

## Fast fashion



Figure 1: Clothing display at H&M department store, Hong Kong

Fast fashion is the business model of replicating recent catwalk trends and high-fashion designs, mass-producing them at a low cost, and bringing them to retail quickly while demand is at its highest. The term fast fashion is also used generically to describe the products of this business model, particularly clothing and footwear. Retailers who employ the fast fashion strategy include Fashion Nova, Primark, H&M, Shein, and Zara, all of which have become large multinationals by driving high turnover of inexpensive seasonal and trendy clothing that appeals to fashion-conscious consumers.

Fast fashion grew during the late 20th century as manufacturing of clothing became less expensive—the result of more efficient supply chains, new quick response manufacturing methods, and greater reliance on low-cost labor from the apparel manufacturing industries of South, Southeast, and East Asia, where women make up 85–90% of the garment workforce. Labor practices in fast fashion are often exploitative, and due to the gender concentration of the garment industry, women are more vulnerable. Outsourcing production to low-wage countries perpetuates cycles of dependence and inequality, echoing historical colonial economic exploitation patterns. The Design Piracy Prohibition Act was established to protect the designs of fashion designers. Numerous designers continue to sue fast fashion companies for copying their designs.

Fast fashion's environmental impact has also been the subject of controversy. The global fashion industry is responsible for 2% of global carbon emissions per year, to which fast fashion is a large contributor. The low cost of production, favoring synthetic materials, chemicals, and minimal pollution abatement measures have led to excess waste.

### Origins

Before the 19th century, fashion was a laborious, time-consuming process that required sourcing raw materials like wool, cotton, or leather, weaving the natural fibers into fabric, and then fashioning the fabric into functional garments. However, the Industrial Revolution changed the world of fashion by introducing new technology like the sewing machine and textile machines.

As a result, clothes became cheaper and easier to make and buy. Meanwhile, localized dressmaking businesses emerged, catering to members of the middle class, and employing workroom employees along with garment workers, who worked from home for meager wages. These dress shops were early prototypes of the so-called 'sweatshops' that would become the foundation for twenty-first-century clothing production.

The Cosmopolitan journalist Lauren Bravo sees fast fashion stretching back to utility clothing and tailors who sold mass-produced affordable suits for men. In the 1960s companies like Inditex and Chelsea Girl



Figure 2: The former “Big Biba”building, c. 2006

attained commercial acumen, but the brand Biba endured as a fast fashion icon.

Before the popularization of the fast fashion model, the fashion industry traditionally operated on a four-season cycle, with designers working months in advance to anticipate customer preferences. However, this approach underwent a significant transformation in the 1960s and 1970s, as the younger generations began to create new trends. During this period there was still a clear distinction between luxury goods and high street fashion.

However, in the 21st century mass consumption of clothing increased dramatically. Globally, 80 billion pieces of new clothing are purchased each year, translating to \$1.2 trillion annually for the global fashion industry. Approximately 85% of the clothing Americans consume, nearly 3.8 billion pounds annually, is sent to landfills as solid waste, amounting to nearly 80 pounds per American per year.

### Significant companies



Figure 3: Clothes for sale at a Zara store in Hong Kong

The origins of the fast fashion phenomenon involve several key players, rather than a single brand or company. One influential figure in this movement was Amancio Ortega, the founder of Zara. Established in 1963 in Galicia, Spain, Zara gained prominence by offering affordable imitations of high-end fashion trends alongside

its original designs. In 1975, Ortega opened the first European retail outlet for his collections, pioneering his short-term production and distribution model. By the early 1990s, he had expanded to New York, and the New York Times coined the term fast fashion to describe Zara's business model, highlighting its ability to bring a designer's idea to store shelves in as soon as 15 days.

Fast fashion retailers such as Zara, H&M, Topshop, and, Primark emerged as prominent brands in the high street fashion scene. Initially starting as small stores located across Europe, they were able to quickly gain prominence in the U.S. fashion market by replicating designs from runway shows and fashion houses and quickly reproducing them at a fraction of the cost.

In their 2008 article "Fast Fashion Lessons," Donald Sull and Stefano Turconi studied how Zara revolutionized the fast fashion industry. They attributed the company's success to its strategic supply chain and production network where Zara maintained complicated and capital-intensive operations (like computer-guided fabric cutting) in-house, and outsourced more labor-intensive operations, such as garment sewing, to a network of local subcontractors and seamstress operatives based in Galicia.

With shorter lead times, the company was able to respond rapidly to fluctuating demand by swiftly halting production of low-demand items and creating a sense of urgency for consumers to purchase in-demand clothing due to the ever-changing layout and stock of its stores. Items in the store may not be in stock during subsequent visits, prompting consumers to make immediate purchases if they wish to remain on-trend. The clothing is then only worn a few times before it is no longer in style, creating the need to constantly return to the store and buy new, trending items cheaply.



Figure 4: A H&M store in downtown Montreal

The origin story of H&M, another fast fashion giant, shares common threads with Zara. In 1946, Erling Persson, a Swedish entrepreneur, traveled to New York City, where he was greatly intrigued and impressed by the high-volume fashion production he witnessed. The following year, Persson established a womenswear store called Hennes & Mauritz (or H&M) in Västerås, Sweden. Between 1960 and 1979, the company rapidly expanded, with 42 stores across Europe, and began producing clothing for women, men, and children.

The foundation for expansion into the global market was laid in the 1980s when H&M acquired Rowells, a Swedish mail order company, and used its networks to sell fast fashion by catalog and mail order. In the 1990s, H&M invested in large city billboard advertising, featuring celebrities and supermodels. H&M opened its flagship U.S. store on Fifth Avenue in New York City in 2000, marking the commencement of its expansion outside of Europe.

Originating in Nanjing, China, in 2008, by entrepreneur Chris Xu (Xu Yangtian) to sell online wedding dresses, Shein quickly became a global online-only fashion company. In 2020, it made 10 billion dollars, and

in 2022, it made one hundred billion dollars. Through the COVID-19 pandemic, Shein saw a spike in sales with its market share overtaking competitors like H&M and Zara.

Shein's business model is similar to Amazon's, collaborating with thousands of third-party suppliers in China, Brazil, and Turkey in manufacturing and shipping their clothing to centralised warehouses, where they are then shipped to customers (relying heavily on air shipping). Shein also uses a similar model to H&M and Zara for the production of new products, named "test and repeat", wherein suppliers produce 100 to 200 new pieces, then increase production of best-selling items. Their factories stretch across China with 6,000 different small factories under the Shein name. To advertise their brand, Shein uses TV stars like Khloé Kardashian and influencers on platforms like Instagram.

## Concept

Fast fashion brands produce pieces to get the newest style on the market as soon as possible. They emphasize optimizing certain aspects of the supply chain for the trends to be designed and manufactured quickly and inexpensively and allow the mainstream consumer to buy current clothing styles at a lower price. This philosophy of quick manufacturing at an affordable price is used in large retailers such as SHEIN, H&M, Zara, C&A, Peacocks, Primark, ASOS, Forever 21, and Uniqlo.

These retailers produce and sell products in small batches, keep surplus manufacturing capacity on hand, and frequently induce items to be out of stock, a practice designed to give retailers the ability to make substantial and immediate adjustments to manufacturing. For example, up to 85% of Zara's merchandise can be changed in the middle of the season: A fast fashion system like Zara's can quickly update designs, resulting in short product cycles where a garment does not sit on the stores'shelf for long periods, giving the store a sense of exclusivity and raising the attractiveness of an item.

Fast fashion particularly came to the fore during the vogue for "boho chic" in the mid-2000s. According to the UK Environmental Audit Committee's report "Fixing Fashion", the practice "involves increased numbers of new fashion collections every year, quick turnarounds and often lower prices. Reacting rapidly to offer new products to meet consumer demand is crucial to this business model."

Fast fashion has developed from a product-driven concept based on a manufacturing model referred to as "quick response" developed in the U.S. in the 1980s and moved to a market-based model of "fast fashion" in the late 1990s and the early 21st century. The Zara brand name has become almost synonymous with the term, but other retailers worked with the concept before the label was applied, such as Benetton. Fast fashion has also become associated with disposable fashion because it has delivered designer products to a mass market at relatively low prices.

The advancement of technology has allowed fast fashion to gain popularity over the last decade. Technology has allowed designers to create specifically what their consumers want according to what is "in" at the given moment. Every month, new things are trending and are displayed in stores to market towards youth. Technology has the power to change all the issues within the fast fashion industry. Brands such as Zara have been listening to their consumers and "thinking green" to improve their environmental impact. As Nina Davis[who?] stated in 2020, "[Companies] are also adopting advanced technologies to improve supply chain efficiency and reduce their carbon footprint."

## Slow fashion counter

The slow fashion or conscious fashion movement has risen in opposition to fast fashion, taking issue with responsibility for pollution (both in the production of clothes and in the decay of synthetic fabrics), poor workmanship, and emphasis on very brief trends over classic style. Elizabeth L. Cline's 2012 book *Overdressed: The Shockingly High Cost of Cheap Fashion* was one of the first investigations into the human and environmental toll of fast fashion. The practice has also come under criticism for contributing to poor working conditions in developing countries. The 2013 Dhaka garment factory collapse in Bangladesh, the deadliest garment-related accident in world history, brought more attention to the safety impact of the fast fashion industry.

In the rise of slow fashion, emphasis has been given to quality clothing that is more enduring. In the 2020 spring-summer fashion season, high-end designers led the movement of slow fashion by creating pieces that developed from environmentally friendly practices in the industry. Stella McCartney is a luxury designer who focuses on sustainable and ethical practices and has done so since the 1990s. British Vogue explained that the process of designing and creating clothing in slow fashion involves consciousness of materials, consumer demand, and climate impact.

In her 2016 article titled “Doing Good and Looking Good: Women in ‘Fast Fashion’ Activism”, Rimi Khan criticized the slow fashion movement, particularly the work of high-profile designers and slow fashion advocates McCartney and Vivienne Westwood, as well as other well known industry professionals such as Livia Firth, for creating fashion products which cater to a mostly western, wealthy, and female demographic. Khan also pointed out that because most slow fashion products are significantly more expensive than fast fashion items, consumers are required to have a certain amount of disposable income in order to participate in the movement. Khan argues that by proposing a solution to fast-fashion that is largely inaccessible to many consumers, they are positioning wealthier women as “agents of change” in the movement against fast fashion, whereas the shopping habits of lower income women are often considered “problematic”.

Andrea Chang provided a similar critique of the slow fashion movement in her article “The Impact of Fast Fashion on Women”. She wrote that the slow and ethical fashion movements place too much responsibility on the consumers of fast fashion clothing, most of whom are women, to influence the industry through their consumption. Chang suggests that because most consumers are limited in their ability to choose where and how they purchase clothing, largely due to financial factors, anti-fast fashion activists should target lawmakers, manufacturers, and investors with a stake in the fast fashion industry rather than create an alternative industry that is only accessible to some.

## **Economics**

Fast fashion proves successful economically for the retail industry worldwide. The fast-fashion market in 2020 globally produced \$25.1 billion. It was expected to increase at an annual compound growth rate (CAGR) of 21.9%, resulting in the global market increase to \$31 billion in 2021. By 2030, it is estimated that the fast fashion industry will bring a revenue of \$192 billion to the world’s global economy.

This economic growth from fast fashion is demonstrated through how companies like H&M or Shein strategize in manufacturing. Most fast fashion clothes exporters are from developing countries across Asia, such as India, Bangladesh, Vietnam, China, Indonesia, and Cambodia. Developing countries’ economies rely on fast fashion consumption as most export earnings profit from ready-made clothes. China, for example, has gained a yearly profit of \$158.4 billion from exporting such clothes. Additionally, the hazardous working circumstances these employees endure have an adverse effect on their health, as the employees have to regularly work with hazardous chemicals when manufacturing clothes. Toxic Chemicals, such as lead, phthalates, and per- and poly-fluoroalkyl substances (PFAS) are commonly used to preserve and increase the durability of clothes, however, too much contact with these chemicals puts employees and consumers at risk of getting deadly diseases. Alongside the risk of illness employees are more likely to suffer from accidents among their coworkers and having a negative effect on the labor force around the world.

## **Manufacturing**

The fast fashion industry can thrive economically through the low production costs of its manufacturers in Asia. One low production cost is the investment cost of materials to make a garment. Fast fashion invests in polyester and cotton fabric because they are inexpensive and durable.

According to these statistics, polyester fabric is more affordable than cotton, but both are relatively cheaper than higher quality fabric such as silk or wool. One basic T-shirt would require .5 pounds of cotton material, resulting in less than \$1 of cotton fabric used.

## **Wage criticisms**

The fast fashion industry faces criticism for hiring garments workers from developing countries for their low wages. There are more than 60 million workers that produce garments for fast fashion retail, and 80 percent of those workers are women.

MVO Netherlands researched in 2019 that workers' monthly wages in Ethiopia that manufacture for H&M, Gap, and JCPenney begins at \$32 (equivalent to US\$105 at U.S. prices), while an experienced worker is \$122 a month (or US\$400 at U.S. prices).

Hence, workers' monthly income would be about \$858 if they worked 40 hours a week. This is a much higher salary than in developing countries but still lower than the U.S. standard of living in income conditions. To reach the target goals of consumer demands from the U.S. and Europe, garment laborers in developing countries, on average, are expected to work 11 hours a day.

## **Strategy**

### **Management**

Fashion is updated frequently to meet peoples demand for the availability of the newest and latest clothing styles. The efficiency is achieved through the retailers' understanding of the target market's wants, which is a high fashion-looking garment at a price at the lower end of the clothing sector. One of the largest causes of the high demand is the short trend cycles: The more an audience is exposed to new trends, the higher the demand grows. Primarily, the concept of category management has been used to align the retail buyer and the manufacturer in a more collaborative relationship.

### **Quick response method**

Quick Response (QR) was developed to improve manufacturing processes in the textile industry to remove time from the production system. The U.S. Apparel Manufacturing Association initiated the project in the early 1980s to address a competitive threat to its textile manufacturers from imported textiles in countries with low labor costs. During the project, lead times in the manufacturing process were halved; the U.S. industry became more competitive for a time, and imports were lowered as a result. The QR initiative was viewed by many as a protection mechanism for the American textile industry to improve manufacturing efficiencies.

Quick response is now used to support fast fashion, creating new products while drawing consumers back to the retail experience for consecutive visits. Quick response also makes it possible for new technologies to increase production and efficiency, typified by the introduction of the complementary concept of Fast Fit. The Spanish mega chain Zara, owned by Inditex, has become the global model for how to decrease the time between design and production. This production shortcut enables the company to manufacture over 30,000 units of product every year to nearly 1,600 stores in 58 countries.

New items are delivered twice a week to the stores, reducing the time between initial sales and replenishment. As a result, the shortened period improves consumer's garment choices and product availability while significantly increasing the number of per-customer visits per annum. In the case of Renner, a Brazilian chain, a new mini-collection is released every two months.

### **Delivery and waste**

Fast fashion typically offers buyers quick shipping, meaning delivery can be same-day or only take a few days. Due to constantly evolving trends, buyers feel the need to have their item before it is no longer in style. Oftentimes, fast fashion brands will offer the buyer deals, where they can spend a certain amount of money to get free shipping. This leads to large amounts of impulse buying, resulting in the items eventually being returned. However, fast fashion returns do not always get sold again, and the company will likely throw the item out because it is no longer in style.

The concerns are not simply related to solid waste any longer either. Fast fashion packaging is accountable for 40% of plastic waste according to a 2022 Organization for Economic Co-operation and Development report. While a recent survey found that nearly 10% of the microplastics found in the ocean occur from textile waste and discarded fashion clothing which may raise concerns going forward.

In Ghana, about 40% of the second hand clothing delivered there from other countries cannot be sold or reused, and is collected by waste management services, burned or dumped in landfill.

## **Marketing**

Marketing is a key driver of fast fashion, creating the desire for consumption of new designs as close as possible to the point of creation. Marketing closes the gap between creation and consumption by promoting something fast, low-priced, and disposable. The continuous release of new products essentially makes the garments a highly cost-effective marketing tool that drives consumer visits, increases brand awareness, and results in higher rates of consumer purchases. Fast fashion companies have higher profit margins due to their lower % markdown percentage of 15% compared to competitors' 30% plus. The fast fashion business model reduces time cycles from production to consumption, stimulating sales through trends that change throughout the seasons. For example, the traditional fashion seasons followed the annual cycle of summer, autumn, winter and spring, but in fast fashion cycles have compressed into shorter periods of 4–6 weeks and in some cases less. Marketers have thus created more buying seasons in the same time-space.

Companies use two marketing strategies, since the main difference is the amount of advertisement spending. While some companies invest in advertising, others like Primark operate with no advertising, investing in store layout and visual merchandising to create the instant hook. Research shows that 75 percent of consumers' decisions are made in front of a fixture within three seconds.

## **Social media marketing**

In recent years, fast fashion retailers have taken a new approach to reaching consumers. Initially, social media's sole purpose was to act as a platform allowing people to connect with other users worldwide. However, social media has become a way for retailers to promote their products and impact consumer behavior.[predatory publisher] Now, consumers are able to look at products and businesses on social media before heading to a store or going online to make a purchase. Additionally, consumers can read real customer reviews on different social media accounts to get a better idea of the quality of the products as well as the customer service. Fast fashion retailers were quick to jump on the trend. Fast fashion retailers like Boohoo.com realized that social media advertisements could be a great way to reach their target audience, young girls. Such users were swarmed with fast fashion advertisements each time they opened Instagram. Companies like Boohoo hoped that the constant exposure to their products would influence users to not only visit their website, but also to buy clothing from them.

Instead of posting pre-made ads on their accounts, fast fashion retailers realized that an effective way to advertise could be to use social media influencers. Social media influencers can be defined as “regular” individuals who have accrued a large number of followers across multiple social media platforms as a result of the content they post. For the most part, influencers focus their content on one subject area, like food or fashion and have become their own kind of “internet celebrities” whom followers value and whose opinions they trust. As a result, when social media influencers post content wearing an outfit from Shein, their followers may feel compelled to purchase clothing from that retailer too. Studies have shown that there is a correlation between following social media influencers and shopping more frequently. Even though some fast fashion retailers still have “celebrity ambassadors”, many retailers have turned to social media influencers to promote their clothing.

The world saw a surge in these social media marketing practices during the coronavirus pandemic. Shein quickly took center stage across numerous social media platforms. Haul videos consist of individuals recording themselves showing items they purchased (typically a large quantity) and posting the video on platforms like YouTube or TikTok. Amid a global pandemic, these billions of views allowed Shein to bring in about \$10 billion in revenue that year.



## **Production**

### **“Supermarket” market**

The consumer in the fast fashion market thrives on constant change and the frequent availability of new products. Fast fashion is considered to be a “supermarket” segment within the larger sense of the fashion market. This term refers to fast fashion’s nature to “race to make apparel an even smarter and quicker cash generator”. Three crucial differentiating model factors exist within fast fashion consumption: market timing, cost, and the buying cycle. Timing’s objective is to create the shortest production time possible. The quick turnover has increased the demand for the number of seasons presented in the stores. This demand also increases shipping and restocking time periods. Cost is still the consumer’s primary buying decision. Costs are largely reduced by taking advantage of lower prices in markets in developing countries. In 2004, developing countries accounted for nearly 75 percent of all clothing exports and the removal of several import quotas has allowed companies to take advantage of the even lower cost of resources. The buying cycle is the final factor that affects the consumer. Traditionally, fashion buying cycles are based around long-term forecasts that occur one year to six months before the season.

### **Supply chain, vendor relationships and internal relationships**

Supply chains are central to the creation of fast fashion, and supply chain systems are designed to add value and reduce cost in the process of moving goods from design concepts to retail stores and through to consumption. The selection of a merchandising vendor is a key part in the process. Inefficiency primarily occurs when suppliers cannot respond quickly enough, and clothing ends up bottlenecked and in back stock. Two kinds of supply chains exist, agile and lean. In an agile supply chain, the principal characteristics include sharing information and technology. The collaboration results in the reduction in the amount of stock in megastores. A lean supply chain is characterized as the correct appropriation of the commodity for the product.

The companies in the fast fashion market also utilize a range of relationships with suppliers. The product is first classified as “core” or “fashion”.

Productive internal relationships within fast fashion companies are as important as the company’s relationships with external suppliers, especially regarding the company’s buyers. Traditionally with a “supermarket” market the buying is divided into multi-functional departments. The buying team uses the bottom-up approach when trend information is involved, meaning the information is only shared with the company’s fifteen top suppliers. On the other hand, information about future aims, and strategies of production are shared downward within the buyer hierarchy so the team can consider lower cost production options.

## **Health impact**

The fast fashion industry incorporates a variety of hazardous substances into fabrics, including dyes containing heavy metals, antimicrobial agents that promote bacterial resistance, and synthetic fibers that release microplastics. These compounds become trapped in garments and can cause skin irritation, hormone disruption, and long-term carcinogenic risks.

## **Environmental impact**

According to the United Nations Economic Commission for Europe, the fast fashion system provides opportunities for economic growth, but the entire industry hinders sustainability efforts by contributing to 20% of wastewater. Providing insight, the Ellen MacArthur Foundation released study results on fashion and suggests a new system that focuses on circular economy. A singular t-shirt requires over 2,000 liters of water to make. Clothing is not utilized to its full potential, the Ellen MacArthur Foundation explains that linear systems are contributing to unsustainable behavior and the future of fashion may need to transition towards a circular system of production and consumer behavior.[citation needed]

Fast fashion is linked to significant environmental damage, accounting for around 10% of global carbon emissions and consuming large amounts of water, while processes such as dyeing and fiber production pollute





Figure 5: People on the road protesting saying fast fashion destroys the climate

waterways and release microplastics.

Journalist Elizabeth L. Cline, author of *Overdressed: The Shockingly High Cost of Cheap Fashion* and one of the earliest critics of fast fashion, notes in her *Atlantic* article “Where Does Discarded Clothing Go?” that Americans are purchasing five times the amount of clothing than they did in 1980. Due to this rise in consumption, developed countries are producing more and more garments each season with the U.S. importing more than 1 billion garments annually from China alone. United Kingdom textile consumption surged by 37% from 2001 to 2005. The *Global Fashion Business Journal* reported that in 2018, the global fiber production has reached the highest all-time, 107 million metric tons.

The average American household produces 70 pounds (32 kg) of textile waste every year. The residents of New York City discard around 193,000 tons of clothing and textiles, which equates to 6% of all the city’s garbage. In comparison, the European Union generates a total of 5.8 million tons of textiles each year. As a whole, the textile industry occupies roughly 5% of all landfill space. This means that the clothing industry produces about 92 million tons of textile waste annually, much of which is burned or goes into a landfill and less than 1% of used clothing is recycled into new garments. The clothing that is discarded into landfills is often made from non-biodegradable synthetic materials.

Various pesticides and dyes are released into the environment by fashion-related operations. The growing demand for quick fashion continuously adds effluent release from the textile factories, containing both dyes and caustic solutions. The materials used not only affect the environment in textile products, but also the workers and the people who wear the clothes. The hazardous substances affect all aspects of life and release into the environments around them. Optoro estimates that 5 billion pounds of waste is generated through returns each year, contributing 15 million metric tons of carbon dioxide to the atmosphere. Fast fashion production has doubled since 2000, with brands such as Zara producing 24 collections a year and H&M producing about 12 to 16 collections a year.

The fast fashion industry has relied on and continues to rely upon complicated, very extensive worldwide supply chains that drive environmental degradation. Often, the raw materials are extracted from land that is used for intensive agricultural production. Fast Fashion contributes to 8% of all carbon emissions and 20% of all global wastewater, using about 93 billion cubic metres of water annually for manufacturing. Garments are produced in factories, often located in low labor cost countries, and sometimes under conditions of labor exploitation. The focus of the industry on fast production and consumption cycles leads to overproduction, waste, and pollution. Synthetic materials, such as polyester, which is manufactured from fossil fuels, contribute even more to environmental deterioration. Moreover, 92 million tons of textile waste gets disposed of in landfills or by incineration also contributes to pollution and water body contamination with micro-plastics. The environmental impact of fast fashion is a serious issue that a lot of the population does not acknowledge.

A 2024 study using agent-based modeling found that increased consumer awareness about environmental and

labor issues, driven by education, government intervention, and social media, can significantly shift shopping behavior away from fast fashion and toward more sustainable alternatives.

In the late 2010s fashion emitted 2–4% of world total greenhouse gases, and it contributes to climate change through energy-intensive production. As of 2025 the United Nations Economic Commission for Europe still has a 2018 press release on their website which says 2% to 8%, despite this being criticised by BBC “More or Less” for being unsourced (they say there was a study which said 8% but it is old). According to the BBC “More or less” investigation in 2022 the best study at that time was the 2021 WRI report which gave 2%. The proportion of textile fibres used in clothing must be a factor in the calculation as some are used in other products, such as filters and seat belts.

In 2023, fast fashion company Shein contributed 16.7 million total metric tons of carbon dioxide emitted into the air. 76% of Shein’s products use polyester, a fabric that easily sheds microplastics, and only 6% of those clothing items are recycled. Each year, the company contributes to 20% of freshwater pollution and 35% of microplastics polluted into the environment. While Shein targets low-income communities with their low costs, the company pollutes the communities with harmful chemicals they use during production in their factories.

## **Sustainability**

### **Recycling**

The speed of clothing consumption has increased substantially since the late 1990s across the world. All aspects of fast fashion have elements that are not environmentally friendly, and the amounts of waste from disposal of textiles into the garbage system is increasing beyond the industries capabilities. The fast fashion industry currently has little to do with the end of life cycle of clothing. Some fast fashion companies collect and export their disposed textiles to developing countries for charity, but because charities are beginning to turn away fast fashion for its cheap production methods, organizations are facing challenges in generating sustainable solutions to counter social and soon governmental pressure. There are many organizations that provide educational tools on how to reuse and recycle textiles to interested individuals, such as “Human Bridge (charitable organization)”. Many retail and textile chains that encourage recycling or reuse provide incentives to do so. For example, Lindex offered a rebate to customers who turned in their clothes.

There are organizations that work to recycle the material into new usable materials for a wide variety of industry needs. Working with the Swedish Red Cross, the Swedish Prison and Probation Service is able to provide textile packing material to the shipping industry; additionally, recycling programs like StenaRecycling are finding new ways to use textiles in various industrious ways, creating construction materials, stuffing, and new and improved textiles.

Polyester and cotton dominate the textile industry with the synthetic fiber polyester exceeding production of cotton since 2002. Fast fashion has caused a spike in textile waste, bringing waste management to the attention of many individuals. After clothing is reused until it is beyond usable for its given function, recycling it through a mechanical or chemical process is the next step. One concern with recycling textiles is the loss of “virgin material”, but chemical recycling can extract the “virgin materials” like protein-based and cellulosic fibers to produce new products. The deterioration of material to provide new products is the process of mechanical recycling.

There are four categories of recycling: upcycling, downcycling, closed-loop, and open-loop recycling. Upcycling is the process of using a textile to create something higher quality than the original. Downcycling is using a textile in a way that is less than the original value. Closed-loop recycling is the reuse of one textile over and over again to create the same piece. Open-loop recycling is the process of creating something new with the textile piece. The EU is currently taking initiative to enforce circularity and closed-loop recycling in the clothing cycle, as well as encouraging a less wasteful lifestyle by supporting second-hand and organic clothing pieces –organic in this case being cotton, silk, etc. In the United States, New York City has begun working with natural fibers like bamboo and hemp to make not just clothing, but bags as well.

There are many technologies that assist in the recycling of textile products:

1. Anaerobic digestion of textile waste –decomposition of organic cotton textile to collect methane and other biogas
2. Fermentation of textile waste for ethanol production –cotton fabric provides enhancement of bioethanol production
3. Composting of textile waste –cotton waste provides an excellent source of nutrients in compost
4. Fiber regeneration from textile waste –recovery of glucose and polyester is possible and allows for reuse of material
5. Building/construction material from textile waste –use of textiles in building materials and construction
6. Thermal recovery –incineration of remaining textiles to collect usable energy

## Technology

Fast fashion brands like ASOS, Levi's, Macy's, and North Face have turned to sizing technology that use algorithms to solve sizing issues, and give accurate size recommendations on their website to reduce environmental impact on returns. H&M's design team is implementing 3D design, 3D sampling and 3D prototyping to help cut waste, while artificial intelligence can be used to produce small garment runs for specific stores.

Companies are helping support the circular system in fashion production and consumer behavior by renting out clothes to customers with recycled or reuse items. New York & Company Closet and American Eagle Style Drop are examples of rental services that can be offered to customers when subscribed to the program. Tulerie, a smartphone application offers borrowing, renting, or sharing of clothes in local communities across the globe; users have the opportunity to profit by renting clothes as well.

## Overconsumption



Figure 6: Discarded clothes in London, 2019

In contrast to modern overconsumption, fast fashion traces its roots to World War II austerity, where high design was merged with utilitarian materials. The business model of fast fashion is based on consumers' desire for new clothing to wear. In order to fulfill consumers' demand, fast fashion brands provide affordable prices and a wide range of clothing that reflects the latest trends. This ends up persuading consumers to buy more items which leads to the issue of overconsumption. Dana Thomas, author of *Fashionopolis*, stated that Americans spent 340 billion dollars on clothing in 2012, the year before the Rana Plaza collapse.

Planned obsolescence plays a key role in overconsumption. Based on the study of planned obsolescence in *The Economist*, fashion is deeply committed to planned obsolescence. Last year's skirts, for example, are designed to be replaced by this year's new models. In this case, fashion goods are purchased even when the

old ones are still wearable. The quick response model and new supply chain practices of fast fashion even accelerate the speed of it. In recent years, the fashion cycle has steadily decreased as fast fashion retailers sell clothing that is expected to be disposed of after being worn only a few times.

A 2014 article about fast fashion in The Huffington Post pointed out that in order to make the fast moving trend affordable, fast-fashion merchandise is typically priced much lower than the competition, operating on a business model of low quality and high volume. Low-quality goods make overconsumption more severe since those products have a shorter life span and would need to be replaced much more often. Furthermore, as both industry and consumers continue to embrace fast fashion, the volume of goods to be disposed of or recycled has increased substantially. However, most fast-fashion goods do not have the inherent quality to be considered as collectables for vintage or historic collections.

## **Labour concerns**

### **Sweatshops**

The fashion industry is known as the most labor-dependent industry, as one in every six people works in acquiring raw materials and manufacturing clothing. There is an increasing concern for sweatshops as more fast fashion stores are lowering their prices and trends are fluctuating more frequently. Brands and store companies that use sweatshops are GAP, Abercrombie & Fitch, Banana Republic, and others.

In particular, H&M has faced controversial issues and backlash regarding their sweatshops in Asian countries. H&M is the largest producer of clothing, with sweatshop factories in under-developed South Asian and Southeast Asian countries like India, Bangladesh and Cambodia. 500 employees in Indonesia left their work and protested for higher pay as their pay was below the country's minimum wage. Once a strike evolved, the factory removed their access to the building and paid men to harass the workers.

In 2023, Nike received backlash over its use of sweatshops. Although the company denied it, evidence showed that 4000 Nike garment employees were not paid \$2.2 million in owed wages for over three years. This accrual of unpaid wages spanned from the Violet Apparel factory in Cambodia to the Hong Seng Knitting Factory in Thailand, and many human rights organizations called Nike out on their violations against laborers.

Bangladesh, a country known for its cheap labor, is home to four million garment production workers in over 5000 factories, of which 85% are women. Many of these factories do not have proper working conditions for essential workers. In 2013 a group of garment workers protested in Bangladesh over the poor quality of the factory building. In 2013 in Dhaka District, Bangladesh, the Rana Plaza factory building collapsed and killed over 1,000 workers. In addition to a structurally unsound building, the employees were overworked. Bangladesh has the lowest minimum wage of all countries exporting apparel.

### **Women and export processing zones**

The International Labour Organization defines export processing zones as “industrial zones with special incentives set up to attract foreign investors, in which imported materials undergo some degree of processing before being re-exported”. These zones have been used by developing countries to bolster foreign investment, and produce consumer goods that are labour-intensive, like clothing. Many export processing zones have been criticized for their substandard working conditions, low wages, and suspension of international and domestic labour laws. Women account for 70–90% of the working population in some export processing zones, such as in Sri Lanka, Bangladesh, and the Philippines. Despite their overrepresentation in export processing zone informal sector (informal economy) employment, women are still likely to earn less than men. Mainly, this discrepancy is due to employers preferring to hire men in technical and managerial positions and women in lower-skilled production work. Moreover, employers tend to prefer hiring women for production jobs because they are seen as more compliant and less likely to join labour unions. In addition, a report that interviewed Sri Lankan women working in export processing zones found that gender-based violence “emerged as a dominant theme in their narratives”. For example, 38% of women reported seeing or experiencing sexual harassment within their workplace. However, proponents of textile and garment production as a means for economic upgrading in developing countries (global value chain) have pointed out that clothing production work tends to have higher wages than other available jobs, such as agriculture or domestic service work,



Figure 7: July 2011, women and men working

and therefore provides women with a larger degree of financial autonomy. Export-processing zones (EPZs) are situated within neoliberal globalization and often recruit and rely on a feminized and flexible workforce. Hiring targets frequently include young migrant and rural women, highlighting an intersection of gender, age and migration status, where workers are then managed through surveillance, quotas and limits on collective organizing. Consequently, such a system makes women's labour central to export growth despite diminishing social protections. More documented practices experienced by workers include pregnancy testing at hiring, dismissal upon pregnancy, and curfews within employer-run dormitories, limiting autonomy and voice. From such workplace conditions to transnational supply chains, these micropolitical and macropolitical structures help explain how decision-making is made with brands and buyers outside producing communities, while social and environmental costs stay local, especially within South and Southeast Asian production zones.

### **Guangzhou workshops**

Fast fashion company Shein produces its clothing using Guangzhou workshops in Southern China. These workshops are growing industries since they are able to produce a large amount of clothing items for cheap prices and without paying tariffs. Often going overtime and lasting more than 10 hours, an employee's working hours are fickle and unpredictable, and some workers are paid as little as US\$5/hour. Employees rent small rooms above the cloth and sewing machine-filled garment factories. They sleep on bunk beds and pay US\$130 per month.

Shein's supply chain functions to support the high demand for inexpensive clothing items. Because Shein produces 10,000 garments a day to maintain pace with fickle clothing trends, they do not stock up on inventory. Because two-thirds of 18-year-olds are now going to college, the amount of Chinese young people willing to work in clothing workshops has decreased, and there are fewer employees working in the Guangzhou workshops. There have been complaints from employees that their work is too taxing. During a WIRED investigation, Shein workers revealed that they often have to work 75 hour shifts in factories that lack sufficient windows or exits.

### **Design legislation and lawsuits**

#### **United States**

H.R. 5055, or the Design Piracy Prohibition Act, was a bill proposed to protect the copyright of fashion designers in the United States. The bill was introduced into the United States House of Representatives on March 30, 2006. Under the bill designers would submit fashion sketches or photos to the U.S. Copyright Office within three months of the products' publication. This publication includes everything from magazine



Figure 8: The Design Piracy Prohibition Act would protect fashion designers from having their ideas imitated immediately after their public release, such as runway appearances.



advertisements to the garment's first public runway appearances. The bill would protect the designs for three years after the initial publication. If infringement of copyright occurred the infringer would be fined \$250,000, or \$5 per copy, whichever is a larger lump sum.

The Design Piracy Prohibition Act was reintroduced as H.R. 2033 during the first session of the 110th Congress on April 25, 2007. It had goals similar to H.R. 5055, as the bill proposed to protect certain types of apparel design through copyright protection of fashion design. The bill would grant fashion designs a three-year term of protection, based on registration with the U.S. Copyright Office. The fines of copyright infringement would continue to be \$250,000 total or \$5 per copied merchandise.

As of 2007, Forever 21, one of the larger fast fashion retailers, was involved in several lawsuits over alleged violations of intellectual property rights. The lawsuits contended that certain pieces of merchandise at the retailer can effectively be considered infringements of designs from Diane von Fürstenberg, Anna Sui and Gwen Stefani's Harajuku Lovers line as well as many other well-known designers. Forever 21 has not commented on the state of the litigation but initially said it was "taking steps to organize itself to prevent intellectual property violations".

In 2023, two graphic designers sued Shein for copyright infringement and racketeering for identically copying their graphic designs. Krista Perry claimed that Shein listed an item of wall art for sale on their website that directly copied her "Make it Fun" design. Despite obtaining copyright registration for his "Try My Best" design, Jay Baron's graphic appeared on the Shein website in the form of embroidered patches. Another design Shein copied despite it having a registered copyright was Martinez's "Orange Daises" floral pattern. After these copyright infringements, these graphic designers struggled in sales with a loss of profits.

## **Alternatives**

### **Identifying a sustainable brand**

In recent years, there has been a greater incentive to re-evaluate the linear business model of many fashion brands and turn it towards a value chain and circular economy. It takes after a closed-loop ideology that aims for biodegradable textiles, products, and full fashion collections as a way to make sure resources are used sustainably. This then creates a more sustainable brand.

When looking for a sustainable brand, many brands produce their products in safe working conditions, with environmentally friendly materials, with fair wages, and with an effort to reduce their carbon footprint. Many sustainable brands and companies that do not support fast fashion heavily publicize relevant details about their company and supply chains so shoppers can make educated decisions about the brands they purchase from and support.

Clothing brands that follow this business model are Everlane, Patagonia, Quince, and Veja. Everlane, a company that has been seen as a fair trade brand which Forbes has viewed as a "quiet luxury brand" due to their new rebranding with a focus on a capsule wardrobe. Brands like Patagonia and Veja have a business model that focuses on guaranteeing their clothing and shoes, making it possible for repairs to be made to broken or worn down pieces. Sustainable brands have been seen to make advertising slogans to put forth their sustainable business message. They are also open about their connections to their factories and how they make an intentional effort to have ethical production processes.

It is also apparent which companies are fast fashion and which are sustainable when looking at the marketing techniques. Many companies that constantly advertise having a new collection (multiple times a season) are considered fast fashion. They constantly make new patterns and designs that follow the trends, compared to a company that releases a new, timeless line one to four times a year. Companies that advertise extremely low prices that almost seem unrealistic are likely fast fashion, a prime example being Shein. The only way for prices to be that low are low labor wages and inexpensive materials that can be mass-produced.

While many fast fashion brands such as H&M, Zara, and Primark have claimed to adopt more sustainable practices within their supply chains, several of them have been accused of greenwashing. Greenwashing is a practice done by companies to deceive consumers by sharing selective information. Using ambiguous language, brands can make misleading claims about the sustainability of their business or manufacturing



practices. For example, a fast fashion company may claim that their jeans are “eco-friendly” because the fabric of the jeans was made from organic cotton rather than synthetic materials. However, the brand may not disclose the organic certification of the cotton or may omit crucial information about the production methods of the jeans, which could involve chemical-intensive processes such as dyeing and finishing. This doubts the credibility of the brand’s claims about producing eco-friendly clothing items. Deceptive marketing strategies are created by companies that grant large brands labels and certificates that use keywords like eco-friendly, sustainable, or no-chemical use to mask a brand’s real production. This technique is called double talk and is used by many top brands to cover up their business model, which is 96% unsustainable, making these certificates and labels false and making it more difficult for consumers to find fast fashion brands that are truly sustainable.

## **Alternatives**

Donating and thrifting are both common ways to reduce fast fashion. When uninterested by a piece of clothing, people can donate to companies like Plato’s Closet, Goodwill, or local thrift stores rather than throwing it away and contributing to waste. Then, people shop at thrift stores and purchase clothes that someone else donated for a reduced price, lengthening the product lifecycle. This method reduces waste while allowing shoppers to purchase clothes at an affordable price.

Another concept is to purchase clothes with “slow fashion” in mind. Slow fashion is purchase of good-quality and essentially timeless clothing with the intent of the clothing lasting a long time.

Another option is to learn to make and mend clothes out of recycled materials. Instead of throwing away items after they break, it could be beneficial to some to learn how to patch, sew, or repair pieces of clothing. Some people even use upcycled materials or fabric to make their own clothes. This could be through sewing, knitting, crocheting, or tying pieces together. There are also companies that offer repair over resale either free of charge or for a small fee. The athletic wear company Lululemon offers complimentary hemming on all tops and pants, to get clothing adjusted based on personal needs rather than purchasing a completely new item. For a small charge, Patagonia offers repairs on all clothing rather than repurchasing the item. Even footwear companies, like Red Wing Boots, will resole and re-stitch old footwear, which will lengthen the life of the shoes.

All of these are options to avoid fast-fashion or choose a more sustainable method of finding clothing.

## **Brands**

- Fashion Nova
- Halara
- Shein