

# A Study on the Investigation of Sustainability Practices of Global Brands in the Fashion Market

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## ABSTRACT

Due to the careless use of natural resources, developments in technology, industrialization and population growth, environmental pollution and resource depletion are experienced in the world. The garment clothing and fashion industry has a significant impact on the rapid depletion of natural resources. The rapid change in fashion, especially in the garment clothing industry, negatively affects sustainability in the use of resources. Besides these; the careless use of large amounts of water and chemicals in production, and the release of waste to nature also harm the sustainability of life. These negative factors have started to increase consumption with environmental awareness, especially among consumers who care about nature. Conscious consumers' interest in nature has led to an increasing emphasis on sustainability in production and consumption by brands in ready-to-wear and other sectors. Especially in the Industry 4.0 process, the concept of sustainability has become one of the most important issues for global brands. The production of garment clothing products with natural fibres and materials is of great importance in terms of sustainability. These materials are compatible with nature and can be recycled. In apparel, due to long supply chains, energy and labour intensive production, ecological, economic and social sustainability studies are of high importance in the production and process management process.

In the research, application examples of global brands in the ready-to-wear and fashion sector, based on sustainability studies, were examined. For example; Stella McCartney, one of the luxury fashion brands; uses organic cotton, eco-friendly fibre and recyclable polyester and cashmere for sustainability. While Mara Hoffman uses tencel fabric and organic cotton, Gucci has banned PVC in its products since 2015 and prefers to use a carbon zero footprint in its work. While DeFacto, one of the global ready-to-wear brands, implements many environmental projects related to PET bottles, water use and textile waste, global brands such as Nike, GAP, Levi's, C&A, Inditex group, Nude Jeans also carry out exemplary studies on sustainability. As can be seen from the global brand examples, brands, on sustainability; develop applicable strategies in the fields of development goals, management of production and operation processes, supply policies, waste management.

**Keywords:** Sustainability, Sustainable Fashion, Sustainable Market, Sustainability Production Management, Sustainability Studies, Document Analysis.

**JEL Classification Codes:** M14, M31, M37, L11, L23

## INTRODUCTION

Clothing is as old as human history. It is an indispensable need that arises with the existence of human beings. It was born out of the need to be protected from natural conditions and then developed according to the needs of people. The need for clothing is one of the necessary factors for a person to live. Dressing style becomes demand through socialization and psychological satisfaction. The concept of fashion and clothing style emerges according to climate, religion, language, class differences, social life, economy, technological developments and regions. The fashion industry, which has gone through many stages since it entered the society, is now approaching the 4.0 period with many lessons learned and the potential to transform

into a more sustainable and predominantly customer-oriented industry (Bertola and Teunissen, 2018). The term Industry 4.0 is used to describe a series of technology transformations and productive process organizations based on communication technologies and devices in a system and product design, production and distribution (Kabukcu, 2018). The concept of Industry 4.0 is also the expression of a multidimensional system consisting of smart product development, increased productivity, high and continuous customers, and a logistics network as a result of the integration of the production process into the digital industry (Özcan et al., 2018). The desire to use a garment or item for a certain period of time instead of not using the same one and to replace it with a different one has created fashion. In today's societies that have

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adopted a fast lifestyle, the need for changes to come together has created the concept of 'fast fashion', which accelerates consumption and production. Fast fashion is not sustainability. It helps to satisfy the craving of consumers for luxury fashion (Joy et al. 2012).

In today's world where resources are limited, it is becoming more and more difficult for all companies to reduce their costs, reduce their environmental impact and survive in a competitive market environment. Sustainability of companies in the market depends on the degree to which they meet customer expectations in the competitive global market. Sustainability has become a keyword in the fashion industry due to its wide supply chain, intense labour and energy needs. In these conditions, businesses today can continue their existence with the "sustainability" strategy (Thomas, 2019).

The concept of sustainability was used for the first time in the "Our Common Future" report of the United Nations Environment&Development Commission in 1987. For the first time, "The Concept of Sustainability" was included in this report with concrete data (WCED, 1987). Sustainability is the primary concern of the 21st century and is often associated with corporate social responsibility (Aguilera et al., 2007). Development goals have become more and more important all over the world in terms of sustainability in the market. Countries have set targets in terms of sustainability. In order to achieve the Sustainable Development Goals, businesses and society have important duties. The Sustainable Development Goal has emerged as a result of the processes in which governments evaluate businesses, non-governmental organizations and citizens together (UNDP Turkey, 2020).

Sustainability is a broad term. While ensuring the continuity of productivity and diversity, it aims to preserve its ability to be permanent. Sustainability, in the simplest terms, can be defined as developing without harming resources in order to transfer them to future generations while using today's resources. As a basic principle, sustainability focuses on the fact that the resources in the environment and nature are exhaustible, and therefore, it focuses on using these resources with rational approaches.

The fashion and ready-to-wear sector, which is among the sectors where sustainability is important, is a labour-intensive and low-wage sector that focuses on market demands. The purpose of companies operating in the fashion sector; is to develop designs with high competitive advantage for consumer demands and preferences and to produce them by meeting efficiency criteria. Thus,

brands can optimize product costs in accordance with their target audience. In this process, sustainability in the garment clothing and fashion industry is only possible by ensuring sustainability at all stages of the industry's supply chain.

Brands based on sustainability also attach importance to employing workers in better conditions and maximizing social contribution, while making environmentally friendly production with less energy and less water consumption. However, in this way, it can be mentioned that all components of sustainability in ecological, economic and social dimensions are provided. Sustainability in the ready-to-wear and fashion industry is only possible by ensuring sustainability at all stages of the industry's supply chain. Today, global garment clothing brands attach great importance to sustainability studies on issues such as water use, carbon footprint, PVC use, recycling, reuse and energy use. There are many garment clothing brands that attach importance to sustainability, organize their sustainability activities according to international sustainability standards, and take part in international sustainability organizations. Among these global brands, brands such as The DeFacto, Nike, GAP, Levi's, C&A, Inditex group, Nudie Jeans draw attention with their sustainability studies, projects and campaigns.

In this research, the concept of sustainable fashion in the fashion and ready-to-wear sector, sustainable development goals, sustainable fashion market and competition, sustainability studies of global brands in the ready-to-wear and fashion sectors are emphasized. While performing document analysis in the research, in the selection of global garment clothing brands to be analysed; their work on sustainability, the projects and campaigns they carry out, the organizations they are members of and the international standards they apply are taken into account.

## **SUSTAINABILITY DEVELOPMENT TARGETS OF THE FASHION AND APPAREL INDUSTRY**

The Fashion and Ready-to-Wear Sector is an industry branch that has an important place in the economic growth process of countries and is one of the sectors in which the industrialization process first starts in developing countries. The global apparel market is worth \$3 trillion, \$3,000 billion and accounts for 2% of the world's Gross Domestic Product (GDP) (Fashion United, 2022). Although it has such an important place in the economic system, the damage it causes to the environment and humanity in the fashion and garment

clothing sector is quite high (Taşkın and Güney, 2014). For example; In 2015, out of 400 billion m<sup>2</sup> of fabric produced in the garment clothing industry, 15%, or 60 billion m<sup>2</sup> of garbage, was generated (Rissanen and Mcquillan, 2016).

20% of the global wastewater production is made by the garment and textile industry. According to the world average, each consumer throws away 32 kg of shoes and clothes annually (IHKIB, 2022). Although many sectors in the world negatively affect the environment and human health, the fashion and garment clothing industry is similar to the chemical industry, which is one of the most polluting sectors worldwide (Yücel and Tiber, 2018). A 2021 World Economic Forum report identified fashion and the supply chain as the planet's third largest polluter, after the construction and food industries. The fashion industry contributes to approximately 10% of global greenhouse gas emissions. This because is long supply chains and energy-intensive production (Fashion Industry Environmental, Waste, and Recycle Statistics) (Edgexpo, 2021).

The largest environmental impact of the clothing and fashion industry comes from the discharge of high chemical wastewater. Other important factors include energy consumption, solid waste, odour generation and air pollution. Environmental problems related to the fashion and apparel industry continue at all stages including the production and process management process, starting with the emissions from the production of synthetic fibre and drugs used in the cultivation of fibres for raw materials, from the production of the garment garment to its delivery to the consumer. When it comes to obtaining the final garment clothing product, a series of processes and many different chemicals have been used until this stage. Environmental issues related to the fashion and apparel industry are mostly related to water pollution from the discharge of untreated liquid waste. Liquid waste from washing operations contains significant amounts of organic and suspended impurities such as fibres and grease. Liquid wastes often generate heat, are alkaline and odorous, and are dyed with chemicals used in dyeing processes. Some of the discarded chemicals are toxic and can reduce the amount of dissolved oxygen in waters, threaten aquatic life and directly reduce overall water quality. In addition, other equally important and relevant issues in the industry include workplace safety such as emissions, volatile organic compounds, noise and odour (Taşkın and Güney, 2014).

Industry 4.0 stands out in terms of sustainability and competition in the fashion industry. In Industry 4.0, there are three basic elements that transform high technology into a competitive advantage:

- a. Getting the product to market very quickly
- b. Making custom production
- c. Increasing productivity (Kılıç&Alkan, 2018).

When the use of the technological components of Industry 4.0 in the garment and fashion industry supply chain is examined, smart factory approaches come to the fore. In the fashion industry, a collection is first prepared during the production stages, and then the prototypes are presented to the customer. In this process, clothing models designed with three-dimensional virtual dressing programs using virtual reality technologies, one of the technological components of Industry 4.0, within the framework of the smart factory concept, can be dressed digitally in a way that carries the visual characteristics of the desired fabric and accessories (Şen, Şen Kılıç, Öndoğan, 2020). Clothing patterns created in computer-aided pattern design systems can be made three-dimensional with the help of these systems. Thus, clothing companies can save time, labor and fabric by preparing a virtual prototype of the product (Kılıç, 2011).

Sustainability has three dimensions: ecological dimension, economic dimension, social/ethical dimension. Realizing for sustainability all of them must be provided.

## **SUSTAINABILITY IN APPAREL BRANDS**

The ready-to-wear industry is a market-oriented, low-wage, labour-intensive, dynamic and innovative industry. While mass production is carried out by preparing commercial collections in the sector, personalized designs also have an important place. While the industry is increasingly digitized, the use of modern technology is now dominating the industry. The most important factor for the sector to follow technology and developments closely is to provide competitive advantage in the market in an intensely competitive environment, to continuously meet the changing demands of consumers and to ensure continuity by using resources in the most effective way. Thus, while reducing their costs with their sustainability activities, they also provide social prestige. The competitive advantage of companies in the sector is to produce designs that can respond to consumer demands and preferences. Globalization in the apparel industry means that the apparel is designed in New York, manufactured in

China using a fabric produced in Korea and cut in Hong Kong, and distributed in the UK. A single country border is no longer effective in determining the strategies of manufacturers and distributors (Erarslan, Minister, Kuyucu, 2008). Sustainability provides many benefits to businesses. These are: Gaining global competitive advantage, Reducing production costs, Improving strategic decision making, Increasing (improving) firm value, Identifying new business opportunities, Gaining advantage as a supplier, Developing relations with regulators, Developing responsibility management, Increasing cooperation, Training employees, Meeting customer needs definition, improvement of product and service differentiation, improvement of relations with society (UIB, 2017). Ready-to-wear brands aim to produce commercial collections with designs that will create demand according to consumer demands and preferences in order to gain competitive advantage in an intense market environment. While maintaining their existence in a competitive environment, brands have begun to give importance to sustainability studies in order to use resources in the best way, reduce environmental impacts, reduce costs, and maintain their presence in the market while meeting consumer expectations in an environment where resources are gradually decreasing (UIB, 2017).

In terms of sustainability, the “cradle-cradle2cradle” principle, which was put forward by Stahel in the 1970s, came to the fore at the beginning of the 21st century. According to this principle; a product should be designed to have many life cycles and the product at the end of its life should be able to participate in a new life cycle through recycling (Niinimäki, 2013). Sustainable development refers to providing the needs of the present, the ability of future generations to meet their own needs without compromise (WCED, 1987).

### **Sustainability Studies of Global Fashion and Apparel Brands**

Since sustainable development began to be used and discussed as a concept, it has three dimensions: ecological dimension, economic dimension, social dimension (Harris, 2000).

**A. Ecological dimension;** the aim of ecological sustainability is to protect nature and the environment for future generations, and to use non-toxic and recyclable resources that do not harm the physical environment. ecological dimension; Ecological sustainability is the ability to preserve valuable things or qualities in the physical environment (Sutton, 2004). In the ecology dimension, sustainability is examined in two stages:

Production ecology: Selecting textile raw materials, chemicals and processes with an environmentally friendly approach, using treatment methods at every necessary stage,

Waste ecology: It is the conversion or recovery of wastes such as water, textile products, which occur after production, into products that are harmless to the environment (<http://www.oeko-tex.com>)

**B. Economic dimension;** protection of capital and prevention of corruption (Goodland, 2002). Sustainability has become the main subject of renewable natural resources economy due to the depletion of resources day by day (Vivien, 2008). It is the prevention of excess consumption of economic resources such as raw materials, energy and manpower, which is desired to be achieved with economic sustainability (<http://www.innovationintextiles.com>). Sustainability in the economic dimension is related to ensuring economic growth along with improving the quality of life and the environment. Excessive consumption of resources also hinders the achievement of economic sustainability.

**C. Social sustainability;** encompasses human rights, labour rights and corporate governance. In the social dimension; A society must have the flexibility and ability to conserve and develop its own resources, and to prevent and solve potential future problems. Social sustainability refers to the process of creating sustainable places that increase well-being, taking into account where people live and work. In addition, in this process, what people need in a working environment needs to be synthesized appropriately (Woodcraft, et al., 2012). Social sustainability can be achieved by meeting the basic needs of the individual (Sahni, 2010).

As Sustainable Development Goals; In September 2015, 193 states of the United Nations adopted a plan called the “2030 Agenda” to achieve a better future (Piñeiro-Otero, Martínez-Rolán, 2016). Emphasizing the importance of taking responsible consumption and production as a basis in order to ensure sustainability in the garment clothing and fashion sector as in other sectors, the steps to be taken to ensure responsible consumption and production have been brought together under the following headings (UNDP Turkey, 2020);

- Ensuring sustainable management and effective use of natural resources until 2030,
- By 2030, significantly reduce the generation of solid waste through prevention, reduction, recycling and reuse,

– Ensuring environmental management of chemicals and wastes throughout their life cycles in order to reduce adverse effects on human health and the environment, within the framework of international agreements, and substantially reducing their contamination into air, water and soil by 2020,

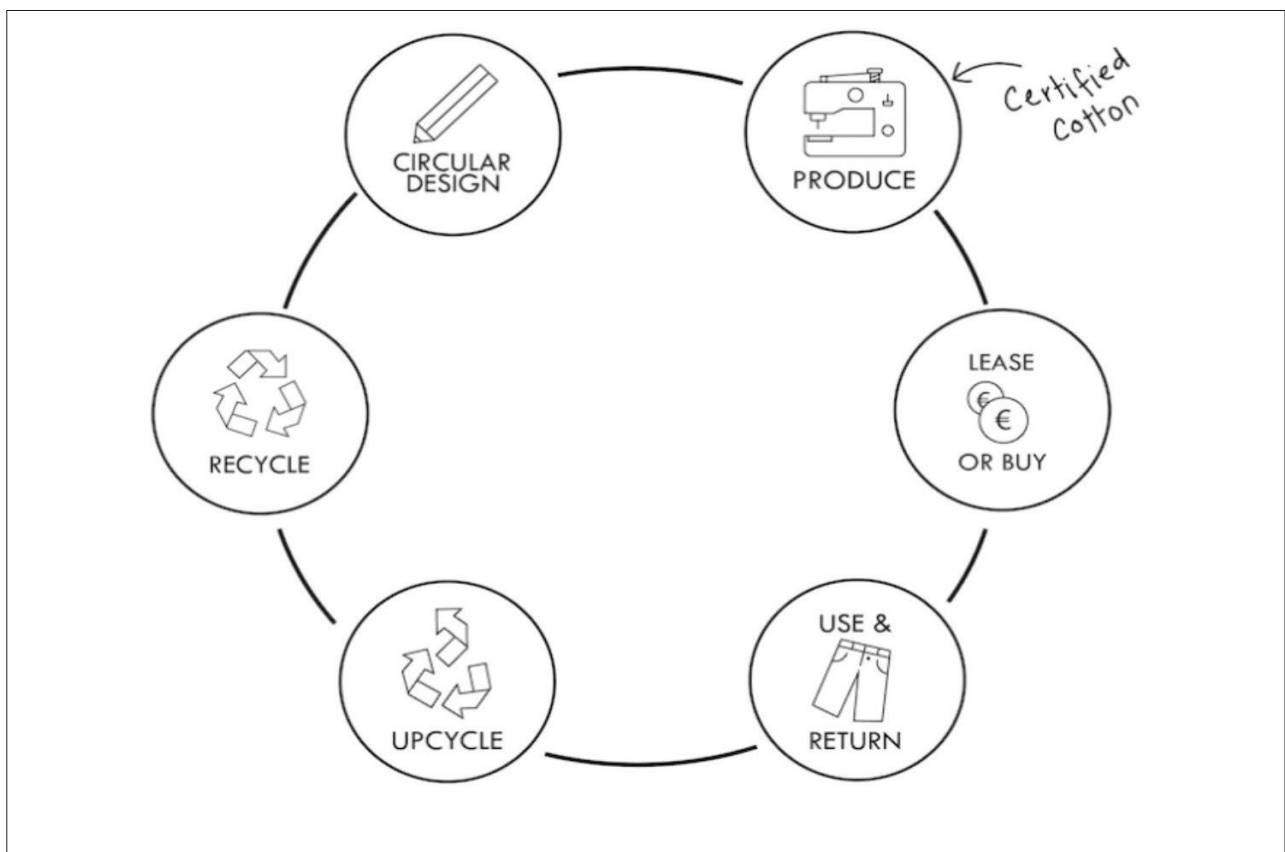
– Encouraging especially large and global brands to adopt sustainable practices and preparing sustainability reports,

– By 2030, it is to ensure that everyone reaches a certain knowledge and awareness about sustainability.

The social dimension of sustainability consists of three phases: “development sustainable development”, “bridge sustainability” and “maintaining sustainability”. Sustainability of development is the provision of basic needs such as social capital, justice and equality. Bridge sustainability is making behavioural changes to

sustainability studies. Here, the circular fashion industry is starting to come to the fore. In a cyclical process, products are needed and designed and developed according to the next step. Therefore, fashion products should be designed with organic, atoxic, reability and high resource efficiency. Also, recyclable resources and ethical practices should be prioritized in the producing and designing.

Fashion products must be suitable for recycling. Raw materials must be biodegradable. For sustainability in circular model, products are designed and developed with re-use in mind. While designing fashion products, resources should be used efficiently, should not contain toxic substances, should be recyclable, and ethical rules should be observed in design and production (Motif, 2020). The circular model, which is of vital importance in terms of sustainability for the garment clothing industry, is given in Figure 1.



**Figure 1.** Circular Fashion Economy Wheel

<https://cf.motif.org/wp-content/uploads/2019/03/29150110/circular-4.jpg>

achieve environmental goals. Sustainability refers to the preservation of socio-cultural characteristics in the face of change (Vallance, Perkins, Dixon, 2011). Sustainability is an increasingly important concept for consumers. For this reason, businesses attach more and more importance to

## MATERIAL METHOD

Today, the concept of sustainability has gained importance in the world where resources are increasingly depleted. Brands attach importance to sustainability

studies in order to reduce costs, reduce environmental impacts and compete in the market. The basis of sustainability is that brands make environmentally friendly production with low energy and water consumption. It is also important for brands to improve working conditions. Sustainability in the ready-to-wear and fashion industry is possible by ensuring sustainability at all stages of the industry's supply chain.

In this study; In order to examine the sustainability studies applied in the fashion and garment clothing sector, document analysis, which is a qualitative research method, was conducted. For the document analysis, global brands that attach importance to sustainability studies in the sector were examined. World-famous brands were chosen as examples for the review. The aim of the research is to examine the sustainability studies of global brands and to make suggestions on the subject. To this end, an attempt was made to find out how the marketing strategies of the garment clothing companies have changed over time. For this purpose, the method of document analysis was used, which belongs to the qualitative research methods. The reason why qualitative research is preferred is to study corporate behaviour in relation to sustainability, because qualitative research examines attitudes, behaviours, opinions and experiences in detail. It interprets and explains the findings. It offers the opportunity to go into depth. Qualitative research seeks answers to questions such as "why, how, why" to understand the issue, rather than measurable values. As a result, suggestions are made to increase the quality. The data desired to be obtained in qualitative research is collected through observation, interviews and documents (Berg&Lune, 2019). Then the obtained data is interpreted and evaluated.

Document analysis is a qualitative research method used to analyze the contents of written documents meticulously and systematically (Wach, 2013). Document analysis systematically analyses written documents. Document analysis is used to examine and evaluate all printed and electronic documents related to the subject to be researched. The chosen research problem determines which documents can be used as data sources. Data increases when document analysis is used together with other qualitative methods such as observation and interview. This contributes to research validity.

Document analysis whis is using is a form of qualitative research to give voice and meaning to assessment topic (Bowen, 2009). Document review is used together with methods such as survey, interview and observation in

the research methods of social sciences. It is also used alone in qualitative analysis. In social sciences research methods, document analysis is used together with visual films, videos and photographs. It is important that the documents are original, competent, accurate, reliable and up-to-date. Data selection is essential in document analysis. The success of document analysis depends on the researcher's ability to understand and interpret documents correctly. Like other qualitative research methods, document analysis gives meaning to an event or situation and creates an idea about the subject. Examines and interprets data to develop visual and experimental information.

In the research; As material, sustainability reports, activities, fashion shows and websites prepared by global garment clothing brands within the scope of sustainability practices were discussed. Thus, the data were collected. In the research, sustainability studies of global garment clothing brands in the media were also observed. The reason for using document analysis in the research is stated below;

- It takes less time than other research methods,
- It is more efficient and
- It costs less.

As the sample size, a selection was made among the global garment clothing brands to be examined in the research. When selecting brands: criteria such as membership of the United Nations Global Compact (UNGC), use of Global Reporting Initiative standards, production of environmentally friendly clothing, recycling, production of reusable products, production of sustainability reports and work on issues such as zero waste and zero carbon footprint. It is discussed. In this context, seven global brands were selected as part of the research. Document analysis was used as a qualitative analysis in the research. Documents related to sustainability reports and sustainability activities of garment clothing brands were selected. In the research, open access documents of brands on the internet and documents of international organizations on sustainability were used. Since the documents on the websites of organizations or businesses have open access, digital documents can be used as open source. Open access documents can be used without permission of the authors or publishers. This situation brings document analysis to the fore in qualitative research. The fact that the documents used in the research can be reviewed repeatedly also makes document analysis

preferable in qualitative research. The purpose of using the qualitative method in the research is to examine the sustainability-related behaviours and attitudes of garment clothing brands. In qualitative research, in addition to observation, previously prepared printed and electronic documents were examined and observations were objectively supported. By comparing the data obtained in the research, an approach on the subject was tried to be obtained. Care was taken to protect the documents shared with the public in order to protect copyrights. Certain steps have been taken in the document review;

- A research plan has been established.
- Necessary data for the research have been determined.
- Data were collected by accessing open access documents determined in data collection.
- The authenticity, accuracy and reliability of the documents obtained from the websites of brands and organizations were checked.
- After the data were analysed, data analysis was performed.
- The findings obtained as a result of the analysis were interpreted.

In order to carry out the research, the data obtained by examining the global brands were interpreted as a whole. As a result of the research, it was seen that global brands attach importance to sustainability studies. Finally, the results obtained by observation and document review were interpreted.

## FINDINGS

Qualitative analysis approach was preferred in the research. From the qualitative analysis approach, document analysis was carried out to determine and analyse the sustainability studies, projects and campaigns of the brands. Open access sustainability reports, projects and campaigns published on the websites of the selected brands by document analysis were examined. In addition to the websites of the brands, open access data of global organizations on sustainability and international standards organizations were examined. Among the many ready-to-wear and fashion brands that work on sustainability strategies in the selection of the brands to be the subject of the research, brands that prioritize sustainability in common areas and are members of relevant organizations were preferred (Edgexpo, 2021). In the selection of brands;

– *United Nations Global Compact (UNGC) (The world's largest corporate sustainability initiative):* UNGC aims mobilise a global movement of sustainable businesses and stakeholders to create the world that is want. UNGC supports companies to: act responsibly by aligning their policies and operations about human rights, ecology, anti-corruption and human rights with ten principles; take strategic action to advance broader societal goals (UNGC, 2021).

– *Global Reporting Initiative (GRI):* The GRI (Global Reporting Initiative) is an independent organization. It helps companies and other organizations take responsibility for their impacts by providing them with a global common language. GRI standards provide the most widely used sustainability reporting standards in the world. (GRI, 2021).

- Based on environmentally friendly clothing production (Commitment to eliminate or reduce hazardous chemicals, etc.)
- Based on recycling (such as using PES and organic cotton)
- Reuse applications
- Publishing sustainability reports (sustainability reports)
- Having studies on zero carbon footprint
- Giving importance to zero waste management
- High brand value in the global market
- Factors such as their consideration of the Paris agreement were taken into account (Table 1).

Among these brands, GAP, Nike, Zara brands carry out studies in 3 priority areas (Figure 2.).

### DeFacto Brand

The DeFacto brand has implemented many environmental projects to protect natural resources and contribute to sustainability activities (Brandage, 2019). For example, they focused on a special technology by evaluating PET bottle and textile waste together, by reducing the average monthly electricity consumption per square meter in stores in Turkey; they succeeded in obtaining 500 tons of waterless trousers in at least four thousand years. water saving, zero discharge using organic and recycled cotton, chemical fertilizers and pesticides, recycling of 1,688 tons of cardboard and 338 tons of packaging waste (CNNTurk, 2018) (Photo 1).

**Table 1.** Common features that stand out in the selection of fashion and ready-to-wear brands

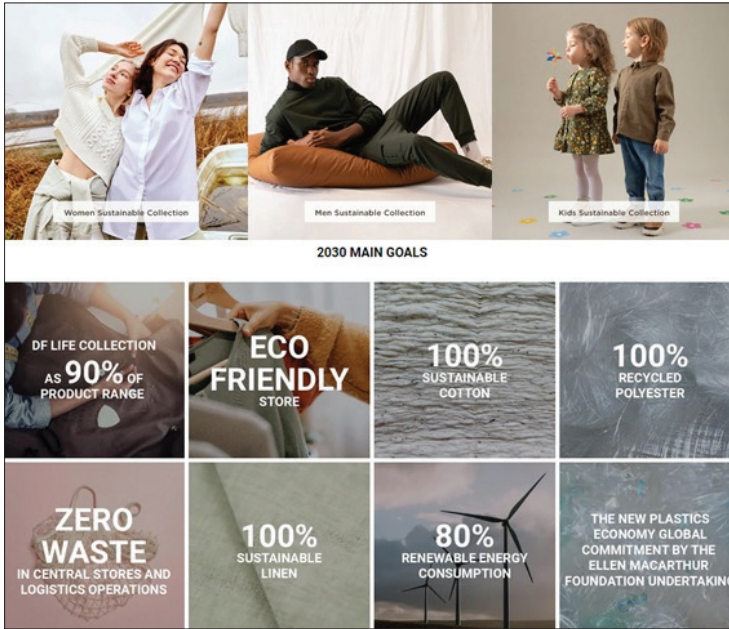
Company	UNGC Membership	GRI Standars	Sustainability Report	Re-Cycle	Re-Use	Zero Carbon Footprint	Zero Waste	Paris Agreement
DeFacto								
GAP								
Levi's								
Nike								
Zara								
C&A								
Nudie								



**Figure 2.** Brands working in three priority areas in the field of sustainability

<https://edgexpo.com/fashion-industry-waste-statistics/>





**Photograph 1.** Defacto Sustainability Products Policy

<https://eu.defacto.com/pages/sustainability>

### GAP Brand

The GAP brand uses recycled polyester and nylon as a resource conserving non-renewable resources that balance water effects and waste streams associated with pure material inputs. In 2016, the brand removed 7 million plastic water bottles from landfills. Thus, the brand got recycled polyester. GAP uses recycled materials as part of Generation Good. This global icon means that all products manufactured under the “GenerationGood” Program use at least 50% recycled materials or organically grown cotton (GAP, 2022).

The GAP brand has set a goal of obtaining 100% of its cotton from sustainable sources such as organic, recycled and US-grown cotton by 2021. The GAP brand has also developed consumer communication on the concept of sustainability (GAP, 2019) (Photo 2.).

### Levi's Brand

Levi's has developed a comprehensive “Life Cycle Assessment” on one of its jeans that allows it to look at the entire production cycle from start to finish to find out where they can change their behaviour, interact with consumers and save money. Levi's has also launched a “Care for Our Planet Label” under the Goodwill brand, which provides brief instructions on all products so that consumers can learn about sustainable ways to wash and care for their clothes (Levi Strauss, 2010). Levi's and Goodwill brands jointly launched the “Care Label for Our Planet” application in order to extend the product life cycle in the fashion and apparel



**Photograph 2.** GAP Sustainability Policy,

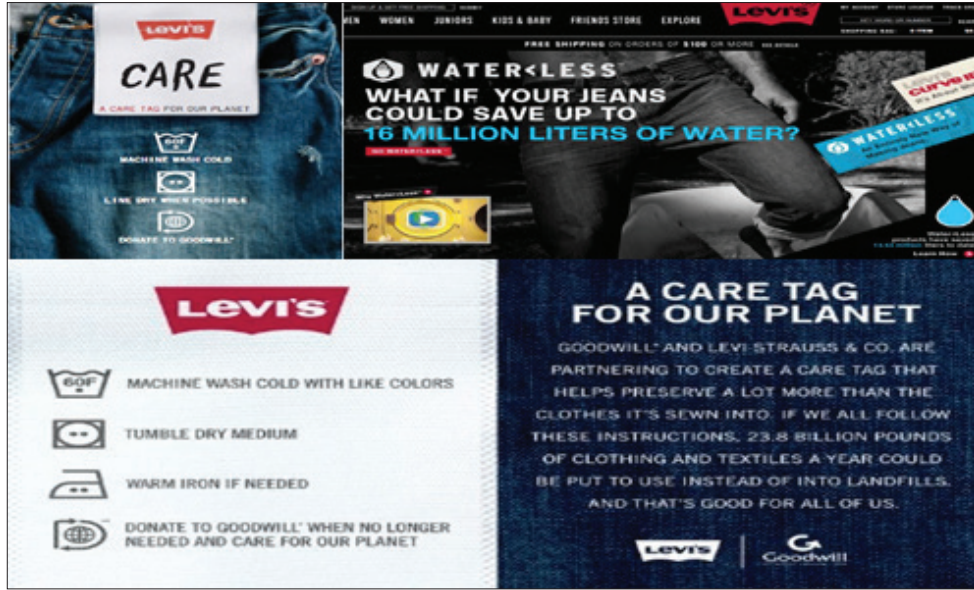
<https://gap.com.tr/surdurulebilirlik-gap-for-good/> (1, 2, 3)

<https://www.gap.ae/gap-for-good/> (4)

industry. In the application, customers who donated clothes to Goodwill were given a 30% discount coupon for their shopping at Levi's stores. This application is the first application that extends the product life cycle and reduces the environmental impact in the fashion and apparel industry (Levi Strauss, 2016). In addition, Levi's launched its denim clothing collection, consisting of organic and recycled cotton, under the brand Levi's Eco®. Denim pants contain 29% recycled PET bottles from Levi's Waste-Less™ collection. A Levi's 501 jeans are made from recycled PET bottle. Through its consumer-focused education programs, the company established a deeper connection with customers and encouraged them to change their behaviour in sustainable ways (Photo 3).

### Nike Brand

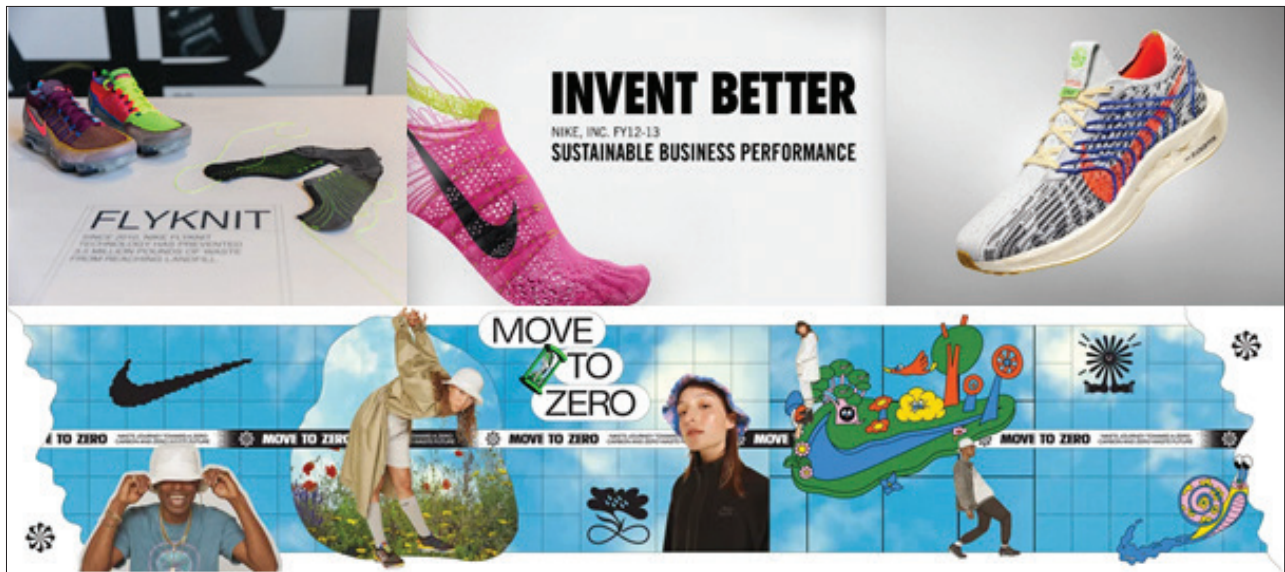
Focusing on sustainability, the Nike brand has developed the “Design with Consideration” series, which aims to minimize designer clothes and uses environmentally friendly materials (e.g. knit shoe design) in design. Nike has implemented the “Go to Zero” sustainability policy to combat climate change. The Move To Zero campaign is a new step in Nike's sustainability journey for zero carbon and zero waste (Kavas, 2019). The slogan of the Nike brand is “Go to Zero” in its sustainability campaign. The aim of the Nike brand, which aims at zero carbon and zero waste with the campaign, is to help protect the future of sports (Nike, 2019) (Photo 4).



**Photography 3.** Levi's Sustainability Policy

<https://adage.com/creativity/work/care-tag-our-planet-2/17672>,

<https://tiagrazette.com/copy-of-the-quartyly>



**Photography 4.** Nike Sustainability Policy

<https://www.businessinsider.com/nike-announces-climate-change-sustainability-campaign-move-to-zero-2019-9>

<https://news.nike.com/news/nike-s-sustainability-report-shows-company-reducing-environmental-impact-while-continuing-to-grow>

<https://news.nike.com/sustainability>

<https://www.nike.com/tr/surdurulebilirlik>

Nike has pioneered industry transformation in sustainable materials. They have expanded the EPM options available for all footwear by converting major large-volume shoe components into 100 percent sustainable materials. In addition, in 2019, more than 28,000 metric tons of carbon emissions were prevented by using recycled polyester instead of traditional in

Nike brand shoes. Nike has also made progress in using sustainable materials in textiles and apparel (Nike, 2020).

In 2020, Olympic athletes wearing jerseys made by Nike brand from recycled shoe parts took place (Thomas, 2020a). Nike brand announced in September 2019 that they are working to reduce carbon emissions and waste as part of social responsibility projects. The brand

has stated that it will operate its businesses with 100% renewable energy until 2025, within the scope of the 2015 Paris Agreement. In addition, the brand has stated that they will reduce carbon emissions in the global supply chain by 30% by 2030.

The Nike brand today manufactures 78% of its products with some recycled material. In order to increase this rate, they are developing production methods. Since nearly 70% of the total carbon footprint consists of the materials it uses, the brand carries out serious studies and campaigns in this regard as a factor that will reduce its negative impact on the environment. One of the campaigns it has run is the "Move to Zero Community Competition", which is open to all members between 10-27 April 2022, representing the zero carbon and zero waste journey they have started to help protect the future of sports, with the slogan "You run, we plant trees". For this competition, the brand has committed to planting a tree for everyone who moves at least 1 km with its partners, WeForest. The brand also buys shoes for reuse, like new, and shoes with minor imperfections, is eaten by hand and offers them to its customers in select Nike stores (Nike, 2022). The brand also uses recycled polyester in its sportswear collections. It obtains high quality new yarns from recycled plastic bottles. These high-performance yarns reduce carbon emissions up to 30% compared to normal polyester. It produces Tempo shorts; one of the most popular product lines, by using at least 75% recycled polyester with these yarns. Most of the brand's design options are made from 100% recycled polyester. The Tempo shorts product alone has managed to collect 112 million plastic bottles from trash and drains to date (Nike, 2021).

Global brands such as Adidas, Puma, GAP, Athleta and Patagonia also attach importance to sustainability, just like the Nike brand. For example; while the Adidas brand produces approximately 20 million pairs of shoes by recycling the plastic accumulated in the oceans, the GAP brand uses recycled organic cotton in its production. In addition, the GAP brand has stated that it will increase the use of recycled cotton to 100% by 2025. Athleta aims to source 80 percent of its materials for clothing and accessories it sells from sustainable fibres such as recycled cotton by the end of 2020. It also produces recycled clothing from nylon and polyester waste (Thomas, 2020b).

### **C&A Brand**

C&A brand became the first retailer to introduce Gold Level Cradle to Cradle (C2C) Certified™ t-shirts for sustainable

fashion and apparel to the global market in 2017. Launching Gold Level C2C Certified™ Jeans in 2018, the brand added new products with Gold, Silver and Bronze C2C certificates to its fashion collections for its target audience. C2C Certified™ "Cradle to Cradle" is a very prestigious product quality standard. C2C Certified™ sets out five different quality criteria: material reuse, water management, material health, social equity, renewable energy and carbon management.

The C2C Certified™ Program has five certification levels; platinum, gold, silver, bronze and basic level. The C&A brand has also partnered with Fashion for Good, a platform for sustainable fashion (Houge, 2018) (Photo 5).

### **Nudie Jeans Brand**

Scandinavian denim brand Nudie Jeans is one of the leading brands in ethical wear with its comfortable and traveller style. The brand, which makes all its production with 100% organic cotton and uses 91% less water than traditional methods, is very sensitive about its supply chain. While making unannounced visits to the factories it is a partner of, ensuring that the production conditions are always at high standards, it publishes these reports on its website and shares it with everyone (Berksü, 2019). In 2019, Nudie jeans repaired 63,281 pairs of jeans. In other words, they extended the life of 50,000 kg of clothing. Thus, a 15 percent increase compared to 2018 (Nudie Jeans, 2019) (Photo 6.).

### **Inditex Group Brands**

The Inditex group is among the companies that attach the greatest importance to sustainability studies in the world. While all world-famous brands supported the sustainable development goals plan, Inditex started to implement a project called Join-Life. Recognized as a pioneer in the apparel industry, it covers the highest sustainability standards and strictest codes of conduct. Inditex is one of the world's leading fashion groups. Inditex's policy is to respond to customers' needs at the right time and present the latest trends to meet their demands (Pereira, 2020). Inditex group, want develop a complete and efficient cycle of life for their products by closing the loop. By 2023, one of Inditex aims is Zero Waste. It means send nothing to landfills from their headquarters, logistics centres, stores and factories (Inditex, 2022).

Join-Life is a production project developed by the Inditex Group to offer its customers products that are produced with materials obtained from sustainable natural resources and that have the least harm to the environment. Join-Life is an application created by



**Photograph 5.** C&A Sustainability Policy

<https://www.c-and-a.com/uk/en/corporate/company/sustainability/c2c/>  
<https://www.c-and-a.com/at/de/corporate/company/nachhaltigkeit/c2c/>

<https://www.just-style.com/news/ca-rejects-allegations-of-supply-chain-labour-rights-violations/>

<https://www.c-and-a.com/uk/en/corporate/company/sustainability/>

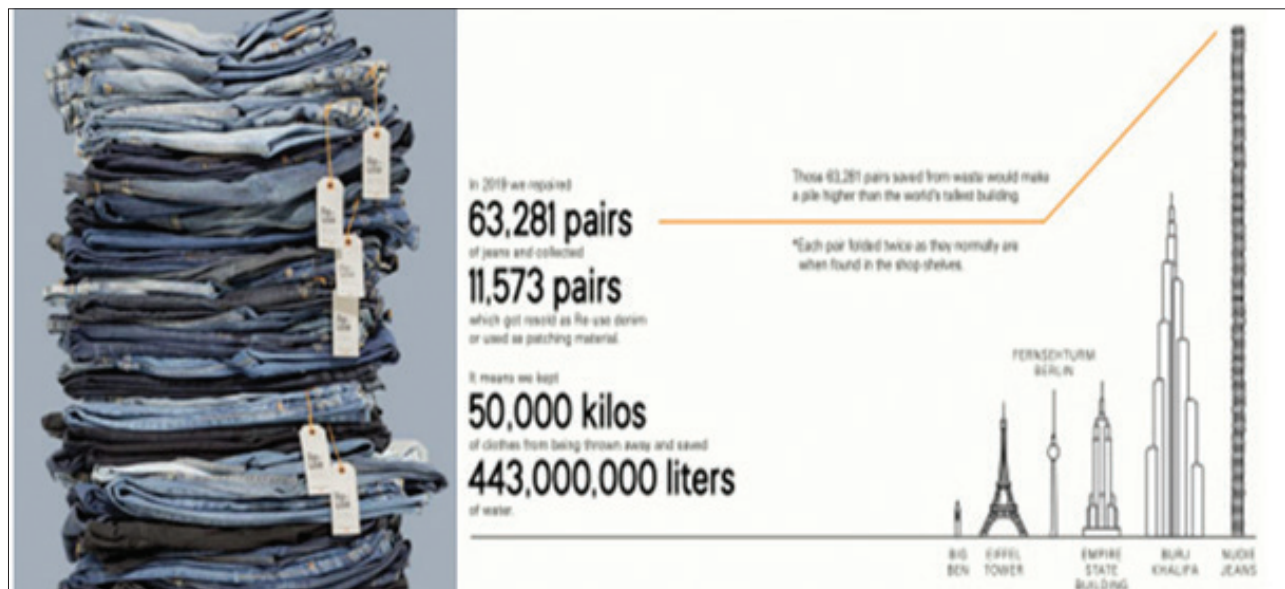
the Inditex group with the slogan “Our Goal Is Always To Make Our Products More Sustainable”. Join Life sustainable collections are essential for validating sustainability plans. Join Life label refers to products with the “best” processes and raw materials. This label shows Inditex’s holistic approach to the Circular Economy (Figure 3.) (Pereira, 2020).

The Join Life program aims to create beautiful, ethical, quality products that are right not only for customers but also for Inditex employees, society and the environment. This can be achieved with all-round traceability of the Join Life event and means thinking and acting in a transparent way. Inditex increased the Join Life collection, which includes the sustainable collections of the Zara brand, in 2017 and expanded this initiative with Massimo Dutti and Oysho (Photo 7, 8, 9).

Consumer preferences and expectations play a major role in sustainability goals (Yücel and Tiber, 2018). Brands have good reasons to set such goals: Generation Z consumers, born between 1995 and 2012, display environmentalist attitudes when shopping. According to a survey of more than 1,000 people conducted by First Insight in December, 62% of Gen Z consumers prefer to shop from sustainable brands. Also, 73% of Gen Z are accepting to pay more for sustainable products (Thomas, 2020).

### SUSTAINABLE FASHION MARKET

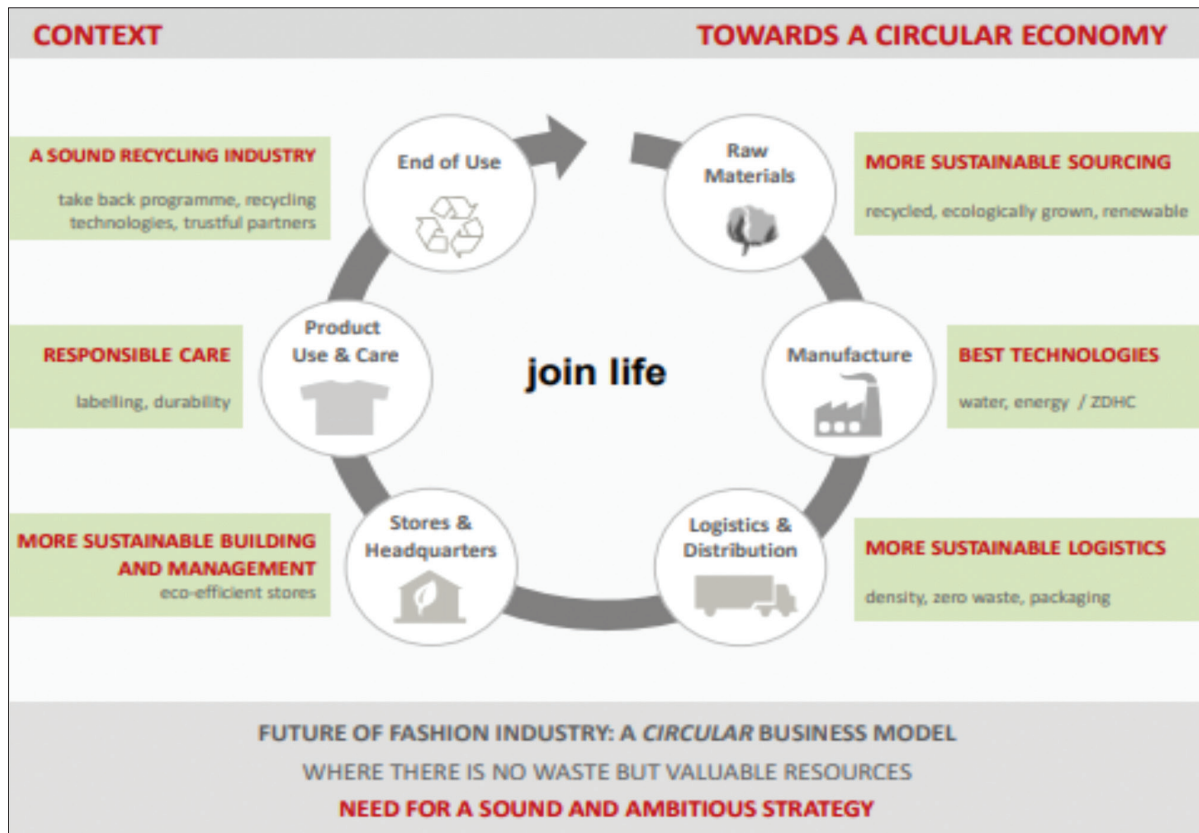
Sustainable fashion marketing has become increasingly important in the marketing of apparel products. Intense competition in the market has forced brands to produce and collect more and more. Naturally, the fashion industry has also been greatly affected by this rapid consumption and production. While affordable products increase the consumption frenzy in the fashion market, consumers buy products they do not need. While wastes increase as a result of



**Photograph 6.** Nudie Jeans Sustainability Policy

<https://www.nudiejeans.com/sustainability/sustainable-products/>

<https://www.seanfleming.com/what-is-circular-denim-and-why-are-top-brands-redesigning-jeans/>



**Figure 3.** Inditex Circular Economy Overview

[http://www.r2pipproject.eu/wp-content/uploads/2019/05/Inditex-Case-Study\\_1.pdf](http://www.r2pipproject.eu/wp-content/uploads/2019/05/Inditex-Case-Study_1.pdf)



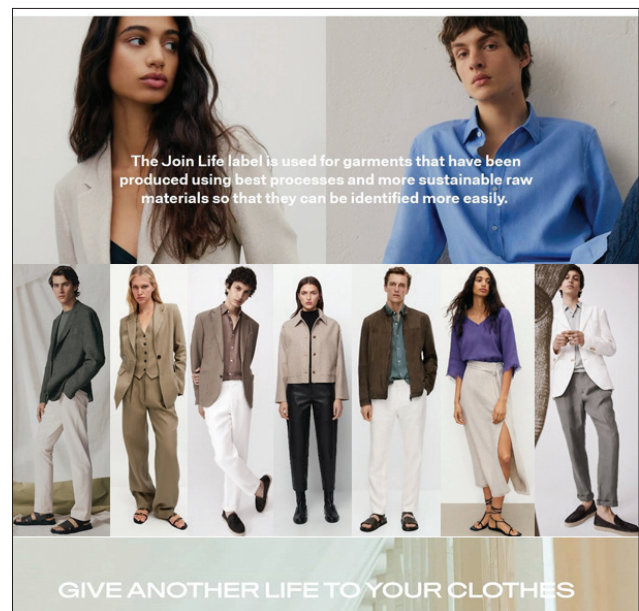
**Photography 7.** Zara Sustainability Policy (Join,Life)

<https://www.zara.com/mc/en/zw-rhinestone-the-mid-waist-skinny-jeans-p07513048.html?v1=164670068&v2=2025818>

<https://www.zara.com/mc/en/contrast-printed-sweatshirt-p00495420.html?v1=183767833&v2=2032279>

<https://www.zara.com/mc/en/snoopy--peanuts-t-shirt-p05643635.html?v1=184980417&v2=2047413>

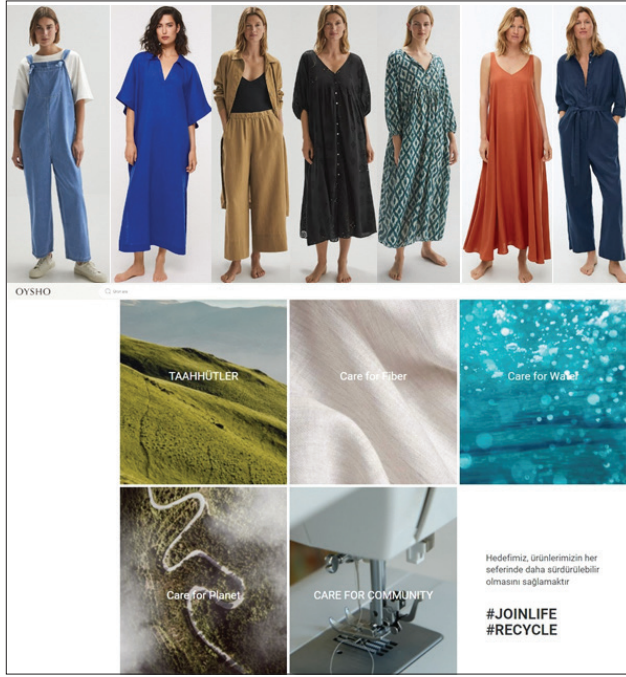
<https://www.zara.com/mc/en/z-join-life-mkt1399.html?v1=1464710>



**Photography 8.** Massimo Dutti Join-Life Sustainability Collection

<https://www.massimodutti.com/tr/en/women/join-life/commitments-n1679#/productos>

<https://www.massimodutti.com/tr/en/women/join-life/commitments-n1679#/recogida-ropa>



**Photography 9.** Osyho Join-Life Sustainability Collection

<https://www.oysho.com/tr/join-life-c1010281508.html>

<https://www.oysho.com/tr/join-life/join-life-koleksiyonut%C3%BCm%C3%BCn%C3%BC-g%C3%B6ster-c1010281510.html>

over consumption, natural resources are consumed rapidly. As a result of these developments, the concept of sustainable fashion has emerged (Necf et al., 2020). Sustainable use of raw materials, design, production and distribution processes based on sustainability, traceability of the supply chain, protection and respect for human and worker rights, good health and safety conditions, keeping the consumption of resources at the optimum level controlled and minimally environmentally friendly. The implementation of the applications is of vital importance (Kılıç, 2017). Competition in the fashion market is intense. Businesses attach more importance to sustainability in order to gain competitive advantage. Brands should pay attention to consumers' right to wear in order to gain competitive advantage in the market. The right to wear is the basic philosophy of sustainability activities. All activities in fashion creation, customer satisfaction and product production are carried out by taking responsibility towards the environment, suppliers, employees and customers (Inditex 2020).

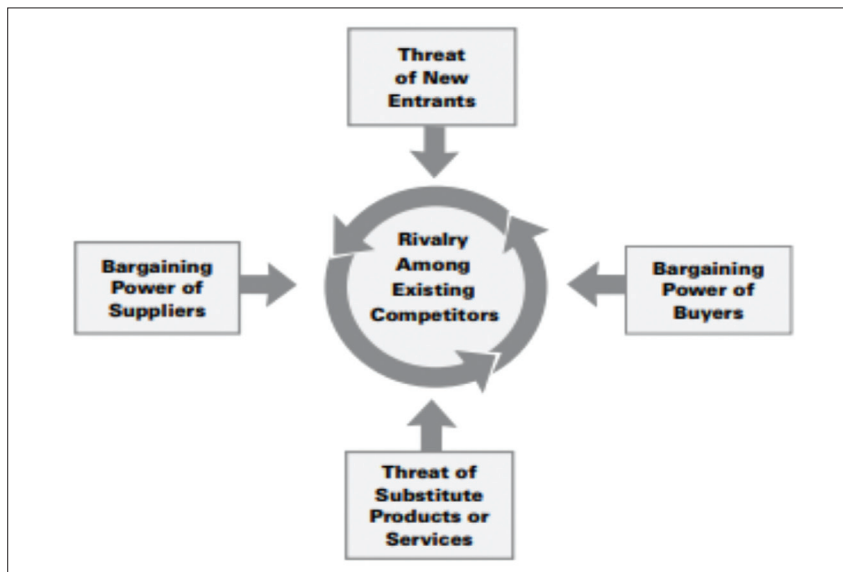
### Competition in the Sustainable Fashion Market

The concept of sustainability generally refers to the capacity to sustain a situation or process for an indefinite

period (WordNet, 2020). The prices of environmentally friendly products produced by sustainability-based companies are higher than non-sustainable products in the market. This is because the costs of sustainable products are higher than normal products. The reasons for the high costs are largely the use of high-tech devices and machines, training to raise awareness of employees, the use of more expensive environmentally friendly energy sources and other environmentally friendly systems for production. In addition, it is less harmful to the environment due to high dye and chemical costs and substances. Apart from these, the processes of the fabric made from recyclable materials, which are considered as the main item, are also very costly. Recyclable labels and packaging are also more costly, so the overall cost is higher than for a non-sustainable product.

Sustainability-based companies are joining forces with trade unions, nongovernmental organizations, governments, workers' associations and global customers. As a result, companies that make sustainable production; it receives the support of the state, many associations and organizations. This indirectly contributes to the promotion of the brand in the market. The projects carried out are very important in terms of raising awareness of the society. Managers should follow the right strategy in the face of intense competition in the market. Competition in the industry includes four other competitive forces: potential competitors, suppliers, customers and substitute products. Competition that arises from the combination of these elements defines the structure of the industry and shapes the nature of competition in the industry (Figure 4.) (Porter, 2008).

In recent years, the relationship between innovation and competitive advantage has been emphasized in the literature. Businesses that have shaped international markets use different strategies in every aspect. However, while every successful business adopts a unique strategy, the basic operating style (features and trajectory) is basically the same. Businesses gain sustainable competitive advantage in the market thanks to their innovation activities (Doğan, 2017). Businesses attract the attention of consumers and create business reputation by producing clothes with high symbolic value based on sustainability. Sustainable apparel and fashion products are a trend or a means to attract customers' attention. Consumers attach importance to the image of the company with the sustainability label in products that are produced as a result of ethical production and pay more for products produced on the basis of sustainability. The fact that consumers do not avoid paying more for more



**Figure 4.** Porter Five Forces Shaping Industrial Competition (Porter, 2008)

ethically produced products is an important factor in the sustainability efforts of the sector and increasing these efforts.

Today's consumption-based economies have also created consumption societies. As this structure continues and welfare levels rise, societies will demand increasing amounts of products. Of course, this will cause environmental problems related to production (Yavuz, 2010). The factors that gain importance in environmentally friendly production are listed as follows: Environmental problems that will arise with the demand; The number of consumers will not decrease, consumption habits will not change suddenly; Mass production is standard in modern society; Products are designed, designs are produced. Correct design is important; Every product design and manufacturing process has an environmental impact; The designer should consider the possible environmental impacts of the design phases; If nature is not treated fairly, the consequences must be endured (Jeswiet, 2007).

Today, although many garment clothing and fashion companies produce products based on sustainability, not all products produced by international companies are sustainable. The reasons for this are as follows: The lack of a waste management strategy in many countries, the ignorance of local governments about initiating and using waste, and the lack of awareness and sensitivity of the society to the issue. European countries, which have recently adapted to the sustainability trend are cautious about the trend and continue their current studies in order to maintain their competitive power in the market. Despite these, it is inevitable that all garment clothing

companies will turn to products based on sustainability in the short term and consumers will buy them. The reason for this is the rapidly depleting resources and the damage it causes to the world. It has ceased to be an option and has become a necessity. The faster brands switch to sustainable production, the more permanent and successful they will be in the market. However, despite these reasons, all garment clothing companies will tend to produce sustainable products in the short term. Thus, it will become inevitable for consumers to purchase these products. Sustainable production and consumption will become inevitable because with the rapidly depleting resources and the damage it has caused to the world, it has become a necessity rather than an option. The faster the brands switch to sustainability-based production, the more permanent and robust they will be in the market if they establish this system and make it routine.

## DISCUSSION AND CONCLUSION

One of the biggest problems of the 21st century is undoubtedly the rapid depletion of natural resources. One of the most critical sectors affected by this problem due to rapid production and consumption is the garment clothing and fashion sectors.

The global garment clothing market, which is one of the first sectors in which the industrialization process started in developing countries and has an important place in the economic growth process of the countries, is worth 3 trillion dollars, 3.000 billion dollars and constitutes 2% of the world's Gross Domestic Product (GDP) (Fashion United, 2022).

The concept of fashion has accelerated in recent years. Speed emerges in the transition period of the product between designer, producer and consumer. With the acceleration of this process in the fashion and garment clothing sector, the price and quality of the product decrease, while the damage it causes to consumption and the environment increases.

According to the World Economic Forum report of 2021, the fashion industry is the third most polluting sector after the construction and food sectors. Fashion industry contributes to around 10% of global greenhouse gas emissions. This because is long supply chains and energy-intensive production (Edgexpo, 2021). The biggest environmental impact of the clothing and fashion industry is due to the use of high chemical wastewater in the production processes and their discharge into nature. Other important factors include energy consumption, solid waste, odour generation and air pollution.

As consumers buy more fashion and ready-to-wear products, the product becomes obsolete after being worn a few times. For all these reasons, sustainability has come to the fore and sustainable fashion has started to gain importance as a solution. The sustainable clothing and fashion industry makes production waste sustainable, including post-production and post-use sustainable approaches, and supports the product formation process from raw material to product.

The fashion and garment clothing industry aims to reduce the consumption of natural resources through sustainable production. Here, the most important responsibility falls on global brands. Because these brands continue their design and production processes in different geographical regions, especially in developing countries. Global brands, as well as being role models with the regulations they have prepared and implemented on sustainable production and process management, also impose the obligation to comply with the production and supply rules according to the regulations they have prepared for the institutions and countries in different regions that supply them.

Companies and other stakeholders such as the public, civil society and academia examine the changes and risks brought about by the concept of sustainability from their own perspectives. They change their business models and strategies and align their products and production methods with sustainability components. Although this change is a change that develops not with brands' own will but with social pressures, it offers companies important competitive opportunities in the market.

Some of the main areas where sustainable technology is applied are listed below (Sahni, 2010);

- Technology Related to the Material Used: Thread and printing, weaving, finishing and dyeing technology
- Design Related Technology: Computer-aided clothing design
- Technologies Related to Processes / Software Modules: Enterprise Resource Planning
- Manufacturing Related Technology: Landfill gas, wind, solar, low-impact hydroelectric facilities, etc. operating facilities with alternative or renewable energy sources, such as
- Technology Related to Distribution, Transportation and Retailing of Fashion Products: Using RFID to ensure effective tracking and security of fashion products and to create a green supply chain.
- Consumer Use Technology: Smart textiles, smart clothing
- Post-Consumer Technology for Disposal, Recycling and Reuse: Zero waste by applying "Closed Loop" waste management techniques.

In conclusion, as seen above, all phases of design, production, marketing, distribution and consumption should be taken into account when talking about "sustainable clothing and fashion". Because real sustainability can only be discussed if a product is fully sustainable with all its processes. This is possible not only with the global and regional brands taking responsibility, but with the awareness and awareness of sustainability of the society that makes the final purchasing and usage preferences of the products.



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