishing of merchandise. All the participants have wholeheartedly embraced circular business models, aligning their middle values with sustainability and environmental consciousness. The participants prioritize the utilization of leftover materials, upcycling, and recycling of their production processes, adhering to the principles of the 10R hierarchy (refuse, reconsider, lessen, reuse, repair, refurbish, remanufacture, repurpose, recycle, and get better) proposed by Kirchherr

et al. (2017). By offering restore offerings and facilitating the resale of used clothes, they enable customers to extend the lifespan of their products, contributing to the "sluggish" and "close" resource glide strategies mentioned by Bocken et al. (2016).

The sourcing and production practices by the participants validated a robust commitment to sustainable sourcing and production practices, aligning with the standards of circularity. Many of them source materials from certified suppliers, prioritizing eco-friendly and recycled substances. For example, some of the participants make use of recycled yarn from certified sources in Italy, and recycled polyester for making their products, contributing to the "circular elements" strategy mentioned by Gillabel et al. (2021). The participants have incorporated their production methods below one roof, minimizing their environmental footprint and facilitating efficient aid utilization. Practices like zero-waste production, minimizing excess stock, and producing on-call have been highlighted as key strategies for decreasing waste and aligning with the "lessen" principle of the round financial system.

The interviews revealed a strong emphasis on designing quality, long-lasting, and durable products, addressing the "slow" resource-waft approach proposed using Bocken et al. (2016). Majority of the participants prioritize the use of high-quality materials and tailoring to ensure the durability of their garments, they also burdened the importance of designing products which could face up to wear and tear, decreasing the need for frequent replacements and contributing to a slower intake cycle. Furthermore, some of the participants are actively selling the concept of capsule wardrobes, encouraging customers to maximize the versatility of their purchases through smart styling and blend-and-in-shape techniques. This strategy's objectives are to lessen the want for constant new purchases, gradually down the consumption cycle, and promote aware consumption behaviour among customers

Based on the knowledge gained from this thesis, the researcher made the following recommendations.

For government and policymakers:

1. The researcher understands that the government are working on new schemes but encourages urgent implementation of these policies and regulations that will support circularity in the fashion industry, such as eco-design regulations.

2. Provide incentives and tax allowances for companies adopting circular practices, this will reduce the need to go into fast fashion business and encourage more companies to invest in circular business models
3. Invest in infrastructure for separate collection systems for textile waste and recycling facilities, as this one of the most pressing obstacle highlighted by the participants.

For fashion companies managers:

1. Continue collaboration with other stakeholders and keep investing in research and development, find diverse ways to explore and implement circularity within business models.
2. Focus on sustainable fashion by producing on-demand, embracing digital technologies to enhance efficiency in manufacturing, and keep utilizing waste products through reusing and recycling.
3. Incorporate ethical considerations into raw material sourcing practices, this can be done by ensuring manufacturing companies chosen for getting the raw materials are adhering to regulations and are in line with sustainable practices
4. Overall, fashion companies should look at the business models proposed by the EEA and incorporate as much as they can to their business in order to start or continue sustainability practices that will in turn benefit the society and environment

For consumers:

1. Consumers should be educated about the benefits of sustainable fashion and circular business models through awareness campaigns and incentives for recycling. This can be done either by the government, the companies or the consumers themselves.
2. Consumers should be encouraged to make conscious purchasing decisions by choosing durable and high-quality products from companies that prioritize sustainability

CONCLUSION

The aim of this research was to explore the adoption of circular business models in the fashion industry in Estonia and Finland and suggest circular business model innovations that can be embraced by fashion companies. To do so, three main research questions were addressed: (1) How are fashion brands incorporating circular business models, and what practices are they leveraging in this transition? (2) What are the enablers and barriers to the adoption of circular business models in the fashion industry in Estonia and Finland? (3) How do digital technologies function as drivers toward a circular economy in the fashion industry?

Focusing on research question one, from the analysis of interview responses, it is evident that fashion brands in Estonia and Finland are indeed embracing circular business models. Interviewees provided concrete examples of how their companies align with the principles outlined in the European Environment Agency's report on circular economy business models. From utilizing leftover materials and industrial upcycling to implementing repair studios and take-back programs for used clothes, these companies are actively adopting circular business models. Moreover, there is a clear commitment to promoting sustainability across social and environmental dimensions, indicating a significant shift in business models towards more eco-friendly practices.

Enablers and barriers was a sensitive topic, as it has a huge impact on the success of a company. Most of the participants agree that investment in research and development, collaboration with stakeholders and the use of digital tools have all been an enabler, helping them adopt circular business models. On the other hand, the lack of adequate systems for waste collection and recycling, not enough support for the fashion industry by the government and prevalence of fast fashion all pose a significant obstacle to adopting circular economy business models and overcoming these barriers will require collaborative efforts through policy advocacy, technological innovation, and stakeholder engagement.

In terms of leveraging digital technologies, fashion companies are utilizing innovative solutions to enhance sustainability and efficiency, which ranges from utilizing digital platforms, use of digital systems to streamline processes, use of digital machine and utilization of data for production and marketing. All these technologies play a crucial role in optimizing resource utilization, reducing environmental impact and ensuring durability and long use of clothing. Indeed, digital technology function as a driver to adopting circular business models and by embracing digital solutions, fashion companies are able to improve transparency, streamline operations, and foster consumer engagement, thereby advancing their journey towards a circular economy. Overall, the insights gained from the interviews indicates the transformative potential of digitalization in shaping the future of sustainable fashion practices.

This study contributes to literature and can be used by fashion brands as they work towards being sustainable. It is a detailed presentation on the business models and digital technology to adopt, barriers, and enablers facing the fashion industry. Nevertheless, the study is limited because five participants from two countries were used to represent the population.

In order to further determine how circular business models are adopted, an intense qualitative research should be conducted with a larger population and focus spread across more regions and focus should be on barriers and how to mitigate them. Lastly, quantitative data should be gathered to strengthen the evidences presented in this research and to ascertain the true state of adoption of circular business models in Finland and Estonia

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APPENDICES

Appendix 1. Interview questions

Research questions	Interview questions
<p>I. How are fashion brands incorporating circular business models, and what practices are they leveraging in this transition?</p>	<ol style="list-style-type: none"> 1. What is your understanding of the circular economy in fashion? Which business models are the most suitable, and do you use any of them? 2. How does your company define circularity, and what are its core values? 3. What steps has your company taken to embrace circular practices? 4. What motivates these actions—profit or environmental concerns? What are the main challenges and opportunities? 5. Where does your company source raw materials? Are the sources eco-friendly? What are the enablers and barriers encountered? 6. Has your company adopted sustainable production techniques?
<p>II. What are the enablers and barriers to the adoption of circular business models in the fashion industry in Estonia and Finland?</p>	<ol style="list-style-type: none"> 1. How sustainable is Estonia's/Finland's fashion industry? What are the main barriers and enablers?

	<ol style="list-style-type: none"> 2. Does your company design high quality and durable clothing? 3. How does your organization handle waste management to avoid pollution during production and distribution? 4. Are your organization and clients onboard with maintenance, repair, and reselling for reuse for efficient usage of fashion products? 5. Which policies have your company implemented to allow sustainability at products' end-of-life stage? 6. In your opinion, how is the market demand responding towards eco-friendly products? 7. Kindly recommend actions that can be taken to improve your company's current position concerning circular economy.
<p>III. How do digital technologies function as drivers toward a circular economy in the fashion industry?</p>	<ol style="list-style-type: none"> 1. What digital solutions has your company used to improve sustainability in fashion? 2. What do you see as the key advantages or benefits of using digital technologies to implement circular economy-based business models? 3. Can you identify any significant obstacles or difficulties that arise when integrating digitalization into circular economy-based business models? 4. In your view, what strategies or approaches do you think would work best to overcome these challenges?

Source: European Environment Agency’s report “Business Models in a Circular Economy” (hereinafter: EEA, 2021).

<p>General questions to get more insight into the company's operations.</p>	<ol style="list-style-type: none">1. Are your products intended solely for the Estonian/Finland market, or do you target an international audience? Additionally, where are your corporate partners, clients, and customers located?2. Considering the increasing demand for eco-friendly fashion products worldwide, how is your company preparing to expand its international market presence while maintaining a strong commitment to sustainability?3. What do you see for the future of circular economy in fashion? Will you keep doing it? Why or why not? Also, any new plans?
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Source: Compiled by the researcher

Appendix 2. Transcripts of five interviews

Temporary transcript link [here](#).

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