

FASHION AND SUSTAINABILITY: TOWARDS A GREENER FUTURE

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1. Introduction

The fashion industry is known as one of the largest global sectors, which plays a vital role in developing the modern life styles and provide satisfaction to consumer. However, in increasing production process and extensively usage of the natural resources, it has raised the concerns to the sustainability related to environment. The evolution of extravagant in fashion has contributed to enlarged carbon emissions, water contamination, and textile waste (Hameed et al., 2025). In the current time of period, if consumers develop more conscious about these environmental impacts, the demand for sustainable fashion attains a value of momentum. Sustainable fashion endorses the eco-friendly resources, ethical production practices, and circular economy models which try to reduce the carbon footprint while ensuring fair labor practices in the fashion and manufacturing industry.

Therefore, the need of the fashion industry to adopt the sustainable innovation is very important. The innovation process in the industry such as recycled fabrics, energy efficient manufacturing processes, biodegradable textiles make the business more profitable (Othman et al., 2024). Consequently, embracing the strategies related to sustainability in the fashion industry not merely beneficial for the environment but also increase the brand reputation and consumer loyalty. There are many leading fashion companies are integration the green practices in the business models by implementing transparency in the supply chains and associating with the principled supplier.

The cooperation among the brands, consumers and policy makers are important in driving the greener future with sustainability. The fashion industry with the sustainable techniques paves the new dimension for environment friendly future and balancing style with sustainability. Further, the fashion industry in any country is famous for the creativity, innovation and scrutinized for its environmental influence. So, the excessive water usage and chemical pollution to manufacture waste and carbon emission are common and signification impact on ecologist footprint

There is detail need of time to pay attention to sustainability in the context of fashion industry, therefore this chapter cover following objectives.

1.1 Definition

There are following definitions which are important for the explanation of relevant concepts.

a. Fashion Industry

The fashion industry is a global business that creates, produce, sells and markets the accessories, foot wears and cloths. It is consisted on mass market brands (Easey, 2009).

b. Sustainability in Fashion Industry

Sustainable fashion is related to the production, distribution and designing of the cloths, footwear and accessories which has minimum environmental impact (Gwilt & Rissanen, 2012)

In other worlds, sustainable fashion use to focus on the creating fashion products which eco-friendly raw material which fulfill the requirements of the fashion as well as protect the environment. Further, these products have power of reuse, recycle and reduce.

1.2 Objectives of the Chapter

There are following objectives of the chapters. These objectives explain the intention to write the chapter.

- To explains the relationship between fashion and sustainability towards the greener future
- To investigate the importance of the sustainability and its practice in fashion industry
- To explain the concept of circular fashion economy and strategies or 3Rs in fashion industry
- To elaborate the sustainable fabric innovation and ethical as well as low impact production techniques.
- To explain the strategies for reducing carbon footprint in industry and supply chains
- To elaborate the theories related to fashion sustainability and greener future
- To through the light on challenges related to adoption of sustainable fashion industry

These objectives will lead to chapter for facilitate the reader, administration of fashion industry and policymaker to take innovative steps.

2. Importance of Sustainability in the Fashion Industry

In the fashion industry, the practices of the sustainability strategies play important role, such as sustainable fashion use to reduce waste, pollution, excessive use of natural resource (Hameed et al., 2025). Further, it ensures the use of organic products and minimum waste; following figure explain the importance of sustainability in the fashion industry.

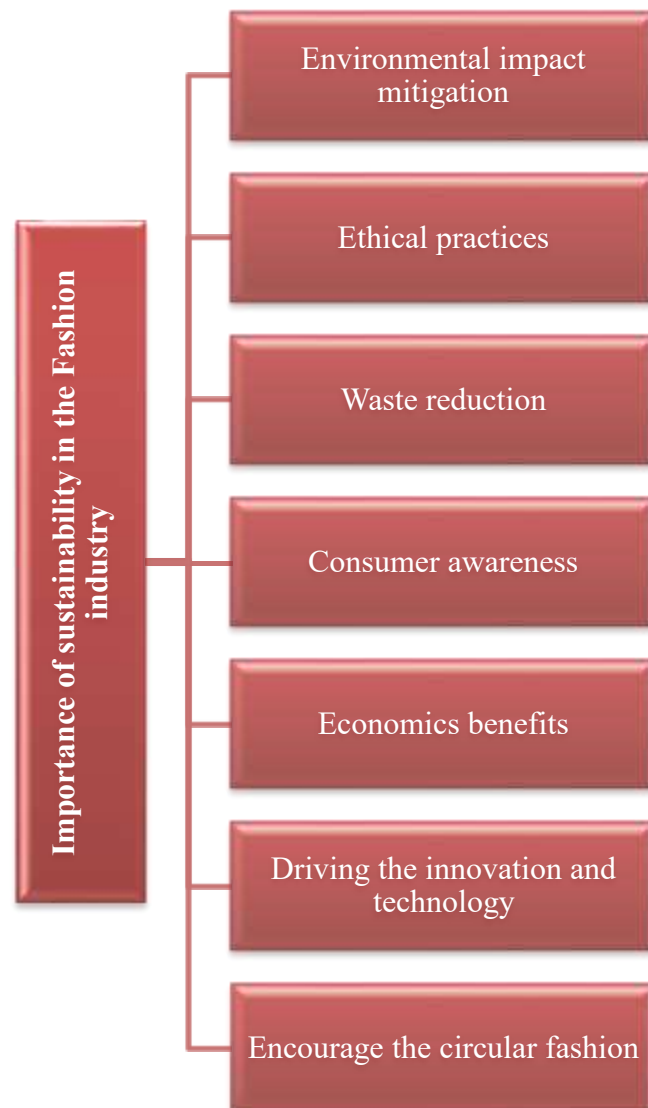


Figure 1: Importance of sustainability in the Fashion industry

a. Environmental Impact Reform

In promoting the sustainable development, the environmental influence play important role all over the world. It contains accepting practices that decrease the negative properties of business actions on the

environment. These practices comprise using eco-friendly resources, executing energy-efficient production procedures, and dropping carbon emissions. Corporations that arrange environmental impact reform assistance sanctuary natural resources, defend biodiversity, and fight against the climate change (Nuryanto et al., 2024).

With the help of amalgamation of bad environmental alleviation strategies, industries not only abide by with environmental guidelines but also improve their communal social responsibility. These practices take part into generating a healthier globe, nurturing the sustainable expansion, and improving the whole quality of life for future compeers. Organizations that accept the conservational sustainability often gain a positive status, which increase the customer loyalty and attract environmentally conscious customers (Agu et al., 2024).

b. Ethical Practices

In any business the ethical practice consists on the maintenance of equality, morality, and reliability in all processes. This contains treating employee's equity, safe working situations, and avoiding manipulative labor activities. Ethical corporations also prefer transparency in their supply chains and work with contractors that maintain similar values. These activates endorse social accountability and generate a more reasonable business environment. Furthermore, ethical practices foster trust and respect between businesses and stakeholders.(Hameed et al., 2025) Corporations that arrange ethics are more likely to build long-term associations with customers, investors, and staffs. Ethical business not only improves brand status but also contributes to sustainable development by endorsing equality and responsibility throughout the organization.

c. Waste Reduction

In any industry the waste reduction is important can critical element of the sustainability efforts in different sector. It involves diminishing the quantity of waste created throughout production, dissemination, and consumption procedures (Prasanna et al., 2024). Industries attain targets by accepting well-organized manufacturing methods, recycling materials, and expending recyclable packaging. Waste reduction helps conserve natural wealth and reductions pollution which further helpful for healthier environment.

Applying waste reduction approaches lead to important cost savings for corporations. Further, the industries use to attain operational efficiency with the help of enhancing resource practice and decreasing disposal expenditures. Additionally, waste reduction initiatives align with customer preferences for eco-friendly products, enhancing brand reputation and customer satisfaction.

d. Consumer Awareness

Consumer awareness plays a pivotal role in driving demand for sustainable products and services. The awareness of customers about the environmental and social impacts is important for the purchasing decisions as well as empowers them to make conversant choices. Moreover, consumer awareness through transparent labeling, sustainability movements and corporate social responsibility initiatives enhance motivation of industries for the sustainable production process. Further, with the help of consumer awareness, businesses can encourage more responsible consumption arrangements. Knowledgeable

customers are more likely to support products that prioritize sustainability, generating a positive response coil that incentivizes industries to accept greener practices. This change in consumer behavior provocatively contribute to the overall sustainability movement (Othman et al., 2024).

e. Economic Benefits

Sustainable industry practices make significant financial benefits for both corporations and society. With the help of enhancement in resource efficiency, reducing waste, and adopting renewable energy sources, industries lower operational costs and improve profitability. Sustainable practices also drive novel market chances for eco-friendly products and services. Additionally, businesses that prefer the sustainability frequently experience increased consumer loyalty and financier assurance. Governments and financial organizations are progressively having contribution incentives and finance for productions that apply green practices as well as augmenting economic assistances. The change to a sustainable economy initiative long-term development, job formation, and overall economic flexibility (Husainy et al., 2024; Kulkarni et al., 2025; Nuryanto et al., 2024).

f. Dynamic the Innovation and Technology

Sustainability challenges frequently push the innovation and technological progressions. In current time of period, Industries are capitalizing in research and expansion to create eco-friendly products, energy-efficient technologies, and sustainable materials (Odeyemi et al., 2024). Innovations such as biodegradable packaging, renewable energy solutions, and smart manufacturing processes are revolutionizing industries and reducing environmental footprints. By integrating innovative technologies, companies can improve operational efficiency and gain a competitive edge in the market. The pursuit of sustainability not only benefits the environment but also fosters technological breakthroughs that can reshape industries and improve overall quality of life (Nuryanto et al., 2024).

g. Encourage the Circular Fashion

The Circular fashion endorses a closed-loop preparation where products are designed, formed, and consumed in techniques that minimalize the waste as well as maximize reserve efficiency. This method contains designing resilient products, reprocessing materials, and inspiring product reuse. Further, the Circular fashion intentions to spread the lifecycle of outfits and decrease the environmental consequence of the fashion industry (Bertola & Colombi, 2024). The circular fashion requires teamwork between designers, producers, retailers, and consumers. Corporations implement take-back programs, offer repair services, and promote second-hand markets. Further, acceptance circular fashion, industries decrease waste, conserve resources, and create a more sustainable fashion industry (Odeyemi et al., 2024).

3. Circular Economy in the Fashion

The circular economy in the context of fashion is method which connected to the redesigning the customary fashion industry in to the sustainable fashion industry by lessening the waste, encompassing products lifetime and resource competence (Contreras-Masse et al., 2024; Krywalski-Santiago, 2024). The circular economy inspires the constant use of resources, rising the environmental impact of the fashion industry while fostering ethical and responsible

practices. The idea of the circular economy is becoming progressively important as the fashion manufacturing is one of the major contributors to pollution, waste generation, and climate change. By adopting circular practices, the industry change toward a more sustainable future, promoting both society and the environment

3.1 Principles of Circular Economy in Fashion

The circular economy in fashion is guided by three core principles that aim to create a sustainable and efficient system:

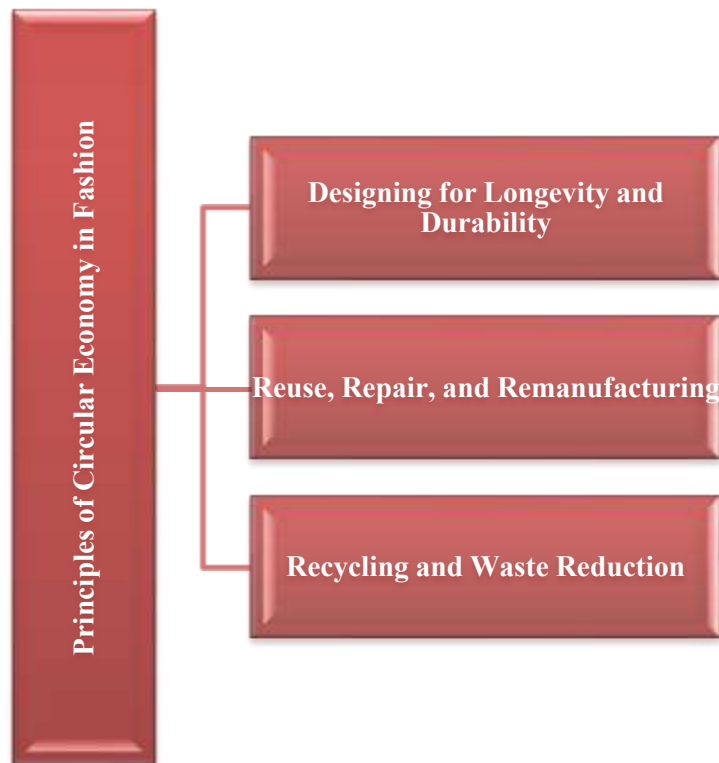


Figure 2: Importance of sustainability in the fashion industry

a. Designing for Longevity and Durability

Creating and usage of clothes for long time is important element to the circular fashion idea. This means making garments that don't need replaced often. Brands use good materials and strong sewing to make clothes that stay nice after many wears. Clothes that last encourage people to wear them longer. This lowers textile waste and helps use resources well.

Timeless styles also help clothes last longer. Brands should create classic styles, not chase trends. These styles stay in fashion for years. People are less apt to throw away clothes fast this way. Designing for long wear is good for the Earth. Plus, people get good products that last.

b. Reuse, Repair, and Remanufacturing

Extending the life of clothes involves reuse, repair, and remanufacturing. These actions restore old items and find new uses for them. Reuse gives old clothes a second chance via resale or donation. This cuts demand for new items and lowers waste. Patagonia and Levi's offer resale to boost product reuse (Swathi & Johnpaul, 2025). Repair keeps clothes useful and stops them from being thrown out. Patagonia offers repair services. Some people fix clothes by Remanufacturing turns old clothes into new things. Brands make new items from old, cutting the need for new materials. These steps help fashion become more sustainable. This process allows brands to create unique, upcycled fashion items while reducing the need for virgin raw materials (Kulkarni et al., 2025; Swathi & Johnpaul, 2025). Together, these practices help close the loop of the fashion lifecycle and promote sustainable fashion consumption.

c. Recycling and Waste Reduction

In the Fashion industry the circular economy be influenced by on recycling and less waste. Old clothes become new materials, avoiding landfills. Garment recycling uses machines or chemicals. These break clothes into fibers for new items. H&M and Adidas have programs for old clothes. These get turned into fresh products. Waste reduction also means zero-waste designs. Designers use all fabric pieces. Green brands use less packaging. They also use materials that rot. Recycling and less waste save resources. They cut emissions and lower waste. These steps are important for green fashion. Moreover, sustainable brands are adopting negligible packaging and using biodegradable materials to reduce environmental impact. Reprocessing and waste reduction help to the natural resources, decrease the carbon emissions, and diminish textile waste, making them vital practices for building a sustainable fashion industry.

4. Challenges of the Adoption of Sustainability in the Fashion Industry

Sustainability is important in any sector. It gives the sector greener future and strategies of reuse, reduce and recycle the products. This perception is very important but it has some hurdles which can create the problem to adopt the flexible strategies related to the adoption of the sustainable production process and marketing in the fashion industry. There are following challenges are needed to tackle with iron hand.



Figure 3: Challenges of the fashion industry for adoption of sustainability

a. High Cost of Sustainable Materials

One of the major challenges in sustainable fashion is the high cost of eco-friendly resources. Fabrics like organic cotton, bamboo fibers, and recycled polyester are very costly than conventional materials due to their production processes and limited availability. Many brands, especially small businesses find it problematic to afford these materials which increase the overall price of the final product. This makes sustainable fashion less available to a wider audience, decelerating down its widespread adoption.

b. Limited Technological Innovation

The lack of technical progressions in sustainable textile production poses a important challenge for the fashion manufacturing. Emerging innovative resources such as biodegradable fabrics, plant-based dyes, and parched dyeing approaches requires substantial investment in research and growth. Without appropriate technological improvements, it becomes problematic to produce eco-friendly products at a larger scale and limiting the industry's capability to meet the rising demand for sustainable fashion.

c. Consumer Awareness and Demand

There are many customers have lack of knowledge about the environmental and social consequences of the fashion industry. Many fashion brands endorse little prices and fashionable items which make it difficult for customers to prefer the sustainability. Moreover, the awareness that sustainable fashion is affluent or less stylish demotivates the people from creating eco-friendly selections. Growing consumer education and promoting sustainable lifestyle choices are crucial to shifting purchasing behavior toward ethical fashion (Alhawamdeh et al., 2024; Swathi & Johnpaul, 2025).

d. Green Washing

Green washing is a deceptive marketing method in which brands incorrectly right their products are sustainable or eco-friendly without following to honest moral or environmentally responsible practices. This practice generates misperception for consumers and makes it challenging to differentiate between truthfully sustainable brands and those just capitalizing on the growing demand for green products. Beyond deceiving buyers, green washing erodes trust in the broader sustainability movement, hindering progress toward meaningful environmental and social change. To address this issue, the fashion industry must prioritize clear certifications, transparent reporting, and third-party verifications to ensure accountability and rebuild consumer confidence in sustainable practices (Husainy et al., 2024).

e. Supply Chain Clearness

The fashion supply chain is often complex and involves multiple stages, including sourcing raw materials, manufacturing, transportation, and retail. Many brands outsource their production to different countries make it difficult to follow and ensure ethical labor practices, reasonable wages, and environmental acquiescence. Nonexistence of clearness in the supply chain upsurses the risk of manipulation and environmental destruction and make it difficult implement sustainable activities across all phases.

f. Waste Management

The fashion industry makes lots of material waste during the manufacturing each year due to overproduction and unsold inventory. Most textile waste dumps in landfills or furnaces, causing severe environmental pollution. The lack of actual recycling systems and sustainable waste management practices makes it difficult to reduce the environmental effect of fashion. Brands need to adopt circular economy models that inspire recycling old clothes.

g. Fast Fashion Culture

In current time of period, the fast novelty in the fashion inspires bulk production of low-cost, short-lived outfit to carry on with altering fashion inclinations. This business model endorses overconsumption which has consequences of extreme waste and environmental dilapidation. In This situation the fast fashion cycle and encouraging slow fashion which ensure the excellence, stability and everlasting designs, is a main challenge for the fashion industry (Husainy et al., 2024).

h. High Energy and Water Consumption

The manufacture of textiles like cotton and polyester devours large quantities of energy and water. As the rising cotton requires general irrigation, while dyeing and finishing procedures pollute water sources with damaging chemicals. Therefore, Increasing energy-efficient manufacture methods and water-saving methods is vital to minimize the environmental impact of fashion manufacturing (Muhib & Rahman, 2024).

i. Lack of Government Regulations

In numerous countries, there are no stern laws or principles to apply sustainability activities in the fashion industry. Deprived of appropriate government policies there are some brands are not held answerable for their environmental and social consequences. Further, the executing lawful frameworks that endorse eco-friendly practices, reasonable wages, and accountable production process are essential to inspire brands to adopt sustainable approaches.

j. Limited Collaboration among Investors

Sustainable fashion involves cooperative efforts from brands, managements, non-profit organizations as well as customers. However, imperfect teamwork between these participants decelerates the evolution to sustainability. Organizations related to fashion sector, environmental organizations, and research institutions need to encourage innovation, increase mindfulness, and create long-term explanations to environmental and social tasks in this industry

4. Theories related to Sustainability in the Fashion Industry

There are some following theories are very important to understand the sustainability in the fashion industry.

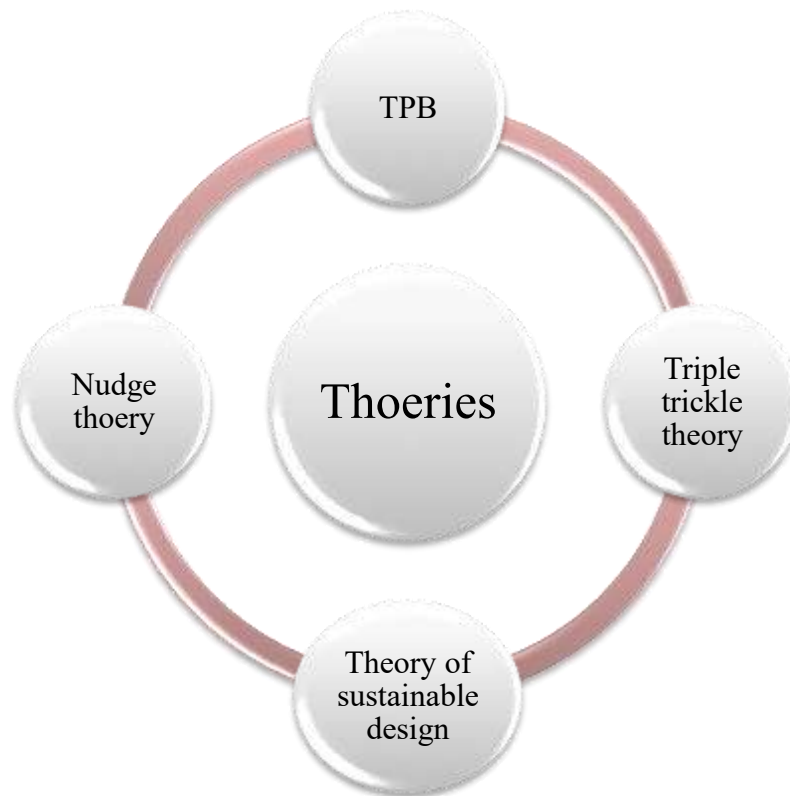


Figure 4: Theories related to sustainability in Fashion

a. Theory of Planned Behaviour (TPB)

According to the theory of planned behavior (Ajzen, 1991), behaviors are influenced by intentions, which are determined by three factors: attitudes, subjective norms, and perceived behavioral control. It is also possible for external factors to directly force or prevent behaviors, regardless of the intention, depending on the degree to which a behavior is actually controlled by the individual, and the degree to which perceived behavioral control is an accurate measure of actual behavioral control. Further, it explains that individuals' behaviors are influenced by their attitudes, subjective norms, and perceived behavioral control (Wicaksono et al., 2024; Zidan et al., 2025).

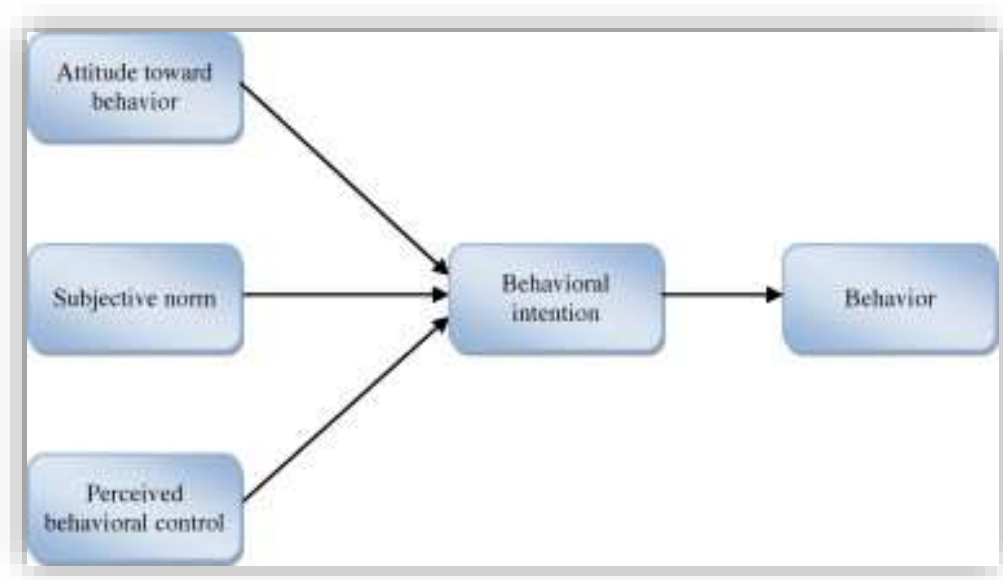


Figure 5: Theory of planned behaviour

Source: (Ajzen, 1991)

I. Attitudes toward Sustainable Fashion:

Consumer's attitudes toward sustainable fashion are shaped by their beliefs about its benefits (e.g., environmental protection, ethical production) and drawbacks (e.g., higher costs, limited styles). For example, if a consumer believes that buying sustainable clothing helps reduce environmental harm, they are more likely to have a positive attitude toward it. (Wicaksono et al., 2024)

II. Subjective Norms in Fashion:

Social influences play a significant role in fashion choices. If a consumer's peers, family, or influencers they follow advocate for sustainable fashion, they are more likely to adopt similar behaviors. For instance, celebrities promoting eco-friendly brands can create a social norm that encourages others to follow suit.

III. Perceived Behavioral Control in Fashion:

This refers to how easy or difficult consumers perceive it to be to engage in sustainable fashion. Factors like the availability of sustainable brands, affordability, and convenience influence this perception. If sustainable options are widely available and affordable, consumers are more likely to adopt them (Zidan et al., 2025).

Furthermore, The TPB suggests that an individual's behavior is predicted by their attitude toward the behavior, which represents their overall evaluation of the behavior; subjective norm, which involves perceived societal pressures to perform the behavior; and perceived behavioral control which reflects their perceptions of control over

executing the behavior (Ajzen, [1991](#)). These factors collectively shape an individual's intention to perform a behavior, which is the key predictor of actual behavioral execution (Ajzen, [1991](#)).

b. Triple Trickle Theory

The Triple-Trickle Theory is an extension of the traditional Trickle-Down Theory in fashion, which explains how trends move from higher social classes to lower ones. The Triple-Trickle Theory, however, introduces a more nuanced and multi-directional method to understanding how trends fashion is distributed. It suggests that trends do not just trickle down from the elite but also trickle up from subgroups and trickle across through peer influence (Hur et al., 2025).

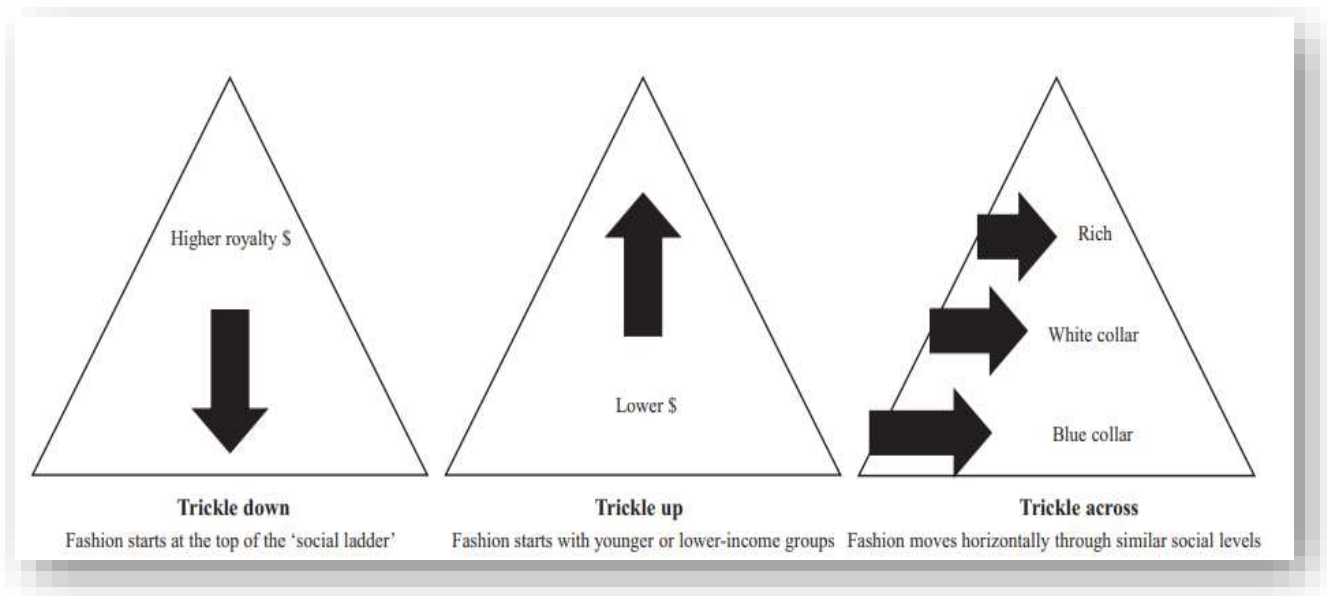


Figure 6: Elements of Triple Trickle Theory

Source: (Mohr et al., 2022)

The trickle-down influence is a model of product adoption in marketing that affects many consumer goods and services. It states that luxury fashion flows vertically from the upper classes to the lesser classes within society, and each social class influenced by a higher social class. Interestingly, however, in the context of second-hand fashion, there is a growing middle and upper strata adopting luxury vintage due to concerns over climate change and who are the leaders of this new sustainable fashion trend. Proponents of the trickle-across theory suggest that fashion moves horizontally between social strata groups (King, 1963; Robinson, 1958). In the trickle-across framework, there is little lag time in adoption between groups. The trickle-up, also known as the bubble-up pattern, is the modern of the fashion adoption theories first introduced by Field (1970). In this theory, novel trends start on the streets and

flow from lower classes to upper ones. This consequence shows the innovation flows from the lower class to the upper class (Field, 1970; Blumberg, 2014; Chowdhary, 2015). The innovation finally flows to upper-income groups with luxury brand names embracing street styles, a phenomenon referred to as “Status Float” (Field, 1970). The critical point of this theory is that trend adoption does not need to go through all the societal layers from the bottom to the top, but rather the upper-income opinion leader first picks the trend from the lower one, and then the trend is further diffused down to the middle class (Hur et al., 2025).

c. Theory of Sustainable Design

This theory focuses on designing products with minimal environmental impact across the product lifecycle. In the fashion industry, it involves eco-friendly materials, zero-waste designs, and circular fashion models where clothes are designed for reuse, repair, and recycling. (Agwu et al., 2024) The dimension of aesthetic sustainability is reflected at the level of the product while cultural sustainability requires a systems-level approach

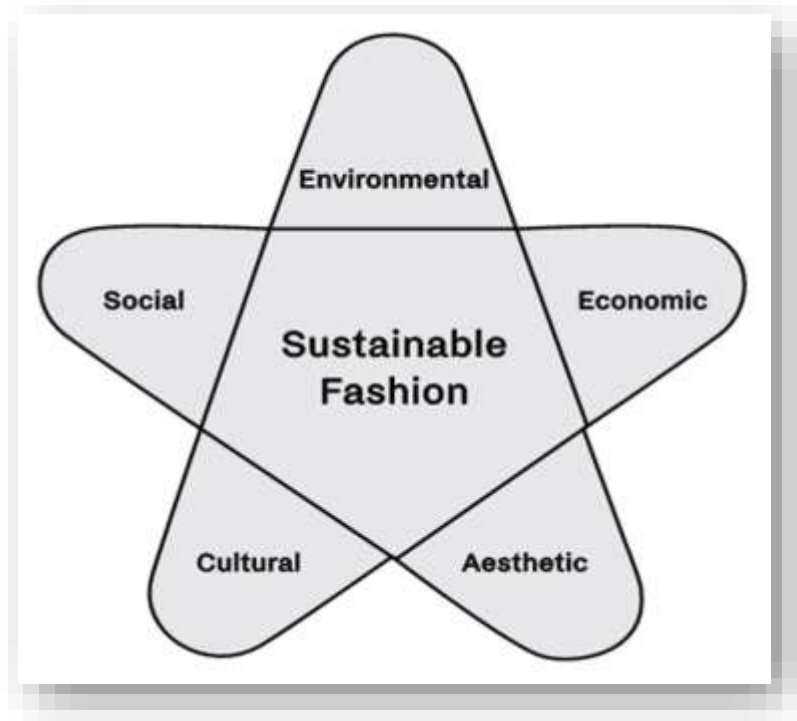


Figure 7: Theory of sustainable design

Source: (Kozłowski et al., 2019)

Environmental sustainability means fashion reduces its harm to nature. This includes using green materials and cutting waste. Lessening carbon output and using recycling helps too. Biodegradable fabrics and water tech are important (Kozlowski et al., 2019).

Further, Economic sustainability means fashion firms make money fairly long term. It also means fair pay and moral work rules. Sustainable plans are vital, and supply chains must be clear. Supporting local firms and fair trade is key element. Social sustainability means moral labor rules and safe work spaces. Fair wages for fashion workers are essential. Diversity, inclusion, and community growth are also important.

Moreover, Cultural sustainability means respecting old ways. This involves saving crafts and helping local artists. It also means stopping improper use of culture. Using native items and designs aids small artists (Alahira et al., 2024). Further, Aesthetic sustainability means green fashion looks good too. Items must be stylish and made well. Timeless designs and quality beat fast trends.(Farghaly et al., 2024)

d. Nudge Theory

The nudging is considered important for keeping the flow of fashion among the people. This is very effective approach to shape the preference of the consumers in fashion with the help of “nudging and “choice”. This conception is resultant from behavioral economics, political theory and social psychology. It includes subtle interferences that steer persons towards preferred choices without removing alternatives or changing economic incentives meaningfully. Choice architecture emphasizes on manipulative environments through soft machines to gradually influence decision making. Nudges, extensively utilized in marketable and public policy dominions which are favored for their comprehensive influence, low costs, approachability and non-invasiveness (Mizrachi & Tal, 2024)

In fashion, choice architecture is frequently used to increase excessive sales. Fashion chains create unique scents for themselves, distributing them at high volumes in stores; sale product stands in clothing stores are usually located at the entrance to the store with shelves placed at the average eye level of 1.67 m. This design is proposed to encourage consumers to pull out fashions. The lighting, background music, and absence of a clock in the stores are all nudges designed to create a “party feeling”, which is eye-catching for a definite target public and can remove customer inhibitions and prolonging the length of clients’ visit (MacCarthy et al., 2024).

The value of clothes also establishes a nudge in the industry. In the situation of Seasonal sales at the inception frequently include a 50% discount mechanism. But indirectly clothing is priced at a discount but in order to exploit it, consumers are pushed to purchases additional items they do not need. An example of this pricing method is 1 + 1 sales or three items for a lower price than two. Therefore the knowledge about the nudging leads the customers to purchase more fashion items than originally intended (Mizrachi & Tal, 2024).

5. Conclusion

The sustainability in the fashion is use to interchangeably with the ethical, green and eco-friendly fashion. On other side, there are alternative ways to view sustainable fashion like production of cloth with eco-friendly method, swapping clothes, vintage purchase and rental clothes. In the perception of consumption, the customer awareness regarding to environment as well as society is increasing, therefore the eco-friendly products are available in the market This chapter is very important to understand the fashion and sustainability in the fashion. This chapter explains the relationship between fashion and sustainability towards the greener future. Further the importance of the sustainability and its practice in fashion industry is elaborated. This chapter also explains the concept of circular fashion economy and strategies or 3Rs in fashion industry. This chapter related to fashion and use of satiability in the fashion help to the fashion industrialist, researcher and policy makers to grow this market at global level.

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