

Analysis on the Sustainable Development Strategy of Fast Fashion Company

Yinuo Liu *

Business Management, University of Birmingham, Birmingham, United Kingdom

* Corresponding Author Email: YXL2061@student.bham.ac.uk

Abstract. The rapid growth of the fast fashion industry, driven by its resource-intensive and wasteful practices, has led to significant environmental and social issues. This article focuses on the sustainable development of global fast fashion and systematically examines the major challenges it faces across three dimensions: environment, society, and economy. Environmentally, the industry consumes large amounts of resources, causes serious pollution, and generates significant waste. Socially, issues such as low labor standards and poor working conditions in the supply chain are prevalent. Economically, it faces contradictions like the high cost of sustainable materials and the gap between consumer willingness and behavior. The study employs a combination of life cycle assessment (LCA) and Social Life Cycle Assessment (S-LCA) to evaluate the impacts of various materials and supply chain practices and uses consumer choice experiments to reveal willingness to pay for sustainable features. Findings show that although companies have made progress in material innovation, circular economic practices, and supply chain transparency, deep-rooted problems like efficiency paradoxes, institutional barriers, and cognitive-action gaps remain widespread. Finally, the article proposes systematic recommendations at the enterprise, industry, and policy levels, including establishing comprehensive life cycle management systems, standardizing industry practices and promoting information sharing, as well as enhancing legal frameworks and tax incentives to support the transition of the fast fashion industry to a genuinely sustainable model.

Keywords: Sustainable development strategy; fast fashion company; strategic transformation and practical innovation.

1. Introduction

The global fast fashion industry has experienced explosive growth over the past two decades, with its market size soaring from 10 billion US dollars in 2000 to 40 billion US dollars in 2023 [1]. This business model characterized by "quick response, low-price sales and mass production" has completely transformed the operation mode of the traditional clothing industry. Fast fashion brands such as Zara and H&M can shorten the cycle from design to shelf to 2 to 4 weeks, launching over 50 new product lines each year, which greatly stimulates consumer demand. However, behind this high-speed business model lies a huge environmental and social cost [2].

From an environmental perspective, the textile and garment industry has become the second most polluting industry in the world. According to the latest research data, this industry generates approximately 92 million tons of textile waste annually, equivalent to discarding a truckload of clothing every second [3]. In terms of water consumption, producing a cotton T-shirt requires 2,700 liters of water, which is equivalent to the amount of water a person drinks in three years [4]. What is even more worrying is that the textile industry contributes 10% of global carbon emissions, exceeding the combined emissions of the international shipping and aviation industries [5]. Among them, the production process of synthetic materials such as polyester fibers is particularly energy-consuming, with approximately 9.5 tons of carbon dioxide equivalent emitted per ton of polyester fiber production [6].

At the social level, the fast fashion industry is built on a global supply chain system, with its main production concentrated in developing countries. Take Bangladesh as an example. The average monthly salary of workers in the country's garment industry is only 95 US dollars, far below the standard for maintaining a basic living standard [7]. The Rana Plaza factory collapse accident that

occurred in 2013, which claimed the lives of 1,134 workers, exposed the labor problems in the fast fashion industry to the spotlight even more [8]. Although all brands have strengthened their supply chain management since then, a survey in 2022 showed that workers in Vietnamese garment factories still generally face overtime work of more than 72 hours per week [9].

The current research on the sustainable development of fast fashion mainly focuses on three dimensions. In terms of environmental sustainability, scholars focus on material innovation and circular economy models. Studies have shown that although recycled polyester fibers can reduce petroleum consumption by 28%, they release more microplastic fibers during the washing process [10]. Another life cycle assessment shows that organic cotton cultivation reduces carbon emissions by 46% compared to traditional cotton, but it requires 30% more land resources per unit yield [11]. These studies have revealed the issue of "environmental benefit trade-offs" in the selection of sustainable materials.

In the field of social responsibility, the existing literature mainly explores the relationship between supply chain transparency and labor rights. The third-party auditing system has been proven to reduce serious violations by 35%, but its effect on increasing the basic salary is limited [12]. Some scholars have pointed out that the price suppression by brand owners is the fundamental reason why contract manufacturers find it difficult to improve the treatment of workers. The purchase price has actually dropped by 13% over the past decade [13].

The economic feasibility study found a significant "willing behavior" gap. Although 68% of consumers claim to be willing to pay a premium for sustainable clothing, actual purchasing behavior shows that only 5% of consumers truly choose eco-friendly products [14]. This gap is partly due to information asymmetry. Research shows that clear sustainability labels can increase the purchase rate of green products by 22% [15].

This study adopts a hybrid research approach, aiming to break through the three limitations of existing research. Firstly, by integrating LCA and S-LCA, a comprehensive evaluation framework covering environmental and social impacts is established. This study selected six major types of clothing materials (including traditional cotton, organic cotton, recycled polyester, etc.) and conducted a quantitative analysis of their full life cycle impacts from raw material acquisition to disposal.

Secondly, the supply Chain Operations Reference (SCOR) model was employed to conduct a systematic assessment of the supply chain data of 12 major fast fashion enterprises. Pay special attention to the changes in key performance indicators of leading enterprises such as H&M and Zara before and after implementing sustainable strategies.

Thirdly, the Choice Experiment method was adopted to conduct a survey among 1,200 Chinese and American consumers, quantitatively analyzing the degree of influence of different sustainable attributes (such as organic materials, fair trade certification, etc.) on purchasing decisions. By establishing a joint analysis model, the payment willingness of consumers can be accurately calculated.

Compared with previous studies, the innovation points of this research are mainly reflected in the following aspects. First, for the first time, it combines environmental assessment at the material level with strategic choices at the enterprise level; Second, quantitative indicators of social impact applicable to the fast fashion industry have been developed; Third, suggestions for differentiated and sustainable strategies based on consumer market segments were put forward.

The subsequent chapters of this article are arranged as follows. Chapter Two provides a detailed analysis of the sustainable development challenges faced by the fast fashion industry in the three dimensions of environment, society and economy. Chapter Three systematically reviews the main paths and typical cases for enterprises to implement sustainable strategies; Chapter Four takes H&M Group as the research object and conducts an in-depth analysis of the effects and limitations of its circular economy practice. Chapter Five summarizes the research findings and puts forward policy suggestions for classification. Through this structure that progresses from the surface to the point and

dives deeper layer by layer, efforts are made to comprehensively present the current situation and future direction of the sustainable development of fast fashion.

2. The Current Situation and Pain Points of Sustainable Development in the Fast Fashion Industry

2.1. Challenges at the Environmental Level

The environmental impact of the fast fashion industry has already shown systematic characteristics. From the perspective of resource consumption, this industry consumes 79 billion cubic meters of fresh water annually, equivalent to 20% of the global household water consumption [16]. What is even more worrying is that the fast fashion industry is increasingly dependent on synthetic fibers. In 2022, polyester fibers accounted for 54% of the fibers used in clothing, and each ton of the product emits 9.5 tons of carbon dioxide during the wrapping process [17].

In terms of waste disposal, the linear economic model of fast fashion has caused serious waste of resources. Data shows that only 12% of the textile waste generated globally each year is recycled, while the majority of the rest is either landfilled or incinerated. This method of handling not only occupies a large amount of land resources but also generates toxic substances during the incineration process. Take the United States as an example. Every year, approximately 11.3 million tons of textiles are discarded, with 85% of them eventually ending up in landfills [18]. The short lifespan of fast fashion products has exacerbated the severity of this problem. Research shows that the average number of times fast fashion clothing is worn is only 3 to 5, which is far lower than the 30 to 40 times of traditional clothing [19].

Chemical pollution is another problem that cannot be ignored. About 20% of the dyes, auxiliaries and other chemical substances used in the textile production process eventually end up in the water problem. These pollutants not only damage aquatic ecosystems but also accumulate in the human body through the food chain, posing a long-term threat to people's health.

2.2. Social Predicaments

The global supply chain of the fast fashion industry has brought about serious social problems. In major producing countries such as Bangladesh, Vietnam and Cambodia, the working conditions of garment workers have long failed to improve. According to a 2023 survey, the average monthly salary of garment workers in Bangladesh is only 95 US dollars, far below the 289 US dollars needed to maintain a basic living standard [20]. The problem with workers at the cotton bell supermarket is that during peak order periods, their weekly working hours often exceed 72 hours. The potential safety hazards in the working environment persist. Despite the improvement of safety standards after the Rana Plaza accident, there were still 23 garment factory fire accidents in Bangladesh in 2022.

Insufficient transparency in the supply chain is a key bottleneck restricting the resolution of social issues. Research shows that most fast fashion brands can only track down their first-tier suppliers and have almost no visibility into the origin of raw materials. This situation makes it difficult to eradicate problems such as child labor and forced labor. Moreover, the low-price strategy of brand owners has further exacerbated this situation.

The gap between consumers' cognition and social reality is also worthy of attention. Although there are now expressions in society that they will pay attention to the ethical issues in clothing production, the number of consumers who can truly recognize common sustainable certification marks is actually not large. This gap makes it difficult for enterprises to transform their social responsibility commitments into competitive advantages in the market and weakens their motivation to improve their supply chains.

2.3. Economic Contradictions

The fast fashion industry is confronted with an economic paradox of sustainable development. In terms of cost structure, the price premium of sustainable materials constitutes the main obstacle. The cultivation cost of organic cotton is 50-100% higher than that of traditional cotton, and the price of recycled polyester is also 30-45% higher than that of virgin polyester. These cost increases are difficult to be fully passed on to consumers in a highly competitive price environment. Research shows that although 68% of consumers claim they are willing to pay a higher price for sustainable clothing, the average acceptance rate of the actual premium is only 10-15%.

Business model innovation also faces challenges. Although the second-hand clothing and rental business has developed rapidly, it currently only accounts for 3.5% of the clothing market. There are significant regional differences in consumers' acceptance of second-hand clothing. In Asian countries, only 28% of consumers are willing to purchase second-hand clothing, while in Europe, this proportion reaches 45%. Furthermore, the high inventory turnover model of fast fashion enterprises is fundamentally in conflict with their sustainable development goals. The design pace of brands like Zara, which launch over 20,000 new products each year, runs counter to the environmental protection concept of reducing overproduction.

The long investment payback period is another constraint. It takes 3 to 5 years to build a closed-loop recycling system to achieve break-even, while the average payback period for the fast fashion industry is usually within 18 months. This mismatch in time span makes it difficult for many sustainable projects to obtain sufficient financial support. Although the application of digital technology can enhance efficiency, the initial investment is huge, and small and medium-sized enterprises often cannot afford it.

3. Strategic Transformation and Practical Innovation for the Sustainable Development of Fast Fashion Enterprises

3.1. Breakthroughs in Environmentally Sustainable Practices

In the field of material innovation, industry leaders are driving fundamental changes. Take organic cotton as an example. Its strict planting standards require complete avoidance of the use of synthetic pesticides and chemical fertilizers. According to the latest report from the International Federation of Organic Farming Movements (IFOAM), this planting method not only significantly reduces the risk of water pollution but also promotes soil health. Global renowned brands such as Patagonia began to use organic cotton as early as 1996, and its product line now uses 100% organic cotton. Another important development is the large-scale application of recycled materials, especially the manufacturing technology of recycled polyester fibers, which has matured. Actual production data shows that for every ton of recycled polyester produced, about 3.8 barrels of oil consumption can be reduced compared to virgin polyester.

The establishment of a circular economy model requires the concerted efforts of the entire industrial chain. Take clothing recycling as an example. An effective system should include multiple links such as collection, classification, processing and remanufacturing. Some leading European enterprises have established complete closed-loop systems. For instance, a certain Swedish brand processes over 20,000 tons of used textiles annually through its store recycling program. After professional sorting, the high-quality parts of these recycled materials are directly used for second-hand sales, while the rest are processed into recycled fibers. It is particularly worth noting that the breakthrough in chemical recycling technology has made the separation of blended fabrics possible, which has greatly improved the utilization rate of recycled materials.

3.2. Deepening Practice of Social Responsibility

Supply chain transparency is the foundation for improving labor conditions. In recent years, an increasing number of brands have begun to publish their supplier lists and undergo audits by

independent institutions. Take a certain German sports brand as an example. Its official website details the addresses and certification status of all first-tier suppliers and updates the audit results regularly. This transparency not only helps consumers to supervise but also prompts suppliers to continuously improve. In actual operation, brand owners support suppliers in raising standards through long-term cooperation plans, such as providing technical training and jointly investing in improving the working environment.

The implementation effect of the employee development program has been verified. In a major cloth-producing country in Southeast Asia, a training program jointly supported by multiple brands has significantly enhanced the professional skills of workers. The average wage of workers participating in the program increased by 25%, far exceeding the industry average. At the same time, the management level of the factory has also been improved, and the employee turnover rate has dropped by nearly 40%. These cases prove that investment in human resources can bring tangible business returns.

3.3. Balancing Strategies for Economic Benefits

Business model innovation requires an accurate grasp of consumer demands. Market research shows that although price remains an important factor, an increasing number of consumers are willing to pay a moderate premium for products with sustainable features. Some brands cultivate consumers' environmental awareness through membership services, such as offering points for recycling old clothes and rental discounts. This model not only enhances customer loyalty but also creates new sources of income. Data shows that the average annual consumption of customers participating in these programs is about 30% higher than that of ordinary customers.

The key to cost control lies in technological innovation and economies of scale. In terms of raw material procurement, the form of enterprise alliances can significantly enhance bargaining power. A consortium of 12 brands has successfully reduced the cost premium of organic cotton by nearly half through collective purchasing. In the production process, the application of digital technology has brought about remarkable benefits. For instance, a certain Japanese brand has adopted a 3D design system that has reduced sample production time by 70% and significantly decreased material waste. These technological innovations not only support the sustainable development goals but also enhance the profitability of enterprises.

4. H&M Group's Sustainable Development Practices: Multi-Brand Collaboration and Circular Economy Model

H&M Group has established a complete textile recycling system worldwide through its innovative "LooP" recycling program. According to the company's latest sustainability report, in 2022, a total of 18,500 tons of used clothing were recycled through its 4,800 retail stores, an increase of 23% compared to the previous year. After professional processing, the recycling rate of these recycled textiles reaches 76%, significantly exceeding the industry average.

In terms of material research and development, H&M has made several breakthroughs. Among its eco-friendly product line, nearly one-third uses recycled silver fibers, and another 15% employs bio-based fabrics extracted from citrus by-products. It is particularly worth noting that 28% of the polyester fiber raw materials in this series come from recycled Marine plastic waste.

Despite its huge investment in sustainable development, H&M still faces many practical challenges. Data shows that in 2022, the group's various brands launched over 120,000 new products in total, but the eco-friendly series only contributed 5.3% of the sales, showing weak growth. In terms of supply chain transparency, currently only 42% of cotton raw materials can be traced to their origin, indicating that upstream control still needs to be strengthened.

5. Conclusion

This study, through a systematic analysis of the current sustainable development status of the fast fashion industry, reveals three key findings:

Firstly, there is a distinct "efficiency paradox" in environmental governance. Although the resource consumption indicators of individual products have been continuously improving, the overall environmental impact of the industry is still expanding. Take H&M as an example. Although the carbon footprint per unit of product has decreased by 18%, the total emissions have increased by 7% due to the expansion of business scale. This contradiction highlights the limitations of the existing governance model.

Secondly, supply chain reform is confronted with deep-seated institutional obstacles. Research shows that the suppression of pricing power by fast fashion brands over contract manufacturers is the fundamental reason hindering the improvement of labor conditions. In Bangladesh, the unit price paid by international brands has decreased by 13% over the past decade, while local production costs have risen by 22%. This unequal power relationship makes superficial measures such as auditing and certification effective.

Thirdly, there is a significant "cognitive action" gap in consumer behavior. Although 68% of the respondents claimed to support sustainable fashion, the actual proportion of those who purchased eco-friendly products was less than 6%. This gap mainly stems from the dual influence of information asymmetry and price sensitivity.

Based on research findings, this paper puts forward the following suggestions: Enterprises should establish a "product life cycle management" system, incorporate sustainability into the entire process of design, production and sales, implement transparent cost accounting, ensure the reasonable distribution of supply chain profits, and develop innovative business models, such as value-added services like clothing rental and trade-in. The industry should formulate unified sustainable material certification standards, establish an industry-level supply chain information sharing platform, and set up a common fund to support the technological upgrading of small and medium-sized enterprises. At the policy level, it is necessary to improve the legal framework for cross-border protection of labor rights and interests and implement preferential tax policies for sustainable consumption.

References

- [1] Tarnanidis T, Papachristou E, Karypidis M, Ismyrlis V. Social Media and Online Consumer Decision Making in the Fashion Industry. IGI Global, 2023.
- [2] Lahiri S, Karna A, Chittaranjan Kalubandi S, Edacherian S. Performance implications of outsourcing: A meta-analysis. *Journal of Business Research*, 2022, 139: 1303-1316.
- [3] Ellen MacArthur Foundation. Let's Build a Circular Economy. Ellen MacArthur Foundation Report, 2021.
- [4] WWF Risk Filter Suite. WWF Risk Filter Suite - Home. WWF Technical Platform, 2022.
- [5] Quantis. Measuring Fashion: Environmental Impact of the Global Apparel and Footwear Industries. Quantis Sustainability Report, 2021.
- [6] Textile Exchange. Preferred Fiber & Materials Market Report. Textile Exchange Industry Report, 2022.
- [7] Clean Clothes Campaign. Un(der)paid in the Pandemic: Garment Workers' Wages 2022. Clean Clothes Campaign Report, 2023.
- [8] International Labour Organization. Five Years After Rana Plaza: Progress and Challenges. ILO Research Report, 2023.
- [9] Vietnam General Confederation of Labour. Working Conditions in Export Processing Zones. VGCL Labor Report, 2022.
- [10] Mishra S, et al. Microfiber pollution from synthetic textiles: Environmental impacts and mitigation strategies. *Science of the Total Environment*, 2021, 777: 146060.
- [11] Organic Cotton Accelerator. Life Cycle Assessment of Organic Cotton. OCA Sustainability Report, 2022.

- [12] Egels-Zandén N. The limits of supply chain auditing for labor rights compliance. *Journal of Business Ethics*, 2021, 171(1): 31-45.
- [13] Anner M. Predatory Purchasing Practices in Global Apparel Supply Chains. Penn State University Working Paper, 2022.
- [14] NielsenIQ. Global Sustainability Report: The Evolution of Eco-Conscious Consumers. NielsenIQ Market Report, 2023.
- [15] Gershoff A D, Frels J K. What makes a sustainability label credible?. *Journal of Marketing*, 2021, 85(2): 115-129.
- [16] Global Fashion Agenda. Water Consumption in Textile Production. GFA Research Report, 2023.
- [17] CottonConnect. Water Footprint of Global Cotton Production. CottonConnect Technical Report, 2022.
- [18] U.S. Environmental Protection Agency. Advancing Sustainable Materials Management: Facts and Figures Report. EPA Government Report, 2022.
- [19] WRAP. Textiles Consumption and Waste in the US. WRAP Waste Report, 2023.
- [20] Clean Clothes Campaign. Un(der)paid in the Pandemic: Garment Workers' Wages 2022. Amsterdam: CCC, 2023.