

UNIVERSITY OF SARAJEVO  
SCHOOL OF ECONOMICS AND BUSINESS

MASTER'S THESIS

**SUSTAINABLE FASHION IN BOSNIA AND HERZEGOVINA:  
ENVIRONMENTAL AND SOCIAL RESPONSIBILITY**

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U skladu sa članom 54. Pravila studiranja za I, II ciklus studija, integrisani, stručni i specijalistički studij na Univerzitetu u Sarajevu, daje se

### **IZJAVA O AUTENTIČNOSTI RADA**

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#### **Sustainable fashion in Bosnia and Herzegovina: environmental and social responsibility**

pod mentorstvom prof.dr. Melike Husić-Mehmedović izradila samostalno i da se zasniva na rezultatima mog vlastitog istraživanja. Rad ne sadrži prethodno objavljene ili neobjavljene materijale drugih autora, osim onih koji su priznati navođenjem literature i drugih izvora informacija uključujući i alate umjetne inteligencije.

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## **SAŽETAK**

Istraživanje analizira složen odnos između održivosti i modne industrije, prateći razvoj od 19. stoljeća do danas. Detaljno se bavi ekološkim i društvenim utjecajima brze mode, naglašavajući hitnu potrebu za održivim praksama. Istražuje koncept održivosti, uključujući ulogu cirkularne ekonomije, te analizira tipove korporativne društvene odgovornosti.

Istraživanje također ispituje slučaj modne industrije u Bosni i Hercegovini, procjenjujući trenutne prakse i identificirajući mogućnosti za održivu transformaciju. Kroz kvalitativne intervjuje s lokalnim modnim dizajnerima, rad pruža uvide u njihove perspektive o integraciji održivosti i izazovima na tržištu BiH. Pružajući sveobuhvatan pregled ekološkog i društvenog utjecaja modne industrije te potencijalnih budućih smjernica, ovo istraživanje doprinosi svjesnosti problema tekstilne industrije i predlaže strategije za održivost.

Ključne riječi: održiva moda, održivost, brza moda, modna industrija, BiH

## **ABSTRACT**

This research analyzes the complex relationship between sustainability and the fashion industry, tracing its evolution from the 19th century to the present. The study delves into the environmental and social implications of fast fashion, emphasizing the urgent need for sustainable practices. It explores the concept of sustainability in depth, including the role of the circular economy, and analyzes the types of Corporate Social Responsibility (CSR).

The research further examines the specific context of the fashion industry in Bosnia and Herzegovina, assessing current practices and identifying opportunities for sustainable transformation. Through qualitative interviews with local fashion designers, the study offers insights into their perspectives on sustainability integration and challenges in the BiH market. By providing a comprehensive overview of the fashion industry's environmental, and social impact, and potential future directions, this research contributes to textile industry problem awareness and informs strategies for a more sustainable fashion landscape.

Keywords: sustainable fashion, sustainability, fast fashion, fashion industry, BiH

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## **LIST OF ABBREVIATIONS**

SF - Sustainable fashion (održiva moda)

CSR - Corporate social responsibility (društveno odgovorno poslovanje)

TAF - textile, apparel, fashion (tekstil, odjeća, moda)

CE - circular economy (cirkularna ekonomija)

ESG - environmental, social, and governance obligations (okolišno, društveno i korporativno upravljanje)

CSRD - Corporate Sustainability Reporting Directive (Direktiva za izvještaj o korporativnoj održivosti)

SME - small and medium size (mala i srednja velika preduzeća)

CSDDD - Corporate Sustainability Due Diligence Directive (direktiva o pažnji održivosti preduzeća)

MMCF - man-made cellulose fibers (vještačka celulozna vlakna)

PET - Polyethylene terephthalate

GHG - Greenhouse gases (staklenički plinovi)

UNFCCC - United Nations Framework Convention on Climate Change (Okvirna konvencija Ujedinjenih nacija o klimatskim promjenama)

NGO - non-governmental organisation (nevladina organizacija)

IUCN - International Union for Conservation of Nature (Međunarodna unija za zaštitu prirode)

CEO - chief executive officer (izvršni direktor)

# 1. INTRODUCTION

## 1.1. Description of the Problem

Sustainability has been discussed since the 1980s, when the Brundtland Commission developed one of the most famous definitions of the term, emphasizing that opportunities to meet the needs of future generations should not be compromised to meet the needs of the present generation (WCED, 1987).

People, the economy, and society are the three main players in environmental protection and sustainable development (Niinimäki, 2013). The way businesses and various sectors fight for customers' attention by differentiating their goods and services results in economic globalization (Levitt, 1983; Gronroos, 2015). In contrast, standardization is essential in the fashion industry, which is one of the biggest in the world, the fourth largest in Europe, and has resulted in unsustainable practices due to its emphasis on low-cost production at the fastest possible pace (Foroohar, 2005). This industry is one of the biggest polluters today (Plasencia, 2023). While the market forces the clothing industry to make clothing even cheaper, this has negative impacts on the environment, and society as well as a decline in product quality (Henninger *et al.*, 2020). Textile, apparel, and fashion (TAF) sectors contribute considerably to global environmental pollution at every stage in the supply chain (Abbate *et al.*, 2023). A minimum of four levels comprises the fashion supply chain, which includes design, raw material extraction, spinning, yarn manufacturing, dyeing, weaving, cutting, sewing, and final garment creation. Each stage of the apparel life cycle that creates possible environmental and occupational dangers contributes to the pollution footprint left by fast fashion (Mukherjee, 2015).

The route a T-shirt takes from the sales floor to the landfill has gotten shorter because of the sharp rise in the rate of apparel purchase and disposal (Claudio, 2007). A single pair of jeans requires about 7,500 liters of water to produce, which is equal to the amount of water the average person drinks in seven years. The fashion sector uses almost 93 billion cubic meters of water a year, or enough to feed five million people, according to UNCTAD. Additionally, about three million barrels of oil, are discarded into the ocean annually. In terms of carbon emissions, the industry is more accountable than both maritime shipping and all international travel put together (UN, 2019). Ten percent of greenhouse gas emissions worldwide have been linked to the fashion business (Boykoff *et al.*, 2021). Not only that, but the fashion business is producing twice as much apparel currently as it did in 2000 (Remy *et al.*, 2016). If present trends continue, the fashion industry's resource use is predicted to quadruple by 2050 (Fotostock, 2018).

The fashion industry, which includes textile and apparel production, is the second-largest global economic activity in terms of trade, as reported by the United Nations Environmental Program. The worth of the global industry is \$1.44 trillion (Mukherjee, 2015).

The industry's predominant business model is fast fashion, which encourages customers to buy and discard clothing frequently by offering low-cost, continuously changing designs (UN, 2019). Fast fashion refers to cheap clothing quickly created and discarded by mass-market manufacturers and retailers in reaction to quickly evolving trends. Today's fast fashion usually releases new lines several times a year, following a multiseason schedule (Boykoff *et al.*, 2021).

Fashion and sustainability appear to be two different concepts. Fashion is characterized by short product life cycles with a need to launch new product lines at least four times annually (Cervellon *et al.*, 2010). At the same time, sustainability in a broader sense includes environmentalism and social responsibility. Hence, sustainability needs renewed natural resources in production and consumption (Hillery, 2020). Sustainable fashion refers to a wide range of apparel and behavioral choices less harmful to people and the environment (Mukendi *et al.*, 2020).

Since the 1960s, there has been a growing public interest in the environment, and corporations are using green marketing to improve their image and appeal to environmentally concerned consumers (Szabo & Webster, 2021). Fashion firms have started to show interest in going green because of the current economic climate. What is unknown, though, is how customers assess how "green" fashion fits into their lives (Carvellon *et al.*, 2010). A variety of factors are included in the idea of sustainable fashion, including societal attitudes, values, promotion, marketing campaigns, various industrial processes, and—most importantly—the adoption of new consumer habits (Mandarić *et al.*, 2021). Consumer interest in purchasing environmentally friendly products, which are typically more expensive, is growing as the variety of these products becomes available on the market. Regrettably, among the least sustainable businesses is the fashion-producing industry. Hence, an increasing number of fashion brands are attempting to integrate green practices into their value chains (Sagapova *et al.*, 2022).

As a result of these concerns and the increased interest in the United Nations SDGs, TAF businesses have been more prone to paying attention to sustainability issues (Abbate *et al.*, 2023). They have established programs that examine eco-efficiency ideas and aspire to apply environmental measures, such as sustainability reporting activities, which result in cost savings (Muñoz-Torres *et al.*, 2021; Lucato *et al.*, 2017). One strategy to encourage sustainable development through a more circular economy (CE) is to increase resource efficiency by prolonging the usable life of goods or services (Rainville, 2021). Businesses in these industries are aiming for creative and inventive approaches to reduce waste and their carbon footprint. One such approach is the utilization of recycled and biodegradable raw materials (Kozłowski *et al.*, 2018; Wang *et al.*, 2019).

The CE principles promote the sustainability of textile product manufacturing, consumption, and disposal (Staicu & Pop, 2018). Various frameworks have been created to assist fashion companies in making the switch from a linear to a CE model (Mishra *et al.*, 2021).



The circular economy is a production and consumption process that prioritizes the sharing, leasing, reusing, repairing, refurbishing, and recycling of existing materials and products for as long as feasible. This extends the life cycle of items. In real life, it means cutting waste to a minimum. Thanks to recycling, materials from products that have reached the end of their useful lives are maintained as much as possible inside the economy. These have the potential to be utilized repeatedly, adding even more value. On the other hand, the linear economy model is based on the take-make-consume-throw-away cycle. This concept depends on a lot of easily available, inexpensive materials and energy (European Parliament, 2023). Today, there is a significant drive in the fashion industry to make every stage of manufacturing more sustainable and to transition to a circular model (Jacometti, 2019). Developing a circular product within the textile sector requires several important elements, including reverse logistics and sustainable product design (Franco, 2017). Even though, they are still in the early stages, many ways for reusing, recycling, and regenerating textile waste, as well as various technological improvements and proposals for a circular textile economy, have been created (Shirvanimoghaddam *et al.*, 2020).

Sustainability, sustainable production, and consumption are being seen as necessities rather than a luxury from an existential standpoint (Ciornea, 2020). Even while sustainable fashion has even more significance these days, consumer knowledge and awareness of it remain remarkably low (Gonzalez, 2015). On a separate note, researchers discovered that social guilt and customers' lack of knowledge about accessible outlets are the most detrimental variables influencing the purchase of secondhand clothing (Silva *et al.*, 2021). Consequently, our understanding of sustainable fashion consumption is limited (Lundbland & Davies, 2016). To achieve sustainability, the fast fashion industry must alter its operations and incorporate marketing strategies that cover all 4Ps' of the marketing mix. This means reshaping the sector, lowering consumption, and frequency of purchases, setting higher prices, reducing discounting, producing fewer collections annually, closing more physical stores, extending the life of products through higher quality, and actively promoting sustainability and value to cutting down on overconsumption and the impact on the environment (Ciornea, 2020).

Due to the sector's significant influence on the economy, society, and environment, it is imperative that social justice, job protection, efficient resource use, and sustainable production and consumption models, follow economic growth and development along the entire fashion value chain to meet the UN 2030 Agenda for Sustainable Development and the Sustainable Development Goals (Binder, 2017). New and forthcoming sector laws, as well as worldwide environmental, social, and governance (ESG) obligations, are increasing the pressure on the industry to be more accountable for its impacts. The EU passed the Corporate Sustainability Reporting Directive (CSRD) in early 2023 as part of the EU Strategy for Sustainable Textiles. This directive requires over 50,000 qualifying organizations and small and medium-sized enterprises (SMEs), including fashion companies, to report ESG metrics based on predetermined standards. This will have a significant impact on how clothing is made, sold, and disposed of.

The EU's Corporate Sustainability Due Diligence Directive (CSDDD), which immediately followed, signaled a shift in policy toward stricter enforcement of corporate responsibility concerning human rights and environmental abuses in the supply chain (Global Fashion Agenda, n.d.).

In the domain of the textile, apparel, and footwear industries, Bosnia and Herzegovina has a long history and a solid international reputation. One significant benefit is Bosnia and Herzegovina's closeness to the markets of both Western and Eastern Europe (Foreign Investment Promotion Agency of Bosnia and Herzegovina, n.d.). Bosnia and Herzegovina's textile sector is becoming more and more appealing. This industry employs 32,307 people and is supported by 464 businesses that saw a notable growth in exports the previous year. Based on information from the Foreign Trade Chamber of Bosnia and Herzegovina, our nation shipped 1,864,925,173 KM worth of textiles, apparel, leather goods, and footwear to international markets. This represents an increase of 30,849,817 KM over the previous year. The Chamber reports that BiH exports the greatest amount of textiles, apparel, leather goods, and footwear—1.4 billion KM—to Italy, Croatia, Germany, Austria, Slovenia, France, Slovakia, Hungary, Serbia, and the Netherlands. However, the countries where BiH imports the most amounts of leather, apparel, footwear, and textile items are China, Poland, Germany, Italy, Croatia, Serbia, Austria, and Slovenia (Forbes BiH, 2024).

Data available online about sustainable fashion and fashion industry in Bosnia and Herzegovina is very scarce. However, scholars have demonstrated greater interest in the fashion business in recent years, mainly in fashion supply chains and their sustainability (Black, 2012; Thorisdottir *et al.*, 2019).

## **1.2. Purpose of the Thesis**

One of the problems in researching the sustainability of the fashion industry in Bosnia and Herzegovina is the absence of data and industry transparency. Limited access to information regarding environmental practices, and social initiatives hinders the ability to accurately assess both environmental and social impact. Lack of knowledge and education about the significance of sustainability in the fashion industry among industry players and customers is another major challenge.

Bosnia and Herzegovina's consumers may not be well-informed on the social and environmental consequences of fashion production and consumption or about the existence of sustainable alternatives. Similar to this, local fashion enterprises may find it difficult to comprehend and apply sustainable methods because of a lack of funding, expertise, and access to support and training.

It is imperative to tackle the awareness and knowledge gaps to cultivate a sustainable culture within the Bosnian fashion sector and to motivate significant action aimed at minimizing its ecological and social consequences.

The purpose of the thesis is to examine fashion designers' opinions and attitudes toward sustainable fashion, as well as the macroenvironmental sustainability obstacles to implementing sustainable design practices.

### **1.3. Research Objectives**

The research objective is to examine the fashion industry and its environmental and social impact, focusing on Bosnia and Herzegovina. The additional research goal is to analyze current practices and initiatives of the fashion industry in Bosnia and Herzegovina towards environmental sustainability.

### **1.4. Research Questions**

R1: Is the fashion industry in Bosnia and Herzegovina facing challenges regarding sustainability due to limited access to sustainable materials?

R2: Do fashion designers in Bosnia and Herzegovina choose eco-friendly fashion over fast fashion in their design processes and material choices?

R3: Are local fashion firms in Bosnia and Herzegovina increasingly involved in sustainability programs and community-based projects to create positive social impact?

### **1.5. Research Methodology**

Different forms of data from various sources will be used throughout the empirical study. To be more precise, this study does a narrative literature review to gather information on the fashion industry's impact on sustainability. This strategy is preferred for its ability to quickly gather information, even criticism, on a certain issue. This strategy was chosen due to a perceived lack of information on the realities and negative aspects of the sector in scholarly journals (Sagapova *et al.*, 2022).

The methodology used was to conduct a qualitative study and interview designers who have been engaged in the apparel industry. The research will involve conducting interviews with relevant stakeholders, including fashion designers and manufacturers in Bosnia and Herzegovina. Furthermore, data available online will be used to provide additional insight into the topic.

Based on past expert comments and background information, we begin by discussing rapid fashion and the social, ethical, and environmental settings of the modern fashion business. This research was based on Google Scholar academic journals and official internet sources. The thesis will apply a qualitative methodology, primarily collecting data through interviews to address research questions.

## 1.6. Structure of the Thesis

The thesis “Sustainable fashion in Bosnia and Herzegovina: environmental and social responsibility” is structured into several chapters, providing a deeper understanding of the fashion industry and sustainability.

The first chapter of this thesis looks at the history of the fashion industry, including the fast-fashion movement and the challenges faced by the fashion industry. The second chapter analyzes sustainable development and sustainability. It examines fashion in an environmental and social context. Additionally, this chapter researches the current situation of the fashion industry in Bosnia and Herzegovina, mentioning trends and challenges. The empirical aspect of the research includes research methodology, outcomes, and research questions.

## 2. THE FASHION INDUSTRY: HISTORY AND CHALLENGES

The fashion industry is among the oldest and biggest industrial sectors worldwide (Mukherjee, 2015). Fashion is a complex phenomenon that has existed throughout human history, capturing trends, and giving them form, color, and texture. This dynamic phenomenon interacts with the arts, architecture, customs, and individuals' personal, social, and cultural identities (Giurdanella, 2024). It has significantly contributed to human life and has progressed beyond its traditional role as a manifestation of creativity and unique style (Ikram, 2022; Li *et al.*, 2020; Pradel, 2024). Fashion is a creative and cultural expression whereby textiles are shaped into various forms to cover, clothe, and enhance the appearance of individuals within a certain social setting (Giurdanella, 2024). It refers to products with seasonal renewal cycles, including textiles, leather goods, and footwear (Misani & Capello, 2017).

The dynamics of the fashion industry have evolved in the last several decades. Fast fashion has taken over the modern clothing market. Creating new trends, extending the lifespan of disposable items, increasing the number of fashion seasons and frequency of consumption, and setting up offshore supply chains with low manufacturing costs to produce large quantities of clothing quickly and cheaply (Bhardwaj & Fairhurst, 2010; Niinimäki *et al.*, 2020). Fashion plays a significant role in the global economy, but it also generates significant production waste that is not necessarily recyclable. The fashion sector is known for high pollution levels, the use of leather and other synthetic materials (Giurdanella, 2024). Companies in these industries change their product lines at least twice a year, depending on the seasons, certain objectives, and special events. A few of the sectors' segments, like underwear, pajamas, and silk accessories (fouards, scarves, and ties), tend to follow fashion more than previous seasons and offer a consistent range of products. This helps to speed up the continuous introduction of new collections (Misani & Capello, 2017). Clothing sectors are classified by product and price range, such as haute couture, prêt-à-porter, diffusion, bridge, and mass (Corbellini & Saviolo, 2014).

Fashion can be viewed through various lenses, including changes in taste and dress rules, market trends, technological advancements, and social, cultural, and political settings. Its study encompasses various scientific fields, including sociology, psychology, history of art and costume, literature, economics and legal sciences, communication, entertainment, environmental science, and sustainable fashion (Simmel, 2015; Muzzarelli, 2013; Wilson, 2008). Currently plays a significant role in shaping global perceptions of a country's culture and identity (Pradel, 2024). The fashion industry is a dynamic sector that is always changing to keep up with globalization trends and technological breakthroughs (Jin & Shin, 2021). It has influenced numerous technologies and changed over the centuries to reach its current state (Skacenko, 2023).

From simple beginnings, the fashion industry has developed into one of the pillars of the world economy. Fashion industries have propelled economic growth by stimulating cultural exchange but often come under the scanner for their unsustainable and unethical practices of production. It becomes very important then to have responsible practices and innovative solutions that guarantee a fashionable yet sustainable future.

## **2.1. Evolution of the fashion industry**

Clothing evolved primarily because of the necessity to cover oneself and adapt to one's surroundings, allowing man to hide himself, at least partly from bad weather. Clothing's origins can be traced back to ancient civilizations, including their codes, languages, and rituals. Fashion has played a significant role in anthropological portrayals of ancient societies, providing insight into their historical development and practice (Giurdanella, 2024). It is a powerful visual representation of the zeitgeist - something that is fashionable or in style - and practically a language that speaks for us (Neethu & Bhuvaneshwari, 2024).

Between 1760 and 1840, the First Industrial Revolution brought about a mechanical industry driven by water and steam. The Second Industrial Revolution, fueled by electricity and the assembly line, allowed for mass manufacturing during the late 1800s and early 1900s. The primary objective of the first two industrial revolutions was to increase production efficiency through mechanization and automation. Fashion manufacturing has shifted away from the old system of craft-based production, thanks to technologies like the spinning jenny, spinning mule, and assembly line.

The Third Industrial Revolution, which began in the mid-twentieth century, was centered on optimizing already high production through automation and optimization. Computer-aided design and manufacturing methods made it possible, dramatically increasing production speed, flexibility, and precision (Duarte, 2018). Beyond manufacturing, information and communication technology give rise to new business models, such as quick fashion and e-commerce (Abnett, 2016).

The Fourth Industrial Revolution builds on the preceding digital revolution and relies on modern technologies (Philbeck & Dabies, 2018). The Fourth Industrial Revolution is radically changing the way we live and work. In each industrial revolution, innovations and new technology helped to improve industries and people's lives, such as mechanization in the first, mass production and electricity in the second, and IT systems and automation in the third. Meaning that each industrial revolution has developed to address key issues in the industry. The Industrial Revolution gave rise to factories that could produce apparel quickly, which in turn created fashion trends. This mass production enabled manufacturers to increase productivity and optimize earnings by producing new apparel very quickly. Furthermore, there was a change from producing clothing out of necessity to purchasing clothing based on fashion style. Additionally, it allowed department stores that promoted the need for fresh styles each season to provide ready-to-wear choices. As a result, each decade of fashion has been distinguished by its ever-changing trends. While the adoption of advanced technologies undoubtedly plays a critical role in achieving market disruption, it is not a necessary precondition for such change. Companies can achieve significant market disruption by focusing on innovative approaches that deliver new and compelling value propositions to a wider customer base, even without relying solely on cutting-edge technologies (Jin & Shin, 2021).

When industrialization began, the skills needed by workers changed forever. Clothing and materials might be created in large quantities in a short period. Workers were gathered under one roof to ensure that the carding, spinning, and weaving machinery did not stop. These mass-production processes enabled the creation of standardized and cheap clothes in bigger quantities. The Industrial Revolution had both advantages and disadvantages. On the one hand, the manufacturing system produced work prospects for many people, ensuring consistent employment and pay (Marshall, 2023). On the other hand, however, labor conditions in the early factories were characterized by long hours, poor pay, and extremely dangerous settings. This resulted in the formation of labor groups and trade unions that advocated for better working conditions and workers' rights (BBC, 2024). The successive industrial revolutions have each been characterized by a dramatic change in economic systems and social structures (Schwab, 2016).

Before the 18th and 19th centuries, only a few explorers, sailors, and pirates traveled the world, but over the following two centuries, global trade would flourish, bringing countries from opposite sides of the earth together for shared goals.

Clothing and fashion were among those shared interests, with the garment sector playing a critical part in the globalization process. The industry contributed significantly to the rise of empires and colonialism by establishing worldwide supply lines, constructing factories on foreign land, and expanding retail markets. The worldwide reach of the garment business allowed for cultural interchange and the spread of fashion influences across areas. As clothing styles, trends, and patterns moved via global supply networks, they mixed with local cultures and customs, resulting in distinct fashion identities.

This fashion cross-pollination helped to create a more diversified and integrated global fashion scene in which designers and consumers alike took inspiration from numerous cultural sources (Marshall, 2023). Fashion in this sense represents the ever-evolving preferences in clothing, hairstyle, decoration, and behavior, dictated by the prevailing trends within a specific historical period, geographical location, and social environment (Kaiser & Green, 2022).

The history of clothing is as interesting as it is instructive, being a story both of practicality and progress. From humble beginnings as protection for humans, it moved on to serve today as a canvas of self-expression. The Industrial Revolution changed everything, shifting the craft of fashion into mass production. While this shift brought along affordability and accessibility, it has also brought to the forefront issues about ethical labor practices and the environment. Probably the most important question for the fashion industry today is how brands can continue to embrace innovation while remaining sustainable and ethically produced.

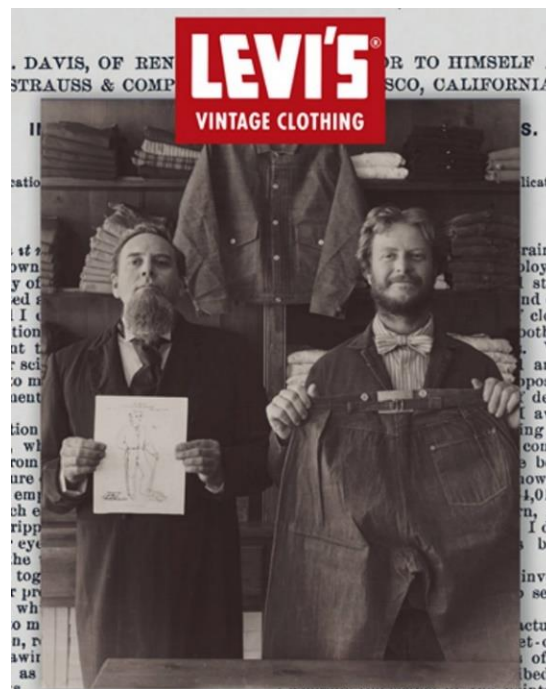
#### 2.1.1. Fashion in 1800s

Neoclassical fashion dominated this century and reintroduced elements from classical Greek and Roman art and culture. Men wore dark colors and short Spencer jackets over white culottes, while women wore light marble-colored outfits. A popular style, namely the Empire style, was characterized by a low-cut tunic with drawstrings and balloon sleeves, paired with cashmere shawls over the shoulders. Despite the middle-class women's desire to adopt a social role like men, they became a source of ridicule in satirical newspapers at the time. This is due to crinoline, a petticoat made of stiff and durable fabric enlarged by iron hoops with a circumference of up to seven meters that they wore (Giurdanella, 2024; Yellowbrick, 2023).

Charles Frederick Worth is largely recognized as the first fashion designer (Swatski, 2021). He founded the House of Worth in 1858, a ladies' tailor shop in Paris. Worth was the first man to achieve worldwide recognition in the fashion industry and one of the first to plan and present a collection ahead of time. He is well known for creating luxurious crinolined gowns and popularizing the bustle, that became a women's fashion standard in the 1870s and '80s. His works were of such great quality that they became sought after by collectors and museums, where they remained until the early twenty-first century (Britannica, 2020).

In 1873, Levi Strauss, a German immigrant to America, designed pants for California gold miners that were both comfortable and durable, meeting their demands (Giurdanella, 2024).

Picture 1 - Levi's first blue jean



Source: (Levi Strauss & Co., n.d.)

### 2.1.2. Fashion in 1900s

Without a doubt, the 20th century had the most drastic changes. During this period, the world's finest designers and major fashion houses saw the light, releasing famous pieces and creating trends that fashion historians and experts still refer to today. The dominant fashion style of the first decade of the twentieth century was the S-shaped silhouette, which pulled the chest forward and the hips back. Day dresses were long-sleeved and covered the body from neck to floor. Evening gowns mostly had a similar silhouette. Despite being more exposed, these dresses frequently required long gloves due to their short sleeves and extremely low décolletage. However, by the end of the decade, women had adopted a more natural shape (Skacenko, 2023).

Due to their popularity in the 1800s, corsets were worn underneath blouses and skirts. When it comes to male fashion, they wore mostly coats. Formal and semi-formal events required the wearing of a lounge coat. Their pants were shorter, tighter, and fitted, and their shirts were buttoned up the back rather than the front (Swatski, 2021).



*Picture 2 - S-silhouette style*



*Source: (Formichella, 2021)*

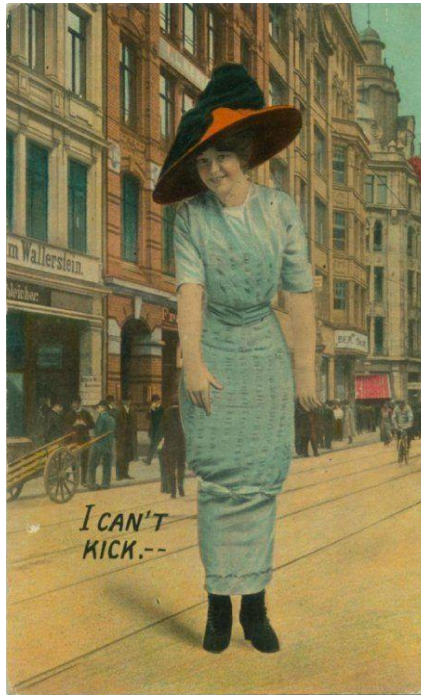
### 2.1.3. Fashion in 1910s

Designers like Jacques Doucet, Paul Poiret, Lucile (Lady Duff Gordon), and Georges Dœuillet transformed fashion. They supported dressing in less constricting attire, creating pieces that highlighted the more natural features of the female body. That is how empire dresses, which gained popularity at the start of the 1800s, made a comeback (Skacenko, 2023).

Big hats with wide brims and short hair were fashionable in the 1910s, particularly among women. Coats and skirts were both ankle-short (Swatski, 2021). The Ballets Russes' performance of *Schéhérazade* (a ballet based on *One Thousand and One Nights*) in Paris in 1910 marked a significant milestone at the start of the decade. Paul Poiret invented "harem" pantaloons and the fancy dress costume in 1911, both of which were influenced by this style. He debuted the renowned "hobble skirt" in the same year. However, it quickly proved impossible to move in and became unpopular (Skacenko, 2023).

The outbreak of World War One marked a turning point for the fashion industry. People were forced to practice greater financial restraint, which simplified clothing into something more affordable and useful. This also meant it became harder to distinguish between fashion for men and women (Wardle, 2021). Suits gained popularity in men's fashion, and the blazer was the most casual trend. They wore cuffed, ankle-length jeans. The first sneaker was also created by Keds in 1917, despite the rise in popularity of high heels (Swatski, 2021).

*Picture 3 - Hobble skirt*



*Source: (Paul, 2021)*

#### 2.1.4. Fashion in 1920s

The 1920s are well-known as the Golden Age of Glitz, Jazz, and Glamour. This period is characterized by simplicity. Fashion was influenced by ancient civilizations and art deco architecture, particularly the golden elements and architecture of Egypt, which became popular after King Tut's tomb was discovered in 1922 (Wardle, 2021). Women wanted more comfortable, minimalist clothing following the Great War. Consequently, bustle skirts, corsets, crinolines, and other items typical of the Victorian era were out of style (Skacenko, 2023). Gingham, plaid, vertical stripes, and solids were common fabrics for women's casual dresses. The flapper style is the most well-known fashion trend from this era. It was more popular among women who wished to draw attention to themselves and to be noticed on special occasions (Swatski, 2021). The flapper dress was characterized by a lowered waist and hemlines that ended just below the knee. The 1920s saw the rise of Jeanne Lanvin's "Robe de style," a more romantic interpretation of feminine clothing (Skacenko, 2023). The style consisted of a dress with a lower waistline and a voluminous skirt that reached from mid-calf to ankle, with volume or extensions originating from the hips. Lanvin's robe de style was designed for young and graceful ladies who desired a more traditional look that reflected the richness and high social position (Ellen Carleson, 2018). In public, men would sometimes still wear suits. However, as sports became more popular, the demand for sportswear also increased. In addition, instead of a suit jacket, they would wear a sweater or vest (Swatski, 2021).

*Picture 4 - Flapper style*



*Source: (Lee, 2022)*

#### 2.1.5. Fashion in 1930s

The films of the 1930s had a significant impact on fashion. Compared to the 1920s, women now let their hair grow out longer. They donned gowns, and flowery designs were very in. Women's houses became indispensable with makeup and curling irons (Swatski, 2021). A key trend was the bias cut, which is a method that lets the material fall naturally over the body (Skacenko, 2023). Men kept wearing sports suits and fedoras. Due to the Great Depression, many who could not afford suits wore less formal work attire. During this time, the trench coat also gained popularity. Casual clothing, such as knitwear and open-necked tops, gained popularity as daywear (Swatski, 2021). Throughout the 1930s, France remained the global fashion leader. The Ente Nazionale della Moda (National Fashion Board) was established in 1932 to certify and promote Italian production and products. Due to trade barriers in 1936, Italians were forced to adopt replacement materials in accessories and footwear, leading to the success of Guccio Gucci and Salvatore Ferragamo. During the postwar period, materials such as raffia, cork, hemp, broom, Lanital, and viscose were most used (Giurdanella, 2024).

#### 2.1.6. Fashion in 1940s

The war imposed numerous constraints on fashion in the 1940s (Swatski, 2021). This resulted in material shortages and rationing. Hence, fashion became more utilitarian. Padded shoulders, tight waists, and hemlines below the knee were popular looks. Jacques Heim created the bikini in 1946 because of rationing. (Skacenko, 2023).

Women's apparel that was once made of silk was now made of nylon, while other textiles such as cotton and rayon gained popularity. Jackets, blouses, sweaters, and skirts were all popular fashion items during this period. Pants became a basic piece, while dresses became more casual. The cuffed appearance remained popular in men's fashion. Later in the decade, coats started to get looser and longer (Swatski, 2021).

*Picture 5 - Utilitarian style*



*Source: (Imperial War Museums, n.d.)*

#### 2.1.7. Fashion in 1950s

The main style for ladies in the 1950s was a dress with a nipped waist and a very voluminous skirt, popularized by Christian Dior. Pencil skirts became more popular over time, and so did form-fitting dresses (Wardle, 2021). Pencil dresses cover a woman's entire body, from the neckline to the mid-calf hemline (Morton, 2020). This decade witnessed the rise of new, more slender shapes. One such item is the 1957 "Sack dress" by Cristobal Balenciaga. Moreover, trousers, a white shirt, and a leather jacket became popular styles, as was slicked-back hair, which gave individuals who wore it a rebellious appearance (Swatski, 2021).

Audrey Hepburn popularized a casual, chic outfit that featured dark, narrow slacks, basic boat-necked blouses, and flat heels. The new Beatnik style simplified a woman's appearance even further. Beatnik fashions (dresses and pants) were characterized by mostly dark neutral colors, except ethnic or bohemian embellishments (Morton, 2020).

*Picture 6 - Beatnik style*



*Source: (Batalla, 2014)*

#### 2.1.8. Fashion in 1960s

In the early 1960s, ladies wore fitted skirts, high-heeled shoes, and shift dresses. They also wore pants more often, since it became more acceptable. The late 1960s witnessed the birth of the hippie movement, another well-known fashion trend. This gave place to trends like peace signs, tie-dye, and bell-bottom jeans, which emphasized the values of "free love" and free expression. These pieces were worn by both men and women (Swatski, 2021).

The middle of the decade was referred to as the "Swinging Sixties. It was a youth-oriented cultural phenomenon emphasizing fashion and music. Mary Quant, André Courrèges, Pierre Cardin, and Paco Rabanne were among the first designers to recognize modern women's demands by designing clothes that were liberated, adventurous, and entertaining while remaining practical, and they frequently challenged traditional gender conventions. The first groundbreaking design was the miniskirt invented by both Mary Quant and André Courrèges. Mary Quant contributed to women's sexual independence with trousers and hotpants, while Yves Saint Laurent produced the first tuxedo for women. Twiggy was the most famous model of that era. By the late 1960s, fashion had shifted toward the hippie style, which was a rejection of mainstream fashion. Designers began to use more playful colors and materials, such as polyester, acrylic, and PVC. Never had the menswear scene looked so distinct. Clothing became livelier and more colorful, with larger trousers and patterned shirts. Men's and women's fashion also blended increasingly (Skacenko, 2023).

*Picture 7- Swinging sixties style*



*Source: (Gencarelli, 2021)*

#### 2.1.9. Fashion in 1970s

Fashion trends of the 1970s, like those in almost every decade, were a direct reflection of the social and political conditions of the time. Many of the attitudes of the late 1960s spilled over into the next decade. As baby boomers began to reject their parents' ideas and aspirations through antiwar protests and urban riots, fashion became a political statement as well. Bell bottoms, gauchos, ponchos, midi skirts, folk-embroidered blouses, jumpsuits, and cropped halter tops were among the fashion classics that marked the groovy environment of the 1970s (Broughton, 2023).

*Picture 8 - Disco style*



*Source: (Rucker, 2022)*

The late 1960s and early 1970s saw the rise of the hippie movement. Chokers, headbands, scarves, wood, stone, feathers, and bead jewelry were popular accessories (Swatski, 2021). Common fashion trends included patchwork, knitting, crocheting, embroidery, as well as synthetic materials. Thus, this decade is also known as the "Polyester decade" (Skacenko, 2023). Though in a very different way, punks wore tartan, leather, and chains instead of crochet. The punk movement was similarly a protest of the dominant society. Disco became popular in the 1970s, which meant sequins, hot pants, and miniskirts were everywhere (Wardle, 2021).

#### 2.1.10. Fashion in 1980s

The 1980s were possibly the most audacious decade in modern fashion history, with exaggerated silhouettes, teased perms, and saturated colors. They were the era of puffed shoulders and power suits, bright skirts and spandex leggings, velour, leg warmers, and enormous parachute pants. For the majority of the decade, eclecticism was dominant. The punk-rock look of the late 1970s - oversized leather outfits, skin-tight trousers, and lace - continued to evolve (Cerini, 2020). TV series, motion pictures, music videos, and celebrities all had a big impact on fashion as well (Swatski, 2021). Eighties culture was characterized by a strong sense of individualism and self-expression. People's choices in clothing demonstrated that they were no longer frightened to be themselves. They preferred extravagant looks, vibrant colors, and accessories. Men often wore a suit jacket and a casual T-shirt. Leather jackets and jeans, as well as Ray-Bans, were popular (Swatski, 2021).

*Picture 9 - 80's fashion*

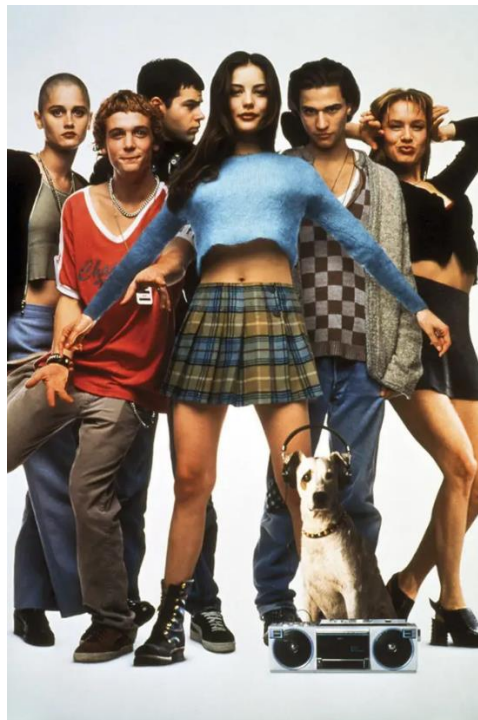


*Source: (Daly, 2022)*

### 2.1.11. Fashion in 1990s

In the 1990s, fashion became less formal than ever, with both men and women preferring jeans and baggy apparel (Wardle, 2021). During that period, denim and flannel shirts were popular fashion items. Designer labels like Tommy Hilfiger, Guess, and Versace started to gain popularity as the media focused on supermodels and fashion (Swatski, 2021). The beginning of the 1990s saw the peak of the Supermodel Era. Biker shorts, leggings, Keds, and baggy sweatshirts remained popular options for young ladies. Then, fashion shifts toward a more informal and minimalist look. The biggest trend in fashion was the slip dress. The 1990s fashion scene was defined by three distinct subcultures: grunge, preppy, and punk (oversized shirts, high-waisted jeans, plaid mini-skirts). Women also wore tie-dye, bandanas, scrunchies, leopard print, swirl patterns, overalls, and crop tops (Skacenko, 2023).

*Picture 10 - 90's style*



*Source: (Poff, 2017)*

### 2.1.12. Fashion in 2000s

Fast fashion became more popular at the start of the twenty-first century. With the rise of the internet and technology, businesses were able to begin promoting their fashion online. Bohemian clothing, maxi, and asymmetrical skirts gained popularity in the early 2000s. This decade was shaped by reasonably priced fast fashion brands like Forever 21, Zara, and H&M (Sawatski, 2021). Balletcore revitalized one of the Millennium's favorite footwear trends. Low-rise pants and skirts dominated with celebrities embracing bottoms that exposed their stomachs. Cargo pants with many pockets became fashionable (Malach, 2023).



Belts, especially those with chain details or bohemian touches like cinched rope, cinched the waist and reflected the evolving style of the era. To complement these looks, the skinny scarf became a year-round accessory (Madden, 2022).

*Picture 11 - '00s-era trends*



*Source: (Marzovilla, 2022)*

### 2.1.13. Fashion in 2010s

Things began to change in this decade. The fashion industry has witnessed a complete revolution in how clothing is worn, created, and promoted. We've seen a lot of changes in the industry with the rise of social media, influencer culture, sustainability, and eco-friendly fashion (Wardle, 2021). Many women embraced fitness. The tracksuit, which gave rise to the athleisure trend in the previous decade, persisted in its popularity. (Skacenko, 2023). In terms of 2010s fashion trends, things like sneakers, dad jeans, and logo-heavy clothing appeal to a lot of people. Fashion has become more casual. The long-awaited inclusiveness and diversity movement had a significant impact on the industry. Designers and brands pledged to make their businesses, runways and designs accessible to people of all races, gender identities, sizes, and ages (Ilchi, 2019).

## 2.2. Rise of fast fashion

Fashion is an integral part of our everyday lives, and individuals spend a lot of money on clothing and accessories every day, making the fashion sector a critical component of the worldwide economy (McKinsey, 2021). Since the 21st century, worldwide clothing production has risen due to decreasing operational costs and increased consumer spending (The Economist, 2017). Consequently, customers are buying more fast fashion items now than ever before (Camargo *et al.*, 2020). Fashion design has historically prioritized economic growth through rapid product development (Pedroso-Rooussado, 2023).

The rise of fast fashion has had severe consequences, including its dependence on plastic fabrics, its large carbon footprint, and its negative impact on workers' rights. Despite the low monetary cost, textile workers and the environment pay a high price. Fashion brands have traditionally attracted customers with new styles and lower prices, planning new collections many months or even years in advance. The pace of change was slower, and there were fewer products available. In contrast, fast fashion aims to quickly respond to rapidly changing consumer tastes (Crumbie, 2024).

Fashion trends change all the time. Every year, fashion designers release new clothing lines developing new fashion trends. Occasionally, old fashion trends are reintroduced (Swatski, 2021). Fast fashion is defined by frequent consumption, short product lifecycles, and low-cost production processes. The strong desire that many have for high-end apparel is somewhat satisfied by fast fashion (Bishnoi & Guru, 2024). The name originated in the early 1990s when Zara arrived in New York. The New York Times used the term "fast fashion" to characterize Zara's objective of completing a garment from design to sale in stores in 15 days. Zara, UNIQLO, Forever 21, and H&M are among the most prominent fast fashion brands (Maiti, 2024). Nevertheless, the environment suffers greatly because of its quick pace and low costs (Colucci & Vecchi, 2021).

Until the mid-twentieth century, the fashion business had four distinct seasons: fall, winter, spring, and summer. Designers would plan for each season months in advance and estimate the designs that consumers will prefer. Nowadays, fast fashion firms generate approximately 52 "micro-seasons" per year - or one new "collection" per week, resulting in tremendous consumption and waste. This began when Zara switched to biweekly deliveries of new goods. Since then, it has become normal for retailers to always keep a massive supply of stock on hand, ensuring that companies do not run out of clothing. The brands then have a vast number of apparel and can ensure that customers never run out of inventory. Overproduction criticisms have primarily targeted brands such as H&M, Topshop, and Zara. Apparel firms produce 53 million tons of clothing each year. If the industry continues its exponential expansion, it is predicted to reach 160 million tons by 2050. Historically, fashion dictated rigid norms for high society (Stanton, 2024).

The fashion industry as one of the biggest drivers of the world's economy, has dramatically changed over the last few decades. Fast fashion rose in this period, giving life to fast product turnovers, low prices, and an increasing focus on consumer demand. This has had several positive and negative implications. While this has created greater accessibility to fashion and fueled economic growth, it has also resulted in environmental degradation, labor exploitation, and a culture of overconsumption. As the industry moves deeper into a new trajectory, issues of sustainability, ethics, and shifting to a more considerate and slow approach in fashion consumption become the most startling concerns of these times.

### 2.3. Challenges in the fashion industry

Three basic needs define human life: food, energy, and clothing. However, how we obtain these essentials significantly impacts the environment. Everything we choose, individually and together, contributes to climate change, releasing CO<sub>2</sub> emissions and depleting natural resources. These choices also influence social behaviors and attitudes. The global fashion industry is a prime example of this environmental impact. Projected to grow from \$1.5 trillion in 2020 to a \$2.25 trillion by 2025, the demand for fashion is clearly on the rise. This significant growth puts a heavy strain on Earth's resources. Climate change, soil scarcity, and various environmental threats are forcing the fashion industry to rethink its practices. Developing new resources from recycled materials, using natural dyes instead of synthetic ones, and minimizing water use are all crucial steps toward a more sustainable future. Moreover, a shift in consumer mindset is essential. We need to move away from the "buy-and-throw-away" mentality and embrace a more mindful approach – "buy less, buy better." This transition is key to ensuring the long-term sustainability of the fashion industry and the environment that sustains it (Papamichael *et al.*, 2023). As the population grows, the demand for essentials like food, water, and housing rises. Consequently, this translates to a growth in garment consumption. A growing population and the rapid pace of fast fashion have led to a twofold increase in clothing production over the past 15 years, with significant environmental impacts (Frazier *et al.*, 2024).

In recent years there have been documented different research on the social and ecological effects of the fashion business. This industry is known for being highly polluting over its whole life cycle (Freudenreich & Schaltegger, 2020; Rosa *et al.*, 2019; Caniato *et al.*, 2012). The past two decades have witnessed a confluence of factors fostering the excessive consumption of apparel and a shift in societal perception, leading to clothing being viewed as disposable rather than durable goods (Zurich, 2023). The fashion industry has witnessed phenomenal growth over the past two decades, with consumer apparel purchases rising by an astounding 60% compared to 15 years ago. This expansion, however, has come at the cost of significant environmental damage. Clothing waste has surged due to a confluence of factors, including the premature discarding of garments, overproduction by manufacturers, and the use of inexpensive, low-durability materials. Alarmingly, nearly one-third of all clothing produced is never even sold, ending up incinerated or discarded in landfills (Nijman, 2019; CDP, 2020). Fashion has always faced its own set of obstacles. From adapting to shifting customer tastes to understanding the impact of ever-changing cultural trends on consumer demand (Hickins, 2023).

While modern technology creates chances for creativity and efficiency, it also offers obstacles to the fashion business. Brands must adapt to changing consumer habits and use technology to achieve sustainable production, supply chain management, and engaging customer experiences (Baukh, 2023).

The fashion industry has faced criticism for failing to address social and environmental concerns, bringing non-financial expenses to the forefront of global debate (Niinimäki *et al.*, 2020). The rapid generation of fast fashion has triggered both environmental and social concerns. One of the best cases is Zara, a major industry player, which annually produces a staggering 840 million garments for its global network of stores. This relentless production cycle often relies on a workforce in developing nations, where wages can be significantly below a living standard. Furthermore, the environmental toll is substantial. Industrial wastewater discharge from these factories has devastated once-vibrant rivers, transforming them into barren ecosystems contaminated by carcinogenic chemicals. To exacerbate the issue, synthetic clothing releases microscopic plastic fibers during the laundering process, which contaminate our water sources and infiltrate the food chain (Chua, 2019).

Textile demand is rapidly rising as the world's population expands. However, this places tremendous pressure on producers to create more fiber. Synthetic fibers are inexpensive to make, yet they have a harmful influence on the environment. Wool, sisal, fique, wood pulp (viscose), and man-made cellulose fibers (MMCFs) from cotton, on the other hand, cannot supply rising fiber demand without putting significant strain on land, water, and existing markets for these commodities (Frazier *et al.*, 2024). A material that can take on many different forms is woven into clothing. It may have the wool's texture, the linen's lightness, or the silk's smoothness. It's in two-thirds of the clothing, yet most of the people don't realize it's there. It's plastic and a major issue (Bryce, 2021).

Ethical considerations in fashion production have become a major focus in recent years. Existing definitions of ethical fashion primarily center on two key areas: the environmental impact of production and the well-being of those involved in the manufacturing process. However, in recent years, consumers and the fashion industry have recognized that this consumption pattern is problematic, and fashion ethics has risen to the forefront (Haug & Busch, 2016).

The fashion industry stands as a significant contributor to global pollution. This distinction arises, in part, from its continued reliance on the "take-make-dispose" linear fashion system. A model that fosters unsustainable exploitation of finite natural resources and energy, further exacerbating environmental sources (Abdelmeguid *et al.*, 2024). It is built on a cycle of continuous stylistic innovation, catering to a market obsessed with novelty, where trends replace each other rapidly (Binotto & Payne, 2017). Undeniably, the fashion industry holds a prominent position among global industries. However, this prominence comes at a significant cost, as the industry ranks amongst the highest contributors to environmental degradation and leaves a substantial social and ecological footprint (Armstrong *et al.*, 2015; Colucci & Vecchi, 2021).

While its growth has been fueling economic prosperity, great environmental and social costs are associated with it. With the given production pace, driven by consumer demand and technological advances, resource depletion, pollution, and labor exploitation increased.

If sustainable, the industry needs a basic transformation for the future. The same will need to make shifts toward circular economy principles, ethical production practices, and a consumer mindset of quality, durability, and mindfulness in consumption. Such seized opportunities are what can turn fashion into a driver of positive change in the face of formidable challenges.

### 2.3.1. Production

As trends change faster, companies are under increasing pressure to make clothing more quickly. Fast fashion brands are not merely responding to consumer demand; they are actively shaping and creating it. Factories are expected to develop new lines with only a few months' notice, making their workload - and thus the quantity of employment they can provide to workers - unpredictable and unstable (Crumbie, 2024).

With higher production rates and uncertain supply channels, corners are bound to be cut. Clothing is manufactured in a rush, and brands sell extremely low-quality clothing. There isn't enough time for quality control - especially when clothing needs to be distributed quickly (Stanton, 2024). The fashion industry's linear business model, which follows "take-make-throw," leads to overproduction, overconsumption, and waste, producing between 100 billion and 150 billion clothes per year worldwide, a figure that has more than doubled since 2000. This is driven by companies that produce large volumes of textiles at low prices and with quick turnover. The more garments ordered, the lower the price per garment. This makes extra items profitable since they can be sold at a discount and still make money, leading to more production and consumption. It encourages excessive production and consumption. However, greater production causes a rise in textile waste. Many materials go to waste because they cannot be used before production, while others are destroyed shortly after production. The rise of fast-fashion brands like Boohoo, Fashion Nova, PrettyLittleThing, and SHEIN has increased overproduction. According to Business of Fashion, from January to April 2022, the company introduced over 300,000 new clothing items on its website. According to Textile Exchange's Materials Market Report 2023, worldwide fiber output climbed from 112 million tons in 2021 to a record 116 million tons in 2022 and is predicted to reach 147 million tons by 2030. It is estimated that between 10% and 40% of the millions of clothes manufactured annually are not sold, resulting in an excess that needs to be disposed of. The fashion business manipulates consumers to raise demand for their products and profits through effective social media advertising efforts. Every year, fashion customers purchase more than 80 billion new clothes, up more than 400% from two decades ago. The fashion industry's global pollution footprint is driven by three key stages: dyeing and finishing textiles (contributing 36%), yarn preparation (28%), and fiber production (15%) (Quantis, 2018; Montero, 2024). The report also revealed that growing cotton uses the most freshwater and affects ecosystem quality the most. Processes like dyeing, finishing, yarn preparation, and fiber production have the biggest impact on resource depletion because they use great energy from fossil fuels (Maiti, 2024).

As mass production of clothing increased, global demand surged. The pursuit of raw materials fueled exploration, leading to the establishment of new trade routes and the colonization of foreign territories. Different cultures began to mix, blending fashion and trends. The industry keeps evolving due to consumer demands, innovation, and global trends (Marshall, 2023).

### 2.3.2. Water pollution

The never-ending production of new clothing comes at a high environmental cost. Every year, the industry uses 93 billion cubic meters of water, enough to cover the consumption demands of five million people. There are various issues with the materials and techniques employed. Cotton production, for example, accounts for 6% of global pesticide consumption and 16% of insecticide use (Crumbie, 2024).

Water scarcity is a major manufacturing concern. Cotton production has overused freshwater resources due to high demand. Excessive water extraction for agriculture has negatively impacted local ecosystems and led to water shortages in affected regions. Industrial dyes and synthetic fibers are another big source of pollution in the fashion industry. These dyes are very poisonous and can cause pollution, posing a significant environmental hazard. The textile business produces a lot of wastewater with contaminants, which can harm aquatic ecosystems and human health (Singh & Bansal, 2024). Dyeing and finishing textiles pollute water with many harmful substances, including oil, chemicals like phenol, dyes, pesticides, and even toxic metals like copper, mercury, and chromium. Polluted water can find its way into neighboring streams and groundwater and be used to irrigate crops, poisoning food supplies with carcinogenic substances (Bandera, 2024). Farmers sometimes use intensive farming methods such as pesticides and fertilizers to fulfill the ever-increasing demand for cotton (WWF, 2024). These agrochemicals reduce soil quality and upset the soil ecosystem's delicate balance of microbial populations. Furthermore, toxic runoff pollutes surrounding water sources, endangering local biodiversity (Rao, 2022; Bandera, 2021). Cotton producers need up to 10,000 liters of water to produce a single pair of jeans (Hickins, 2023). According to studies, a cotton t-shirt requires 2,700 liters of fresh water, which is enough to meet a person's drinking needs for 2.5 years. Textile production is projected to contribute around 20% of worldwide clean water contamination from dyeing and finishing processes. A single load of polyester garments can emit 700,000 microplastic fibers, which can wind up in the food chain. The vast majority of microplastics from textiles are discharged during the first few washes. Fast fashion is defined by large-scale manufacturing, affordable prices, and high sales volumes, prompting numerous initial washes. Every year, washing synthetic materials causes more than half a million tonnes of microplastics to accumulate on the ocean's bottom. Besides being a global problem, pollution from garment production adversely affects the health of people, animals, and ecosystems near the factories (European Parliament, 2020). The production of synthetic fabrics presents an additional environmental burden through its wastewater.

This process, which has a staggering annual footprint of 70 million barrels of oil, generates wastewater laden with harmful pollutants. These pollutants include lead, arsenic, and benzene, all of which pose a significant threat to the health of aquatic ecosystems and potentially even human health if the water sources are not adequately treated (CDP, 2020).

Environmentalists all around the globe are concerned about the textile industry's polluting of water sources with microfibrils (small synthetic fibers), which may spread across rivers and seas (Ma, 2022). Washing clothes contributes to ocean pollution by releasing 500,000 tons of microfibers annually, comparable to 50 billion plastic bottles. Unfortunately, fast fashion issues are frequently neglected by customers (Maiti, 2024). The environmental threat posed by microfibrils extends beyond the production process. These microscopic plastic fibers are continuously shed from synthetic clothing, not only during manufacturing but also during wearing and laundering. This persistent shedding contributes significantly to microfiber pollution, a growing environmental concern. Microfibrils can take centuries to decompose and disrupt the delicate balance of underwater ecosystems. Disturbingly, research has identified traces of microfibrils derived from synthetic materials, like polyester and nylon, in fish and other seafood consumed by humans, raising concerns about potential health risks (Halstead *et al.*, 2018; Liu *et al.*, 2021).

A significant knowledge gap persists concerning the fashion industry's precise contribution to global water pollution. Limited monitoring practices and a reluctance to disclose relevant data by many companies hinder efforts to quantify the industry's impact. Research suggests a concerning lack of awareness among fashion brands, with only an estimated 10% actively measuring their water pollution levels. Furthermore, only a quarter of companies have implemented concrete goals for water pollution reduction across their supply chains. While some major retailers, such as Gap Inc. and H&M, have acknowledged their role and implemented initiatives to reduce water use and contamination, the long-term efficacy of these efforts remains to be evaluated. Further investigation is required to determine whether these measures represent genuine progress toward environmental sustainability or a form of strategic communication aimed at appeasing environmentally conscious consumers (CDP, 2020).

### 2.3.3. Textile waste

The textile sector generates around 92 million tons of textile waste per year (Crumbie, 2024). The prevalence of low prices has fostered a culture of disposability within the fashion industry. This is evidenced by the stark disparity between garment production and disposal rates, with estimates suggesting that three clothes are discarded for every five new ones manufactured yearly. Research further addresses this unsustainable trend, indicating that 90% of our clothing is prematurely disposed of before reaching its natural lifespan (Remy *et al.*, 2016). This industry operates worldwide, with brands shipping products to regions with different infrastructures, logistics, and regulations. A textile waste recovery system that works well in one country might not be effective in another (Wojnowska-Baryła *et al.*, 2024).

Most materials used in the fashion, textile, and clothing industries are derived from agriculture and the oil industry. Textiles are produced from fibers, which can be natural, man-made, or regenerated. Natural fibers encompass animal hair and wool, as well as crop fibers such as cotton and hemp. Synthetic fibers are produced through the polymerization of smaller molecules into larger ones (Sinclair, 2015).

Man-made fibers constitute 75% of all fibers produced globally and approximately 80% of those produced in Europe, including Turkey. In 2021, the global production of these fibers reached 113 million tons. The most significant synthetic fiber for clothing production is polyethylene terephthalate (PET), representing the largest portion, at 54%, of the total fiber production (Textile Exchange, 2022). Polyester is the most common synthetic fiber that's usually made from PET, a type of plastic that comes from crude oil and natural gas and is also used to make plastic bottles. Polyester manufacture for textiles alone was responsible for emissions of more than 700 million tons of CO<sub>2</sub> equivalent. The widespread use of plastic in clothing means that the textile industry uses 15% of all plastic. Only the construction and packaging industries use more plastic. (Crumbie, 2024). Regenerated fibers are manufactured from natural polymers that can be regenerated into useful fibers. Rayon, also known as viscose or viscose rayon, was one of the first materials to be regenerated from wood pulp (Wojnowska-Baryła *et al.*, 2024).

Textile waste includes items that are not wanted after making and using fibers, textiles, or clothes. Textile waste falls into three categories: pre-consumer, post-consumer, and industrial. The first category, pre-consumer textile waste, comes from making fibrous materials and it's regarded as clean waste. This category encompasses unsold inventory and returns from sales, as well. It includes biodegradable materials such as fabric scraps, fiber fluff, fiber waste, and yarn waste. These materials can either be recycled into new raw materials or decompose naturally. The following category is post-consumer textile waste, which includes discarded apparel, and home textiles like pillowcases, sheets, and towels that are no longer considered valuable due to deterioration. Industrial textile waste, originating from commercial and industrial sources, is called dirty waste. This waste is produced during the making of fibers, yarns, fabrics, and clothing (Wang, 2006).

Moreover, people now discard their unwanted clothing rather than donate it. Less than half of used clothes are collected for reuse or recycling, and only 1% are recycled into new ones. Only 1% of old garments are recycled into new ones (European Parliament, 2020). According to the United Nations Framework Convention on Climate Change, emissions from textile manufacturing alone are expected to increase by 60% by 2030 (United Nations Climate Change, 2018). Textiles as a resource-intensive sector fails to prioritize waste prevention over reuse and recycling, as outlined in the waste hierarchy. Legislative requirements promoting the 3R rule (reduce, reuse, recycle) are crucial in waste management (European Commission, 2022). Over the past decade, firms have emerged to collect used clothing through public drop boxes, tailored resale markets, shop collection boxes, and municipal curbside recovery initiatives.



Different solutions have been developed to tackle the textile waste problem such as recycling systems, online platforms for surplus fabric and clothing, repair services catering to businesses, and resale as a retail strategy (Wojnowska-Baryła *et al.*, 2024). This trend is affecting other textile sectors, like home textiles and upholstered furniture, such as Ikea's pilot program for reselling and reusing furniture, now available in certain Ikea stores, such as those in Spain (IKEA, 2024).

Every year, garments discharge half a million tons of microfibres - the tiny fragments of fabric that are released when clothes are worn, cleaned, or disposed of and end up in our bodies and the natural environment - into the ocean, equivalent to more than 50 billion plastic bottles. These fibers have been discovered practically everywhere, from the highest point of Mount Everest to the placentas of newborn babies. We still don't know what consequences they may have (Ellen MacArthur Foundation, 2018).

#### 2.3.4. Carbon emission

Carbon emissions refer to the release of carbon dioxide (CO<sub>2</sub>) and other gases into the atmosphere. While some carbon release occurs naturally, human activities are the primary culprit. The Industrial Revolution, with its reliance on coal-powered machines, significantly increased greenhouse gas (GHG) levels. These GHGs, including methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and various fluorocarbons, act like a blanket around Earth, trapping heat from the sun and causing global temperatures to rise. Human impact on the environment is measured by the so-called carbon footprint. This refers to the total amount of greenhouse gases emitted through our activities, from producing goods to consuming services. The carbon footprint is expressed in tons of CO<sub>2</sub> equivalent, allowing the comparison of the climate impact of different actions, individuals, or countries (Hermant, 2021).

Climate change exacerbates the challenges the fashion industry faces, which already contributes significantly to pollution and emissions throughout its manufacturing processes. The global journey of fashion items, from raw materials to final products, involves transportation by ships, aircraft, and trucks, all of which add to air pollution and greenhouse gas emissions. This international supply chain boosts carbon emissions, undermines local fashion sectors, and promotes unsustainable practices. As global temperatures rise, the coming decades will see increased flooding, droughts, and unpredictable weather patterns. The fashion industry, a major contributor to global carbon emissions, must navigate these severe issues. Every stage of the fashion manufacturing cycle produces pollutants and emissions, from the substantial water usage in cotton cultivation to the agricultural practices in leather production, the use of industrial dyes and synthetic fabrics, and the transportation of goods. (Singh & Bansal, 2024).

A 2019 study examining 15 textile dyehouses revealed a concerning level of resource consumption and wastewater discharge. The average annual production of colored fabric reached 7,602.88 tons, highlighting the industry's significant output.

This production, however, relied heavily on energy and groundwater resources, raising concerns about sustainability. Furthermore, a troubling level of energy consumption, averaging 2.58 kWh per kilogram of fabric was documented. This high energy demand translates to a substantial environmental footprint. Moreover, the average wastewater reached a critical level of 97.27 liters per kilogram, indicating significant potential for water pollution. The research explored potential strategies. The proposed methods aimed to achieve a 5% annual reduction in both groundwater usage and energy consumption across each facility. In 10 years, estimates suggest a total water savings of 355.43 million liters and an electricity savings of 6,540.68 MWh. This would result in a reduction of 4,167.08 tons of CO<sub>2</sub> emissions (Al Mamun *et al.*, 2022).

The fashion industry is a major source of environmental damage. It is estimated to be responsible for up to 10% of global carbon emissions and is the second-largest consumer of water. Data suggests that in 2021, the industry emitted a staggering 897 million metric tons of carbon dioxide equivalents. Unless substantial interventions are implemented, this figure is projected to rise to nearly 1.3 billion metric tons by 2030 (Smith, 2022). Furthermore, the fast fashion culture, which emphasizes frequent wardrobe updates based on trends, has exacerbated water pollution and waste generation. This environmental burden has detrimental consequences for both ecosystems and human health (Bandera, 2024). This figure is strikingly equivalent to the total climate impact of the entire European Union. Analysts from Euromonitor warn that the fashion market's steady annual growth rate of 5% poses a substantial threat to the planet's resources. This trajectory is projected to result in a staggering increase in annual apparel production, exceeding 100 million tons by 2030 (Williams, 2019). Furthermore, the United Nations Framework Convention on Climate Change (UNFCCC) predicts a potential 60% rise in emissions solely from textile manufacturing if no corrective measures are implemented. These projections underscore the urgent need for the fashion industry to adopt more sustainable practices to mitigate its environmental footprint (United Nations Climate Change, 2018). Projections indicate a potential increase exceeding 50% in greenhouse gas emissions attributable to the fashion industry by 2030 (The World Bank, 2019).

The fashion industry is the world's second-largest water user and a top polluter, emitting more greenhouse gases than international flights and shipping combined. It depletes water resources and pollutes rivers and streams, and 85% of all textiles end up in landfills each year (Maiti, 2024). To achieve a sustainable future, it is imperative to reduce greenhouse gas emissions. A significant step towards this goal is to minimize carbon emissions (Tekin *et al.*, 2024).

### 3. SUSTAINABILITY AND FASHION

#### 3.1. Sustainability and its development

Meeting current demands without sacrificing the capacity of future generations to satisfy their own needs is the idea behind sustainability. Sustainable practices aim to protect natural resources and maintain ecological balance (Muthu & Gardetti, 2020; Yıldırım *et al.*, 2020). An activity is considered sustainable if it can be continued indefinitely without depleting resources or harming the environment (Shrouk *et al.*, 2024).

Conversely, unsustainable practices consume resources faster than they can be replenished, ultimately leading to resource scarcity (Abdella *et al.*, 2023). The climate crisis and other environmental threats drive a surge in awareness for a sustainability transition (Varadarajan, 2017). Climate change is a negative outcome of unsustainable human activities that cause ecological alterations. The improvements witnessed in the post-industrial era, characterized by technological disruption and widespread automation, have contributed to a deterioration of environmental balance and a widening of social disparities. Climate change's physical threats represent problems to existing supply networks, corporate structures, and decision-making (McKinsey, 2020). Businesses are discovering how to produce value by implementing sustainable practices. However, developments in the fashion sector are slow and challenging (de Brito *et al.*, 2020; Niinimäki, 2015; Pedersen and Reitan, 2015).

Since the 1960s, there has been a growing public interest in the environment. Consequently, corporations have started using green marketing to improve their image and appeal to environmentally concerned consumers (Szabo & Webster, 2021). In pursuing a sustainable business model, marketing plays a critical role by acting as the bridge between customer needs and a firm's offerings. By focusing on customer needs first, businesses can build strong relationships with their customers and make a long-term profit. (Tolkamp *et al.*, 2018).

Sustainability has ascended to the forefront of discourse within both academia and industry. This rise in prominence can be traced back to the late 1980s when a heightened global awareness regarding the depletion of natural resources spurred a paradigm shift towards sustainable development practices. Pollution from factories and global warming caused by humans are happening at the same time. Manifestations of this includes a thermally stressed planet, erratic cyclone occurrences, frequent episodes of drought, glacial recession, and diminishing terrestrial vegetation cover. The fashion industry amplifies these issues through its reliance on a high-consumption model, characterized by excessive waste generation and disposal practices alongside unsustainable production processes. This phenomenon, often referred to as conspicuous consumption, has fueled the exponential growth of the fast fashion industry. The detrimental effects of this industry are multifaceted, impacting ecological sustainability, social equity within the production chain, and overall economic sustainability (Ray & Nayak, 2023).

The escalating costs of climate-related disasters have forced a dramatic rethink among global corporations. A pivotal shift occurred in 2023 as business leaders increasingly recognized the financial imperative of sustainability. Sustainability initiatives received minimal investment in both 2022 and 2023, accounting for less than 1% of total revenue. In contrast, marketing expenditures consumed a significantly larger portion of the budget, averaging 9.1% of annual revenue (Garcia, 2024). Sustainability is rapidly evolving from a mere obligation to a strategic investment with significant value-creation potential. While only one-third of organizations planned to increase sustainability spending at the end of 2022, this figure has now surpassed half, demonstrating a marked shift in priorities (Capgemini, 2024).

2024 has the potential to be a pivotal year for sustainability, building on the significant progress made in 2023. The global community's concerted efforts on climate, nature, and equity, as exemplified by the outcomes of COP28, have created substantial momentum. However, the road ahead is likely to be challenging. Competing priorities, particularly geopolitical tensions - including the Israel-Hamas conflict, the war in Ukraine, and US-China relations - coupled with a global election cycle, will undoubtedly divert attention and resources. This complex landscape will require leaders to balance energy security, supply chain resilience, and political imperatives with the urgent need to address sustainability challenges (ERM, 2024). Securing a sustainable future for the world and humanity is a significant challenge (Environmental Audit Committee, 2019).

### 3.1.2. Circular economy and sustainability

Due to the anticipated population growth, the demand for raw materials is expected to double within the next forty years (European Commission, 2018). The escalating challenges posed by anthropogenic carbon dioxide emissions, marine plastic pollution, and rising sea levels have necessitated the emergence of a new humanitarian crisis. Climate change is increasingly recognized as a primary driver of forced displacement, giving rise to the phenomenon of climate refugees (Bayes, 2018).

For a long time, the industry has sought guidance on implementing sustainable development strategies. The Circular Economy (CE) is the latest effort to conceptualize the sustainable integration of economic activity and environmental well-being (Murray *et al.*, 2017). The CE is a concept that can help shift the fashion industry from linear to circular. It can also be used as a tool to help create an ethical fashion industry that is backed by individuals who embrace sustainability as their guiding principle (Onur, 2020). This linear model is characterized by mass consumption and production and has exceeded planetary boundaries. Consequently, the current system is unsustainable and necessitates a transformative approach (Esposito *et al.*, 2018). In response to the threats and consequences of the linear fashion system, the circular economy proposes a paradigm shift from models like the 'take-make-dispose' approach to a more sustainable 'take-make-reuse' model. (Abdelmeguid *et al.*, 2024; Ki *et al.*, 2020).

The United Nations' 17 Sustainable Development Goals (SDGs), particularly SDG 12: "Responsible Consumption and Production," further emphasize the need for a circular economy. This approach promotes efficient resource management and extends the lifespan of goods, aligning perfectly with the goals' focus on responsible use of the planet's limited resources. So long as a product retains its maximal value, it is consumed in a circular economy. The wasted product is recycled into new products. Circular fashion encourages reusing, repairing, and restoring things through rentals, recycling, upcycling, and buying used clothing (Vehmas *et al.*, 2018; UN 2023). The circular economy aims to keep things in use for as long as possible. This means finding ways to turn waste back into useful materials or products, so their value isn't lost (Merli *et al.*, 2018).

The CE prevents waste from arising in the first place and keeps resources within the economy. This is accomplished by redistributing the intrinsic worth of goods through reuse rather than discard. However, the fashion sector must address problems that prevent the transition from linear to CE. The efforts to investigate these issues have increased in recent years due to the developing nature of CE in the fashion industry (Abdelmeguid *et al.*, 2024). The CE challenges traditional economic models by prioritizing product design to harmonize ecological systems and economic growth. Rather than simply reducing environmental impact, the CE aims to create self-sufficient production cycles where materials are continuously reused, effectively dividing economic activity from resource depletion (Genovese *et al.*, 2017).

Sustainability initiatives can sometimes produce unintended negative environmental outcomes (Laurenti *et al.*, 2016). Such challenges may arise from the nature of a company's business environment. Given the complex relationships between organizations, achieving a circular economy transition requires a collective effort rather than isolated actions by individual companies (Parida *et al.*, 2019). Organizations often face a critical challenge when pursuing sustainability initiatives: the risk of diminished quality and competitiveness. This paradoxical tension arises when environmentally friendly actions inadvertently compromise product or service standards. To navigate this complex issue, businesses must implement both defensive and proactive strategies (Daddi *et al.*, 2019).

For instance, H&M introduced its "Conscious" line in 2019, claiming to use organic cotton and recycled polyester. Despite marketing the line as "sustainable fashion," the company faced criticism from the Norwegian Consumer Authority. The authority argued that H&M provided insufficient information to substantiate its sustainability claims, especially considering the collection's emphasis on environmental benefits. This case highlights the challenges of vague and unregulated terms like "sustainable" and "green," which can be exploited for marketing without concrete evidence. Essentially, H&M's "Conscious" line serves as a prime example of greenwashing, where environmental claims are used to enhance a brand's image without significant changes to its practice (Robinson, 2022).

### **3.2. Corporate Social Responsibility**

Corporate social responsibility (CSR) is the concept that firms should follow principles and practices that benefit society and the environment. CSR extends beyond legal obligations: by actively embracing ethical, sustainable, and responsible business practices, organizations attempt to benefit consumers, shareholders, employees, and society (McGrath & Jonker, 2023).

The idea of companies having a responsibility to do good things for society started in 1953. Business should help people and the world, not just make money. This idea grew into other ideas like being a good citizen, checking how well a company is doing for society, and taking care of the company like it's your own. Later, people started to think about what it means for a company to be good to society. This concept gave rise to others such as corporate social responsibility, citizenship, and treating a business as if it were your own. Later, the question of what it means for a business to be socially responsible began to get serious attention (Singh, 2024).

Until recently, most large businesses were nearly entirely focused on maximizing profits. However, in recent decades, many corporate leaders have understood that they must do more than simply maximize profits for shareholders and executives. Rather, they have a social obligation to do what is best for people, the environment, and society. This insight has resulted in the rise of firms that identify as socially responsible. Most businesses choose CSR because of moral convictions, which can lead to a variety of advantages and significant social change. CSR efforts, for example, can be an effective marketing strategy, allowing a firm to position itself favorably in the eyes of consumers, investors, and regulators. These activities can also boost employee and customer experience (Stobierski, 2021).

As part of their fundamental beliefs and corporate philosophy, several corporations are now incorporating green initiatives like social responsibility and cultural innovation more and more. Being socially and environmentally conscious - a top priority for all markets - gaining an edge over competitors and keeping up with consumer trends are the three primary causes (Choi & Han, 2019). CSR positively influences an organization's overall reputation (Gutiérrez-Rodríguez, 2017).

Patagonia has established itself as an industry leader in environmental initiatives. Since 1985, the company has consistently allocated 1% of its sales to grassroots environmental organizations. Furthermore, Patagonia has committed to 100% renewable energy across its operations and has implemented robust supply chain initiatives to minimize water consumption, eliminate toxic substances, and reduce greenhouse gas emissions. The brand's dedication to sustainability is evident in its use of 88% sustainable materials, including regenerative organic cotton, hemp, and recycled fibers, in its most recent collection (Kanezato, 2022).

### 3.2.1. Types of corporate social responsibility

#### 3.2.1.1. *Environmental responsibility*

More companies are evaluating their environmental impact and participating in CSR initiatives to protect natural resources and reduce their contribution to climate change. CSR promotes company sustainability through environmentally friendly activities such as energy reduction, the utilization of renewable resources, and waste minimization. Environmental responsibility is based on reducing the negative effects of corporate operations (mainly by restricting pollution-causing activities) while compensating them via tree planting and participation in biodiversity-supporting initiatives (McGrath & Joker, 2023). Environmental responsibility is the principle that organizations should minimize their negative impact on the environment. Some companies refer to this as "environmental stewardship."

Local environmental stewardship refers to actions taken by individuals, groups, or networks to protect, care for, or responsibly use the environment in various social-ecological contexts to achieve environmental and/or social goals. Businesses can enhance their environmental responsibility by implementing strategies that minimize their ecological footprint. This involves reducing pollution, greenhouse gas emissions, and waste, including single-use plastics. Additionally, optimizing water usage and transitioning to renewable energy sources are crucial steps. Incorporating recycled and sustainable materials into production processes further contributes to a circular economy and reduces environmental impact (Stobierski, 202; Bennet *et al.*, 2018). According to a recent Deloitte research, 93 percent of business executives think that their organizations are more than just employers; they are also stewards of society (Deloitte, 2019).

#### 3.2.1.2. *Ethical responsibility*

Ethical or human rights social responsibility is a subset of corporate social responsibility focused on ensuring businesses operate in alignment with human rights principles. Companies must adhere to ethical practices and safeguard human rights throughout their operations guided by international standards like the Universal Declaration of Human Rights. Implementing ethical and human rights social responsibility initiatives offers numerous advantages. Organizations can bolster their reputation, build trust with stakeholders, and foster positive relationships with employees, customers, and communities. Additionally, such initiatives mitigate risks associated with human rights violations, ensure legal compliance, and contribute to overall sustainable development (Dash, 2023).

CSR programs frequently address social impact and human rights issues, such as guaranteeing fair wages, safe working conditions, and proper treatment of employees and suppliers (McGrath & Jonker, 2023). In fashion, the phrase 'ethical' refers to the positive effect of a designer, a customer's choice, and manufacturing processes (Haug & Busch, 2016).

Organizations that accept ethical responsibility seek to demonstrate ethical behavior by treating all stakeholders fairly, including leadership, investors, employees, suppliers, and customers (Stobierski, 2021). The fashion industry is fraught with ethical challenges, including labor exploitation in supply chains, significant environmental pollution, and the promotion of excessive consumerism (Flood *et al.*, 2023).

#### 3.2.1.3. *Philanthropic responsibility*

Philanthropic responsibility refers to a company's goal of actively improving the world and society. Organizations motivated by philanthropic responsibility frequently donate a percentage of their profits in addition to performing ethically and environmentally (Stobierski, 2021).

Companies that embrace philanthropic corporate social responsibility (CSR) actively participate in their business areas. They do this by volunteering, sponsoring events, donating to nearby NGOs, and funding training programs (McGrath & Jonker, 2023). CSR extends beyond a company's core business functions to create a positive community impact. By engaging in philanthropic activities, businesses can enhance their reputation, as consumers increasingly support socially conscious brands. Additionally, CSR fosters employee satisfaction and engagement while contributing to the overall well-being of communities (Dash, 2023).

#### 3.2.1.4. *Economic responsibility*

Economic responsibility is the practice of a company basing all of its financial decisions on its desire to do good. In addition to maximizing profits, the ultimate objective is to ensure that corporate operations have a positive influence on society, the environment, and people (Stobierski, 2021). Corporate social responsibility entails ensuring that money is not a company's only motive. To illustrate this, firms implement rules and processes to ensure that their decisions are consistent with their values, even if the alternatives may save money or increase profitability. Economic CSR also encompasses measures to promote the economic development and progress of the communities in which a company works, such as funding employment training and job creation initiatives and forming local partnerships (McGrath & Jonker, 2023). It involves conducting business with a broader perspective, considering the economic implications for stakeholders such as shareholders, employees, suppliers, and local communities.

By adopting this approach, companies can position themselves as responsible corporate citizens, contributing to overall economic well-being and sustainable regional development (Dash, 2023).



### 3.3. Environmental and social impact

The fashion industry has a major impact on global carbon emissions and significantly influences the climate and ecological crisis. Its textile production processes are key sources of pollution and climate change. The social impact on garment workers is a pressing concern, requiring immediate action. To address these issues, industry stakeholders, policymakers, and consumers must work together to ensure fair labor practices, safe working conditions, and equitable treatment for all individuals in the global fashion supply chain. The industry's rapid growth and consumption patterns have led to significant environmental and social impacts, including carbon emissions, water scarcity, pollution, and biodiversity loss through its production processes and supply chains (Singh & Bansal, 2024).

The fashion industry has faced criticism for neglecting social and environmental issues, bringing attention to the non-economic influence of fashion. Fashion, as part of a larger system, has always conflicted with environmental goals (Neethu & Bhuvaneshwari, 2024).

The industry has been under fire for failing to address the sustainability issues it creates, such as water consumption, excessive wastewater discharge, and the use of polluting chemicals, like pesticides, fungicides, and herbicides, which can contaminate water sources and harm ecosystems (Thorisdottir *et al.*, 2024).

#### 3.3.1. Environmental impact

The fast fashion sector has grown because of its quick manufacturing and inexpensive prices. However, it has a substantial negative influence on climate and the ecosystem. Prior studies have shown that fast fashion is linked to increased greenhouse gas emissions, water pollution, excessive water use, and the production of non-biodegradable textile waste. All these issues undermine environmental sustainability. Fast fashion's mass production strategy leads to excessive consumption, non-biodegradable textile waste, and increased demand for natural resources (Anisah *et al.*, 2024). Making clothes (textile production) is a big part of fashion's effect on the environment. Growing materials like cotton takes a lot of energy and chemicals. Hence, turning materials into fabric is adding to greenhouse gases (Singh & Bansal, 2024). Unlike other businesses, the fashion industry bears little responsibility for its waste (Zero Waste Europe, 2022).

Interestingly, most clothes are only worn 7-8 times before being thrown. Roughly 75 percent of the clothing manufactured ends up in landfills or incinerators; the remaining 15 percent is recycled into new garments, cleaning cloths, or insulation materials. (Soyer & Dittrich, 2021). Fashion clothing manufacturing is unsustainable, emitting 1.2 billion tons of CO<sub>2</sub> equivalents annually and requiring significant resources (Sanders & Mawson, 2019; Niinimäki *et al.*, 2020; Soyer & Dittrich, 2021).

In the past few years, sustainable production, distribution, and recycling of consumer goods have become a major concern at all levels of society, including politics, industry, trade, NGOs, and consumer behavior. Companies in the fashion industry are implementing and disclosing corporate responsibility plans to stakeholders in response to regulatory frameworks and competition in sustainable production. Many slow and fast fashion firms have begun setting their sustainability targets following the United Nations SDGs to ensure customers' future purchasing intentions (Bläse *et al.*, 2024). Brands employ synthetic fibers such as polyester, nylon, and acrylic, which biodegrade over hundreds of years. According to a 2017 study by the International Union for Conservation of Nature (IUCN), washing synthetic fabrics like polyester makes up 35% of all tiny non-biodegradable plastic bits, called microplastics, found in the ocean. Making leather involves using land, water, and fossil fuels to raise livestock. The tanning process, which uses chemicals like mineral salts, formaldehyde, coal-tar derivatives, and oils and dyes, is one of the most harmful stages in fashion production. These chemicals are not biodegradable and pollute water sources. Turning plastic fibers into fabrics requires a lot of energy, using large amounts of petroleum and releasing harmful particles and acids like hydrogen chloride. Additionally, cotton production, commonly used in fast fashion, isn't environmentally friendly (Maiti, 2024).

A company known for its positive impact on the environment is Patagonia. Patagonia has established itself as an industry leader in environmental initiatives. Since 1985, the company has consistently allocated 1% of its sales to grassroots environmental organizations. Furthermore, Patagonia has committed to 100% renewable energy across its operations and has implemented robust supply chain initiatives to minimize water consumption, eliminate toxic substances, and reduce greenhouse gas emissions. The brand's dedication to sustainability is evident in its use of 88% sustainable materials, including regenerative organic cotton, hemp, and recycled fibers, in its most recent collection (Kanezato, 2022).

### 3.3.2. Social impact

The fashion industry is inherently people-centered. Despite technological progress, human labor remains essential throughout the garment production process. The globalized and fragmented nature of the textile industry exacerbates social risks, making it difficult to monitor and address issues related to human rights, worker health, and safety (Terol Bernal, 2024). The fashion industry, a dynamic and influential global force, plays a major role in shaping consumer trends (Singh & Bansal, 2024). Fast fashion poses significant environmental and social challenges. The industry causes societal concerns, particularly in developing countries (Maiti, 2024).

They found cases of forced and child labor in the fashion industry in Argentina, Bangladesh, Brazil, China, India, Indonesia, the Philippines, Turkey, and Vietnam, among other countries. Young women aged 18 and 24 make up 80% of all clothes. Fast production prioritizes sales and profits over the well-being of workers (Reichart & Drew, 2019).

In examining the fast fashion sector, it has operated with minimal capital investment and relied heavily on labor. It's observed that developing nations are chosen for their low-cost labor, extensive tax incentives, and relaxed regulations. This highlights the industry's significant dependence on labor globally (Klein, 2019; Linden 2016).

Social responsibility encompasses more than just ethical labor standards, including community empowerment and involvement activities (Saeed & Khan, 2022). Many garment factory workers around the world work in dangerous conditions. There's a lot of pressure to get clothes finished quickly. Because of this pressure, safety rules often aren't followed as strictly as they should be. This can lead to accidents and injuries. Another problem is that garment workers get paid very little. This is partly because some factories pay by the piece, meaning workers only get paid for each item they make, not for their time. Because the pay is so low, many workers can't afford basic needs. This makes it hard for them to quit their jobs, even if the working conditions are bad. The global fashion industry's economic power masks a troubling social reality. Garment workers, especially women, endure exploitation that violates their fundamental rights. This can include forced labor, with threats of punishment for leaving, exposing workers to physical and mental health risks. Fear and control are further instilled through reported verbal and physical abuse in factories, with employers resorting to harassment, intimidation, and even violence.

These practices not only violate human rights but silence dissent, perpetuating a cycle of injustice. Women, who make up a significant portion of the workforce, disproportionately face discrimination, unequal pay, limited career advancement, and even gender-based violence in the workplace. The social impact of fashion on garment workers demands urgent attention. Only through collaborative efforts from industry leaders, policymakers, and consumers can we ensure fair labor practices, safe working environments, and equitable treatment for those who contribute to the global fashion supply chain (Singh & Bansal, 2024). A vast majority of CEOs (95%) have indicated a commitment to addressing large-scale societal issues and investing heavily in socially responsible projects shortly. As long-term vision becomes increasingly prevalent in corporate leadership, individuals are encouraged to explore how their careers can contribute to meaningful change (Cote, 2021).

Levi's has been a pioneer ethically and sustainably. In 1991, Levi's introduced a code of conduct outlining labor rights, workplace safety, and environmental protection, setting a new industry benchmark. The company has continually updated its labor and environmental standards, with the 2011 launch of the Worker Well-being Initiative being a pivotal step. This program has expanded, benefiting over 100,000 workers across 12 countries. This dedication to social responsibility has been recognized with prestigious awards such as the 2020 Golden Halo Award (Gavin, 2019).

### 3.4. Sustainable fashion

The concept of Sustainable Fashion (SF) gained significant traction following the 1992 Rio Earth Summit. This global event catalyzed fashion brands to reevaluate their environmental and social impact. As a result, SF principles emerged, aiming to minimize negative consequences throughout a product's entire lifecycle – from raw material sourcing to production, distribution, and ultimately, disposal. By embracing these principles, SF strives to achieve a more balanced and sustainable future for the fashion industry, minimizing environmental and biodiversity harm while also upholding social responsibility (Ray & Nayak, 2023). It is quickly transforming the global fashion business and represents a big shift in the fashion business (Ikram, 2022). The term SF might appear inherently contradictory. This is because the traditional fashion industry embraces a rapid cycle of trends and short product lifespans, seemingly at odds with the core principles of sustainability, which emphasize longevity and long-term use. SF can be understood as a specific approach within the broader movement of slow fashion, prioritizing quality and timeless design over fleeting trends. Terms like eco-fashion, green fashion, and ethical fashion are often used interchangeably. Ultimately, SF aims to minimize apparel's negative environmental and social impact throughout its entire lifecycle – encompassing production, use, disposal, and ultimately, biodegradation (Clark, 2008; Carey & Cervellon, 2014). SF has evolved from a catchphrase to a guiding principle influencing customer behavior, industry standards, and brand strategy. As a major issue, it calls for modifications in consumer behavior and business practices as well as increased knowledge of the social and environmental effects of manufacturing (Vu *et al.*, 2019).

Fashion has become an important topic in discussions, particularly in the field of sustainability, and environmental consciousness (Neethu & Bhuvaneswari, 2024). More and more people are working on making fashion better for the environment (Henninger *et al.*, 2016). The idea of sustainable fashion is linked to reconsidering the irrational logic of consumerism in the fashion industry (Talay *et al.*, 2020). The main goal is to increase quality of life while minimizing environmental impact and waste generation throughout a product's life cycle (Soyer & Dittrich, 2021). It is related to the slow fashion movement, which began in the 1960s (McNeill, 2015). Since sustainable fashion places an emphasis on long-term partnerships, local development, resource efficiency, and workforce inclusion from a community's standpoint, it advocates a change in production systems (Onur, 2020). Sustainable fashion focuses on raising awareness about the negative environmental effects of fashion production (Legere & Kang, 2020), promoting the use of organic and eco-friendly materials in fashion design (Köksal & Strähle 2021), encouraging the use of local resources, small-scale manufacturing, traditional handicraft methods, the supply chain, and trans-seasonal apparel (Šajin, 2019) and includes methods like recycling, upcycling, and the use of renewable resources (Jung & Jin, 2014).

Sustainable fashion is essential for addressing environmental and social challenges in the fashion business. However, it is suggested that customers' willingness to pay more for sustainable items when compared to the price of conventional products might act as a motivator for businesses to follow sustainability principles (Khan *et al.*, 2024). Implementing sustainable fashion techniques can be costly for enterprises, making them less competitive compared to traditional fashion methods (Sobreira *et al.*, 2020). Many fashion manufacturers have pledged to address the issue of the usage of virgin polymers in clothes manufacturing, which are produced from the fossil fuel sector. However, it is frequently replaced by recycled synthetics. While recycling plastics has certain advantages, it does little to address the issue of microfibres (Crumbie, 2024). Currently, the fashion industry recovers only 1% of clothing materials for reuse and recycling, a remarkable 95% of these materials possess the potential for a second life (Atstja *et al.*, 2021). SF aims to drastically minimize the environmental impact of the fashion industry by using more sustainable materials and production techniques, going beyond just using eco-friendly textiles. At the core of this strategy are methods like using organic cotton, using recycled materials, and using low-impact dyeing procedures (Azanaw *et al.*, 2022; Umesh *et al.*, 2023). SF prioritizes timeless, durable designs to extend the lifespan of garments, thereby reducing the demand for fast fashion and excessive consumption (Weiwei *et al.*, 2020; Xia *et al.*, 2018).

The fashion business is changing dramatically in the direction of sustainability. Conscious creation is replacing excessive spending (Anita *et al.*, 2024). Thus, this industry is under growing pressure to make its manufacturing and distribution methods more sustainable (Kim *et al.*, 2017; Xia *et al.*, 2018). Customers have started looking to spend their money with fashion firms dedicated to sustainable business methods. It is no longer enough to advocate for sustainability or decrease needless packaging. Consumers want assurances that the goods they buy are responsibly manufactured and locally sourced when possible and that failure to meet these criteria will become obsolete (Hickins, 2023).

The fashion sector is one of the most vocal about its commitment to sustainability. Products ranging from swimwear to wedding gowns are promoted as carbon-positive, organic, or vegan, while yoga mats made from mushrooms and shoes manufactured from sugar cane adorn store shelves. New business concepts such as recycling, reselling, renting, reusing, and repairing are marketed as environmentally friendly (O'Hare, 2021). The sad truth is that all of the fashion industry's experimentation and innovation over the last 25 years has failed to reduce its planetary impact, serving as a wake-up call for those who believe that voluntary efforts can successfully address climate change and other major societal challenges (Pucker, 2022).

Sustainability requires integrating eco-friendly practices throughout the supply chain. This includes using sustainable materials, ethical labor, and circular economy principles to minimize environmental impact and waste (Fang *et al.*, 2019). Emerging concepts such as swap shops and secondhand stores help to incorporate circular fashion principles in the business.

Clothing swaps are popular due to time savings, economic concerns, convenience, a sense of community and shared ideals, symbolic appeal, resistance to excessive consumerism, and an emphasis on resourcefulness. However, problems remain in fostering wider acceptance of clothes exchanges. Widespread adoption is hindered by factors such as limited public awareness and accessibility, alongside anxieties regarding hygiene, personal boundaries, and the quality of available garments (Henninger *et al.*, 2019).

Although for many years SF sounded like an oxymoron, given that consumption has traditionally defined the very notion of fashion, it has been redefined as an indispensable response to the current environmental and social problems the industry itself has generated. It seeks to reduce the negative impact on the planet through practices such as the use of organic materials, recycling, upcycling, and promoting slow fashion. Despite these challenges - a higher cost and limited consumer awareness - the movement keeps building momentum as consumers increasingly demand transparency and responsibility from fashion brands. Sustainability is not just the next trend but an evolution that the future of fashion needs to go through, as it pushes the industry to get more sustainable and embrace circular economy principles. Nevertheless, the continued wrestling between innovation and the real impact on the environment only points out how complex achieving true sustainability in fashion is.

### **3.5. Fashion industry in Bosnia and Herzegovina**

The global textile, clothing, leather, and footwear industry experienced significant disruption during the COVID-19 pandemic. However, Bosnia and Herzegovina stand as a noteworthy exception. An analysis by the Foreign Trade Chamber of BiH reveals a surprising trend: the industry within the country has not only weathered the pandemic storm but has even exhibited growth. This unexpected development presents novel opportunities for BiH companies. The analysis highlights a surge in interest from potential European investors and buyers, signifying BiH's emergence as an attractive destination within the sector. Domestic BiH manufacturers of textiles, clothing, and footwear offer a unique perspective. They contend that the pandemic period did not negatively impact their operations. In contrast, they report increased interest from foreign buyers, suggesting that BiH has become a more attractive market. Statistical data corroborates this claim. Total exports for the BiH textile, clothing, leather, and footwear industry reached 1,525,317,981 KM (approximately 780 million euros) by the end of 2021. This figure represents an 11.68% increase compared to the same period in 2020, demonstrating a clear upward trajectory. Import values also rose, reaching 2,033,533,800 KM (approximately one billion euros) in 2021, reflecting a 284,325,757 KM increase compared to imports in 2020. The analysis further reveals that the footwear industry remains the sector's top exporter, with a value of 713,563,471 KM in 2021, indicating a 10.82% growth compared to 2020. Many of these products were exported to EU countries. Italy is the leading export market, accounting for 30% of BiH's textile, clothing, leather, and footwear exports in 2021, with a value of 461,115,007 KM. Germany follows closely behind at 18% (270,541,304 KM), and Croatia at 15% (222,801,973 KM).

France and Slovenia round out the top five export markets, representing 7% of BiH's exports in this sector (109,320,949 KM and 105,735,827 KM, respectively) (Poslovni dnevnik, 2022). The story of Bosnia and Herzegovina's textile industry is one of resilience in the face of initial setbacks. While the first four months of 2024 witnessed a 66 million KM (approximately 34 million euro) decline in exports compared to the corresponding period in 2023, there are signs of recovery. April 2024 data reveals a positive uptick in exports relative to March 2024 and April 2023. This growth trajectory has demonstrably narrowed the export deficit and bolstered the export coverage ratio for imports. This initial growth is further solidified by positive economic projections for the remaining months of the year.

These projections anticipate a robust European economic recovery alongside a moderation of inflationary pressures within BiH, with forecasts suggesting a range of 2.5% to 3%. Such an environment could lead to a stabilization of raw material prices, potentially serving as a boon to the industry's overall performance. The European Union continues to reign supreme as BiH's primary trade partner, accounting for a dominant 75% of exports and 68% of imports. On an individual country basis, Croatia retains its position as BiH's leading trade partner, with a bilateral trade volume reaching 2.71 billion KM (approximately 1.4 billion euros). The Foreign Trade Chamber of BiH interprets these positive developments with a sense of optimism, projecting a continuation of the export growth trend across various sectors by the year's end (Ministry of Foreign and European Affairs, 2024).

Despite facing global challenges and reduced demand, Bosnia and Herzegovina's (BiH) textile, clothing, leather, and footwear industries have shown remarkable resilience. Exports from the sector in the first ten months of 2023 reached 1.57 billion KM (approximately 810 million euros), reflecting a 4% increase compared to the same period in 2022. This growth comes even with a slight decrease in imports for the industry. Notably, exports of footwear parts, clothing, and synthetic fiber garments are thriving. Italy, Croatia, and Germany are major export destinations, while BiH imports materials like leather and footwear parts from Turkey, Germany, and Italy. This positive performance indicates the industry's ability to adapt and find new markets, suggesting a promising future for BiH's textile sector in the global market (Biznis, 2024).

Bosnia and Herzegovina's textile industry presents a fascinating paradox of entrenched tradition and the need for contemporary adaptation. This sector leverages historical knowledge, fostering a strong foundation for future development. Furthermore, its strategic geographic proximity to the European Union allows for swift responsiveness to evolving market trends within the fashion industry. An additional advantage lies in the availability of a young and talented workforce, readily moldable to meet the industry's specific skill requirements. However, the industry is not without its challenges. Market dynamics present a significant hurdle, characterized by pronounced fluctuations in both supply and demand. Another big problem is the lack of skilled workers in the industry. The key to achieving long-term success lies in the industry's ability to demonstrate agility and implement timely responses to these dynamic market forces (Business Magazine, 2024).

## **4. EMPIRICAL PART OF THE THESIS**

### **4.1. Methods**

#### Phase 1: Selection of respondents

Fashion designers in Bosnia and Herzegovina were chosen as the target group to understand better the specific challenges and opportunities faced by the local fashion industry. As innovators and trendsetters, they play a vital role in promoting sustainable practices.

Their experiences provide valuable insights into the availability of sustainable materials, local initiatives regarding sustainable efforts, and the reasoning behind choosing eco-friendly materials over conventional ones.

#### Phase 2: Interview

This research used in-depth qualitative methods to explore sustainability in Bosnia's fashion industry. Specifically, semi-structured interviews were conducted with four key fashion designers, actively engaged in sustainable practices. By combining both face-to-face and online communication, the study aimed to capture an understanding of the challenges and opportunities these designers encounter in their pursuit of sustainability. While these designers represent a subset of the broader fashion landscape in Bosnia and Herzegovina, their roles as key decision-makers in shaping their respective brands' sustainability strategies provide valuable insights into the industry's overall trajectory. This approach allowed for a deep exploration of the factors influencing sustainable practices, the impact of local context, and the potential for future development within the sector.

#### Phase 3: Data collection

The third phase involved systematic collection, recording, and analysis. The interview lasted approximately 30 minutes to ask sufficient questions on the theme as pertains to the sustainability of Bosnia and Herzegovina's fashion industry. Each interview was audio-recorded with consent from the participants. Systematically categorizing and interpreting the data would enable highlighting larger trends and deducing the current state of sustainability in the Bosnian fashion industry. It was aimed at finding the challenges in the Bosnian fashion industry both at the individual designer level and concerning the trends of the industry itself in sustainability terms. Results from the last phase not only add to the overall study but bring out worthwhile contributions that can be used to guide future strategies on how to promote sustainability in the fashion industry forward, both in Bosnia and Herzegovina and beyond.



Table 1 - Description of sample

Code	Organization description	Responders' position in the organization
FD-1	Fashion and costume designer, based in BiH. Known for innovative designs and impactful contributions to the fashion industry	Designer
FD-2	Designer and artist who works and lives in BiH. Renowned for her creative works that blend art and design	Designer
FD-3	Local yoga fashion company. A brand dedicated to empowering women through comfortable, natural clothing and yoga-inspired designs	Co-founder
FD-4	BiH fashion company dedicated to creating sustainable, biodegradable clothing. It focuses on improving lives through comfortable and stylish clothing suitable for sensitive skin, promoting a community-oriented approach to fashion	CEO

Source: Master thesis author

#### 4.2. Analysis

RQ1: Is the fashion industry in Bosnia and Herzegovina facing challenges regarding sustainability due to limited access to sustainable materials?

The choice of materials is a crucial aspect of fashion design, significantly impacting garments' aesthetic and functional qualities. Many designers prioritize natural materials like cotton, linen, silk, and viscose for comfort, breathability, and a luxurious feel. Seasonal variations also play a significant role in material selection. Summer collections favor light, airy fabrics like linen and cotton, while winter designs often use warmer materials like wool.

FD-1: *"I mainly focus on natural materials such as cotton, linen, silk, and viscose."*

Sustainability is increasingly becoming a key consideration in fashion design. Many designers are committed to using natural and sustainable materials in their collections, highlighting a strong dedication to eco-friendly practices.

FD-4: *"Our primary materials are derived from food and cellulose waste. We repurpose materials that would otherwise end up in landfills, transforming them into cellulose through biodesign, processing, and specialized technologies. These include orange fiber, banana fiber, lotus fiber, hemp, and even milk."*

However, the availability of sustainable materials represents the main challenge, particularly in certain regions. In Bosnia and Herzegovina, for instance, designers often rely on leftover or recycled materials due to limited local supply.

FD-1: *"We are the third or fourth hand for what remains on the global textile scene. We use up every supply that comes here."*

Despite these challenges, they strive to incorporate sustainable materials whenever possible, even if it means sourcing from abroad or using recycled fabrics.

FD-4: *"In the past, I've utilized surplus silk from Switzerland and Italy. For the upcoming winter season, I will be using Himalayan and merino wool."*

They actively seek new materials to enrich their collections. Materials derived from unconventional sources, such as pineapple, banana waste, and mycelium leather, are capturing increasing attention. While some designers have discovered new materials like lyocell tencel, these remain relatively scarce. Due to limited domestic options, many of them seek suppliers abroad.

FD-3: *"We're familiar with innovative materials like Tencel. There are also fabrics made from unconventional sources such as oranges, milk, and hemp, which are hard to come by in our region. I've never seen hemp fabric for sale here, even though it's widely used in other parts of the world."*

However, sourcing these innovative materials can be challenging, particularly in regions with limited access to specialized suppliers. Designers frequently encounter logistical and financial obstacles in integrating these materials into their collections. Sustainable materials present a complex landscape for designers, with varying availability and costs. While the global market offers diverse options, the specific context of Bosnia and Herzegovina reveals limited access to these materials, creating unique challenges for local designers. They report that certain sustainable materials, such as bamboo, recycled polyester, or organic cotton are not readily available. These materials offer economic advantages and align with the principles of circular economy, emphasizing resource optimization and waste reduction.

FD-4: *"The cost varies significantly. Organic cotton is still out of reach for many of our local producers due to its high price. Organic cotton is typically three times more expensive than conventional cotton, while recycled cotton is the most affordable option."*

FD-2: *"It's enough to say that I haven't encountered bamboo materials here, nor materials labeled as recycled polyester."*

Ensuring material quality is paramount for creating high-end fashion pieces exhibiting exceptional aesthetics and durability. Designers use different methods to verify the authenticity and quality of their materials, each of which plays a vital role in ensuring that the final product meets the highest standards. One of the most practical and traditional methods involves burning a small corner of the garment. This technique allows designers to observe how the material burns and the smell it produces, which can provide significant insights into its composition.

FD-1: *"The best test for the quality and type of material is a lighter."*

In addition to physical tests, designers rely heavily on certificates and comprehensive documentation from their suppliers to ensure that materials meet their specific standards. This documentation typically includes certificates of authenticity, testing reports, and compliance with industry standards. Such certificates can confirm various aspects of the material, such as its origin, the absence of harmful chemicals, and its environmental impact. This verification helps designers make informed decisions and ensure they source materials that align with their quality and ethical standards.

FD-3: *"Our wholesale supplier provides comprehensive documentation for all their materials. Each roll comes with a declaration and a certificate of conformity, which are issued following rigorous testing at their accredited institute."*

As analyzed above, the fashion industry in Bosnia and Herzegovina faces substantial hurdles in integrating sustainability into its core operations. A primary challenge lies in the limited availability of sustainable materials within the domestic market. While some designers are at the forefront of exploring innovative alternatives, such as repurposing materials or incorporating unconventional fibers, the broader industry predominantly relies on conventional, often imported fabrics. Designers often resort to recycled or leftover fabrics due to limited local supply. Despite a growing commitment to eco-friendly practices, sourcing sustainable materials like organic cotton, bamboo, and innovative fibers remains difficult. The selection of materials in fashion design is influenced by factors such as comfort, seasonality, sustainability, and availability. Designers are increasingly prioritizing natural and sustainable materials, despite challenges in sourcing and cost. Innovative materials like mycelium leather and fabrics made from food waste are generating interest, but their accessibility remains limited. Ensuring the quality of materials is a critical aspect of the design process, with designers employing various methods to verify authenticity and suitability.

Moreover, the economic viability of incorporating sustainable materials is a significant obstacle. As the fashion industry continues to evolve, the commitment to sustainability and innovation in material choices will play a crucial role in shaping the future of design.

RQ2: Do fashion designers in Bosnia and Herzegovina choose eco-friendly fashion over fast fashion in their design processes and material choices?

The decision to use eco-friendly materials in fashion design is influenced by factors that intersect personal values, market demands, and environmental considerations. For many designers, the selection of sustainable materials reflects not only a practical choice but a personal one. Personal experiences and individual values often play a crucial role in shaping these choices.

FD-4: *"I wanted to offer something different. Due to my personal experience with atopic dermatitis, I've always preferred natural fibers like cotton and linen."*

Price and availability are critical factors that significantly impact the selection of eco-friendly materials. The cost of sustainable materials can be substantially higher than that of conventional ones, which poses a challenge for designers trying to balance sustainability with market competitiveness.

FD-2: *"The availability is one of the most important factors in our condition."*

Designers derive inspiration for adopting and promoting eco-friendly practices from diverse sources. Influential figures in the fashion industry, such as Stella McCartney, serve as role models. McCartney's consistent use of sustainable materials and ethical production methods has set a benchmark in the industry, proving that high fashion can align with environmental and ethical standards. Such examples demonstrate the feasibility and benefits of integrating eco-friendly materials into high-fashion collections.

FD-1: *"One of the first who was consistent in this is Stella McCartney. She strives to be as environmentally friendly and cruelty-free as possible."*

Additionally, exposure to international trends and practices influences designers. High-end brands like Balenciaga and Iris van Herpen, which incorporate innovative materials such as banana fibers and cocoa, set a precedent for eco-friendly fashion. These brands' success in integrating innovative materials into their collections demonstrates that sustainability and high fashion are not mutually exclusive. Their influence helps drive the broader industry towards more responsible and creative approaches to material use.

FD-4: *"My curiosity led me to do some research. I found that high-end brands like Balenciaga, Balmain, and Iris van Herpen are already incorporating innovative materials like orange silk, banana fibers, and cocoa into their designs. Since these brands are trendsetters, their adoption of sustainable materials indicates a growing demand for eco-friendly fashion."*

Designers' long-term goals for incorporating eco-friendly materials into their collections reflect their dedication to sustainability and the evolving demands of the fashion market. These goals vary depending on the designer's individual circumstances, aspirations, and the specific challenges they face. Their long-term vision is focused on creating practical yet sustainable collections.

FD-1: *“My long-term goal is for small designers like my colleagues and me, who produce very small collections, to avoid making unnecessary clothing. Instead, we aim to create designs that are suitable for multiple occasions and seasons, and we strive to use materials completely. This year, I used leftover materials to make jewelry. “*

Another designer’s objective is to maintain high standards of quality while continuing to reduce environmental impact. This dedication extends beyond the choice of materials to include sustainable packaging solutions as well. By seeking out packaging that reduces waste and supports eco-friendly practices, this designer is aiming to create a more comprehensive approach to sustainability. The goal is not just to use sustainable materials but to ensure that all elements of their production process align with their environmental values.

FD-3: *“We will strive to ensure that everything we make is of the best possible quality. As a company committed to sustainability, we are proud to use eco-friendly materials in all our products. We aim to use the highest quality materials and craftsmanship while continuing to explore ways to reduce our environmental impact. For example, we are actively seeking more sustainable packaging solutions to minimize waste and protect our planet. “*

For some designers, long-term goals include expanding their market reach and securing financial support to drive further innovation.

FD-4: *“My long-term vision includes expanding into international markets to secure the funding necessary for continued innovation and growth. “*

Furthermore, the global spotlight on sustainability in fashion continues to grow, with increasing consumer demand for eco-friendly products pushing the industry towards more sustainable practices. Designers are inspired by this shift and the examples set by leading brands and the circular economy model. The selection of eco-friendly materials in fashion design is a complex interplay of personal ethics, economic viability, and environmental considerations.

Designers are motivated by personal, economic, and environmental factors, including health considerations, market demands, and ecological responsibility. As the fashion industry continues to evolve, these factors will remain central to the decision-making process, driving the adoption of more sustainable practices and materials with the goal of a more environmentally responsible future.

Designers in Bosnia and Herzegovina are increasingly leaning towards eco-friendly fashion, driven by personal values, market trends, and environmental concerns. Influenced by global figures and brands renowned for their sustainable practices, local designers strive to incorporate eco-friendly materials into their collections. However, the high cost and limited availability of these materials pose significant barriers. Long-term goals include expanding market reach and maintaining high quality while reducing environmental impact.

The shift towards sustainable fashion is shaped by personal, economic, and ecological factors, reflecting a growing trend towards responsible consumption.

RQ3: Are local fashion firms in Bosnia and Herzegovina increasingly involved in sustainability programs and community-based projects to create positive social impact?

Local fashion firms in Bosnia and Herzegovina are positioned to influence sustainability and create positive social impact, though the extent and effectiveness of their contributions vary. While the journey is fraught with challenges, the approaches and perspectives of local designers reveal a commitment to changing the fashion landscape for the better. Each designer brings a distinct perspective on how these goals can be pursued within the context of their work and the broader industry landscape. One key approach to promoting sustainability is through the creation of custom-made, timeless garments. This approach not only challenges the fast fashion paradigm but also prioritizes quality over quantity. By focusing on quality and durability, local designers encourage consumers to invest in fewer, better-made pieces. This philosophy not only reduces waste but also promotes a shift in consumer mindset towards valuing longevity and craftsmanship over rapid consumption. By encouraging consumers to invest in fewer, higher-quality items, designers aim to foster a more sustainable consumption pattern, aligning with the broader goal of reducing environmental impact.

FD-1: *“By creating many custom-made, unique, timeless, and handmade garments, we produce pieces that can be worn for several seasons until the material is completely worn out. The role of Bosnian designers in the fight against the mass industry that has taken over is crucial.”*

However, the impact of local fashion firms on sustainability can be constrained by several factors. The designer's observation that sustainable fashion remains relatively inconspicuous in Bosnia and Herzegovina highlights a critical challenge. This lack of widespread focus can be attributed to several barriers, including economic pressures, limited consumer awareness, and a nascent sustainable fashion market. In a context where economic stability and basic needs often take precedence, the prioritization of environmental concerns can be overshadowed. Consequently, the broader adoption of sustainable practices faces significant hurdles.

FD-2: *“I think it is inconspicuous, possibly because few people focus solely on sustainable fashion. The exception is a few independent designers who are not widely known.”*

Despite these challenges, local fashion firms play a pivotal role in raising awareness about sustainable fashion. As one designer pointed out:

FD-3: *“I see it as raising customer awareness.”*

By offering products that emphasize ethical production and sustainable practices, these designers create a narrative that connects with consumers on a personal level.

Smaller, independent brands often build stronger relationships with their customers, providing them with more than just a product but a story and a purpose.

This connection fosters a deeper appreciation for sustainable fashion and helps to spread awareness about its importance. The personal stories and ethical commitments behind these products resonate with consumers, encouraging them to make more responsible purchasing decisions.

Moreover, partnerships and collaborations with other organizations and designers significantly enhance the impact of local fashion firms. For instance, involvement with the Orea bazaar and other initiatives has allowed designers to gain recognition for their commitment to sustainability.

FD-3: *“Our partnership with Orea has led to us receiving a verified seller badge and sustainability badges, affirming our commitment to fair labor practices and women's empowerment. We believe in working with suppliers who share our values and provide their employees with good working conditions. Through our collaborations with organizations like the 787 Foundation, we've been involved in various projects aimed at empowering women entrepreneurs and fostering innovation in the technology sector. Our recent participation in a seminar on transforming the fashion industry has inspired us to explore ways to make the fashion industry in Bosnia and Herzegovina more sustainable, from sourcing materials to production methods.”*

However, systemic challenges such as high export costs, customs duties, and limited funding pose significant obstacles to expanding the reach and effectiveness of local fashion firms.

The high costs associated with exporting goods and the additional financial burden of customs duties create barriers that make it difficult for local firms to remain competitive in the global market. Addressing these systemic issues requires advocacy and policy changes that could help create a more supportive environment for local fashion firms. Reducing export costs and providing financial support for sustainable initiatives could enable designers to scale their operations and enhance their impact.

FD-4: *“Our budgets are limited, and we can't compete with large brands.”*

Additionally, networking and collaboration among local fashion firms are critical to overcoming the systemic challenges faced by the industry. One designer emphasized the value of viewing peers as collaborators rather than competitors:

FD-4: *“By networking and seeing ourselves as collaborators rather than competitors, we can build a stronger industry. Everyone has a place, and everyone is unique.”*

This mindset is instrumental in pooling resources and expertise to address common challenges. For example, forming a small association to collectively import materials could help mitigate the financial burden of sourcing high-quality, sustainable materials.

Networking also facilitates knowledge sharing and fosters a sense of community among designers, which can lead to innovative solutions and support. Local fashion firms in Bosnia and Herzegovina are making meaningful strides towards sustainability and social impact through their dedication to quality, customer engagement, and collaborative efforts. While challenges such as limited visibility, economic constraints, and systemic barriers remain, the commitment of these designers to creating timeless, ethically produced garments and fostering consumer awareness underscores their role in shaping a more sustainable fashion industry. Through continued innovation, strategic partnerships, and advocacy for systemic change, local fashion firms have the potential to drive significant progress in both environmental and social dimensions, contributing to a more sustainable future for fashion.

Many designers focus on creating timeless, high-quality garments to counteract fast fashion and reduce waste. However, limited visibility and economic constraints hinder the broader adoption of sustainable practices. Partnerships with organizations like Orea and involvement in community-based projects enhance their impact. Networking and collaboration among local designers are crucial for overcoming systemic barriers and fostering a supportive industry environment. While challenges persist, the dedication of local firms to ethical production and consumer education highlights their role in driving positive change in the fashion industry and beyond.

#### **4.3. Discussion**

The findings of the research mirror complex factors shaping the sustainability landscape of the Bosnia and Herzegovina fashion industry. While local designers are gaining more and more awareness of environmental issues, the fashion industry itself is still standing at the very core of taking comprehensive action toward sustainable practices. The scarce availability of sustainable materials domestically, together with economic constraints, created huge obstacles for local designers willing to involve eco-friendly elements in their collections.

Many designers express a high level of commitment to sustainability through research into materials and methods of production. Their efforts, often very tireless ones, are obstructed by systemic challenges underlining the ingenuity potential and resistance of the industry.

A multi-faceted approach must involve targeted policy support for developing local production of sustainable material resources, improved access to these resources, and strong education through raising awareness among designers, consumers, and industry players if a more sustainable fashion ecosystem is to be created in Bosnia and Herzegovina. Investing in these areas would give an edge to Bosnia and Herzegovina in the sphere of sustainable fashion for both environmental protection and economic growth. Only through collaboration will it be possible to look with confidence forward to tackling the challenges and meet the huge opportunity of building a more sustainable future for the fashion sector in Bosnia and Herzegovina.



In incorporating sustainable practices into their operations, damage to the environment can be reduced while growing the economy and ensuring social well-being. This will require a collective effort on the part of the designers, manufacturers, retailers, and consumers in efforts toward creating a more sustainable and responsible fashion sector (Dawu *et al.*, 2018; Guo *et al.*, 2023). There are many key strategies for promoting and supporting eco-friendly fashion. Educational programs, workshops, and awareness about sustainable practices can be created among designers and stakeholders in the industry. Successful examples of case studies from global brands can be highlighted to inspire local designers. Consumer awareness campaigns could be conducted to inform people about sustainable fashion and why one should support these practices. This would, in the long run, emphasize value for money spent on better, higher-quality, and more durable garments. Incentives for designers and brands, such as being recognized through awards or promotional events, can help augment the adoption of sustainable practices in their collections. This must be supported by firmer links between the community and the industry, which can be facilitated by creating alliances and networks between designers, manufacturers, retailers, and other associated actors for the sharing of resources, knowledge, and best practices. More developed partnerships with organizations like Orea, Foundation 787, and other organizations will also further the scope and impact of the local fashion firms. Otherwise, involvement in community projects regarding sustainability and ethical production will ensure the construction of a responsible fashion industry. To address the environmental impact of fast fashion, it's crucial to implement sustainable practices throughout the supply chain. This involves using eco-friendly materials like organic cotton and recycled fibers, adopting water-saving and energy-efficient technologies, and establishing recycling programs. Encouraging consumers to reuse or donate clothing can significantly reduce textile waste.

By promoting the purchase of fewer, higher-quality items, we can decrease the demand for fast fashion and move towards a more sustainable and environmentally friendly textile industry (Singh & Bansal).

## **5. CONCLUSION**

In conclusion, this thesis explores the complex dynamics shaping the sustainability landscape within the fashion industry, particularly in Bosnia and Herzegovina. Accordingly, it is found that local designers take the first steps but very promising ones toward embracing sustainable practices despite being challenged by limited resources and economic constraints.

Historically, innovation and adaptability have been hallmarks of the growth of the fashion industry, which recently has projected an increasing sense of urgency regarding the environment and society in the age of fast fashion. Hence, with increasing activity came scaled-up problems associated with production: water pollution, textile waste, and carbon emissions.

These have further pushed sustainability to the frontline of discourse in the industry, putting pressure on players to reconsider traditional ways of doing things and become more eco-friendly.

In Bosnia and Herzegovina, this whole shift to sustainability is relatively in the developing stage. As far as the ecological effect of their practice goes, though, local designers show very good awareness. This is further complicated by the lack of domestic production of sustainable materials, which reduces the capacity for designers to be able to put sustainable practices into their collections. Despite all the obstacles and setbacks, there is the will to innovate and adapt. These efforts demonstrate one of the key potentials of the industry in terms of resilience and growth despite adversity. Furthermore, commitment is paramount to the future of fashion in Bosnia and Herzegovina since it paves the way toward a more sustainable and responsible industry.

The reaching of this potential can be achieved only by a multifaceted approach. This would involve designing specific policies that encourage local production of sustainable materials and better access to environmentally friendly resources, as well as running effective education campaigns to raise awareness among designers, consumers, and all other players. Furthermore, the role of community and industry collaboration in such an endeavor should not be underestimated. By building alliances between designers, manufacturers, and retailers, as well as with associations working on environmental sustainability, the fashion industry in Bosnia and Herzegovina can leverage common resources, knowledge, and best practices. Consumer awareness campaigns and incentive programs may also help along in this process by persuading companies to start adopting sustainable business practices across all layers. Namely, the path to achieving a sustainable fashion industry in Bosnia and Herzegovina is long but not insuperable either. It can be managed with actions that will bring the parties involved closer, bridging the existing barriers and hence decreasing the environmental impact while contributing positively to the economy and society.

The path forward requires a collective commitment from all stakeholders to embrace sustainability as a core value, ensuring the longevity and ethical integrity of the fashion sector for future generations. Now, more than ever, the industry has the chance to show how originality and boundary-pushing can result in true sustainability (Pucker, 2022).

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## **APPENDIX**

## **Appendix 1: Interview questions**

What are the main types of materials you use in your designs?

How often do you use sustainable materials in your collections?

Are there any new or innovative materials you are interested in but have difficulty sourcing?

How would you describe the availability of sustainable materials in Bosnia and Herzegovina?

How do you ensure the quality of the materials you source?

What factors lead you to choose eco-friendly materials over conventional ones in your designs?

Who or what inspires you to adopt and promote eco-friendly practices in your fashion designs?

What are your long-term goals for incorporating more eco-friendly materials into your designs?

How do you see the role of local fashion firms in promoting sustainability and creating a positive social impact in Bosnia and Herzegovina?

Can you discuss any partnerships or collaborations with other organizations or designers in your sustainability efforts?