

Sustainable Luxury in Practice: A Lifecycle Analysis of Stella McCartney's Coexistence Strategies

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Abstract

The purpose of this essay is to take Stella McCartney as a representative luxury brand as examples to examine how can luxury brands coexist with sustainability from the perspective of three parts of the product life cycle (prophase, middle, end) combined with the conception of "eco-sustainable fashion" and "socially responsible fashion". In the prophase of the product life cycle, this essay expounds the selection and application of McCartney's innovative sustainable fabric from the perspective of the circular economy. The materials are divided into two categories: technical materials and biological materials. Then from the perspective of ethical procurement, this essay discusses animal welfare and social responsibility. In the middle stage of the product life cycle, this essay describes the measures taken by McCartney in the consumer use stage and product reuse. At the end of the product life cycle, this paper discusses some cases of the remake. The difficulty of luxury brands is the transparency of its supply chain and production, while few luxury brands like Stella McCartney release almost all their own supply chain information and conduct long-term self-examination. In addition, luxury brands need to balance product sustainability and aesthetic appeal, because sustainability is not the priority for luxury customers. Although many luxury brands have made significant progress in sustainability, their ethical actions are negligible compared with the total environmental footprint. Fortunately, luxury brands have good conditions to adapt to the needs of sustainability. With the improvement of customers' eco-consciousness and the response of factories to brand demands, the luxury industry is changing, sadly, change comes slowly.

Keywords

Luxury Brands; Sustainability; Coexistence; Stella McCartney; Eco-sustainable Fashion; Socially Responsible Fashion; Product Life Cycle; Circular Economy; Supply Chain Transparency; Sustainable Materials.

1. Introduction

The fashion business is one of the most unsustainable and resource-consuming industries, because of the worldwide scope and the demand of the huge environmental and mortal resources for the manufacture and consumption of merchandise[1]. For instance, according to "The True Cost", people purchase 80,000,000,000 garments per year, and every second there is a textile dump-cart that is burned or landfilled. Particularly in luxury brands that do not like to discount, destroy their unsalable merchandise is common. For instance, in 2018, Burberry confirmed that they have destroyed the unsalable merchandise that worth over 100,000,000 pounds during 5 years.

As reported by Euromonitor International in 2019, sixty percent of global consumers are concerned about climate change, and anxiety about ecology is influencing their decision-making of purchasing, and their requirement of environmentally friendly goods is increasing. Especially, the consumers of generation Y and Z who are likely to serve as 80% of luxury goods'

customers base soon, expecting firms offer the methods that can solve their social and environmental problems and keep away quickly from a firm that has a bad reputation.



Figure 1. Protesters from Extinction Rebellion block Oxford Circus in London to draw attention to climate change

Therefore, investing in sustainability turns into a key of differentiation and competitive edge for luxury companies which can improve brand's reputation and meet the customers' greener needs, and the reputation of luxury brands is also driving sustainable development in fashion industry, see figure 2.



Figure 2. Voice of the Industry: Sustainability market

However, several pieces of research in the past have indicated that sustainability and luxury are irreconcilable, so the concepts of sustainable luxury are paradoxical. So my objective is to explore whether luxury brands can truly achieve sustainable development without losing their innate character and attraction.

According to the conception that sustainable fashion can simultaneously affect society and the environment, the notions can be divided into two deep-related classifications: "eco-sustainable fashion" and "socially responsible fashion", although in practice, the differentiation of these two notions is usually knotty. So my aim of this essay is to take Stella McCartney as representative luxury brand as examples to examines how can luxury brands coexist with sustainability from the perspective of three parts of product life cycle prophase, middle, end, see figure 3, combined with the conception of "eco-sustainable fashion" and "socially responsible fashion".

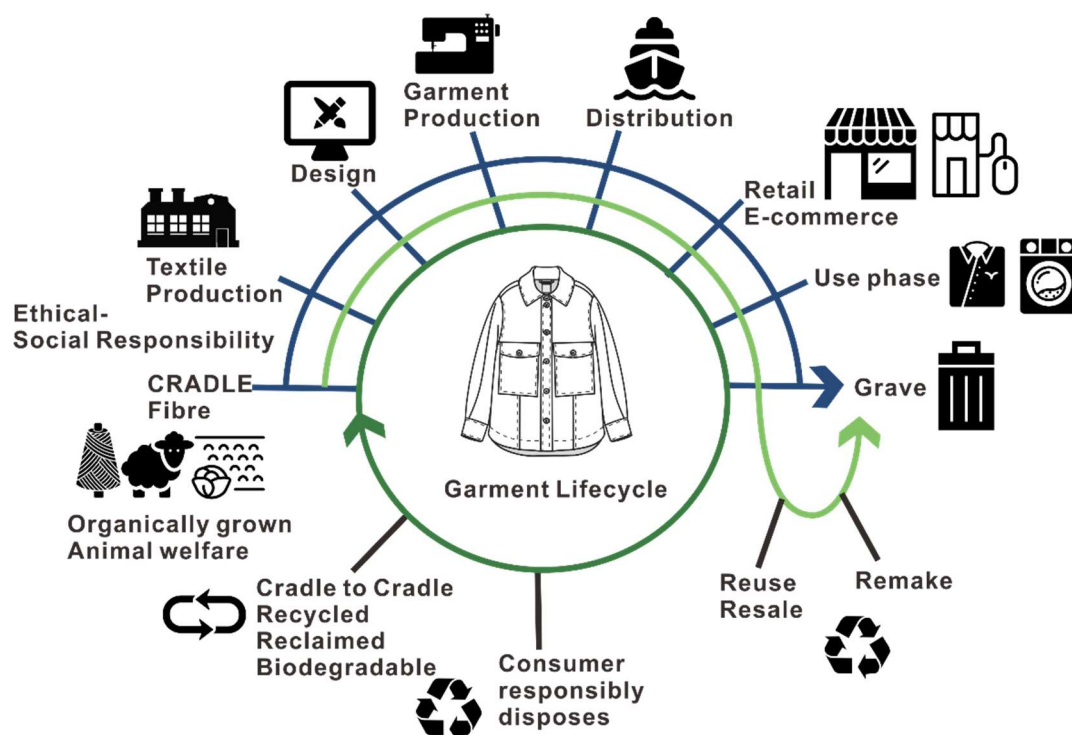


Figure 3. Garment Lifecycle

2. Prophase-of-Life

Several pieces of research have shown that decisions made in the initial stage of fashion design affect eighty percent of the sustainable cost of clothing, refer to extrinsic feature, quality, textiles, manufacturing procedures, and correlative costs. And the key is textiles. Stella McCartney indicated that 60% of sustainable beneficial results start from purchasing, which means paying great attention to raw materials and how to obtain them[2]. And when referring to materials from the perspective of the circular economy, they are divided into two categories: technical materials and biomaterials. In addition, for how to sourcing materials, from the perspective of ethical procurement, it can be discussed from two aspects: animal welfare and social responsibility.

2.1. Technical Materials

Technical materials are inorganic or synthetic materials made by human beings, usually from the resources that cannot renew which can be reused for many times after recycled, and the quality do not lose and keep continuous circulation, see figure 4.

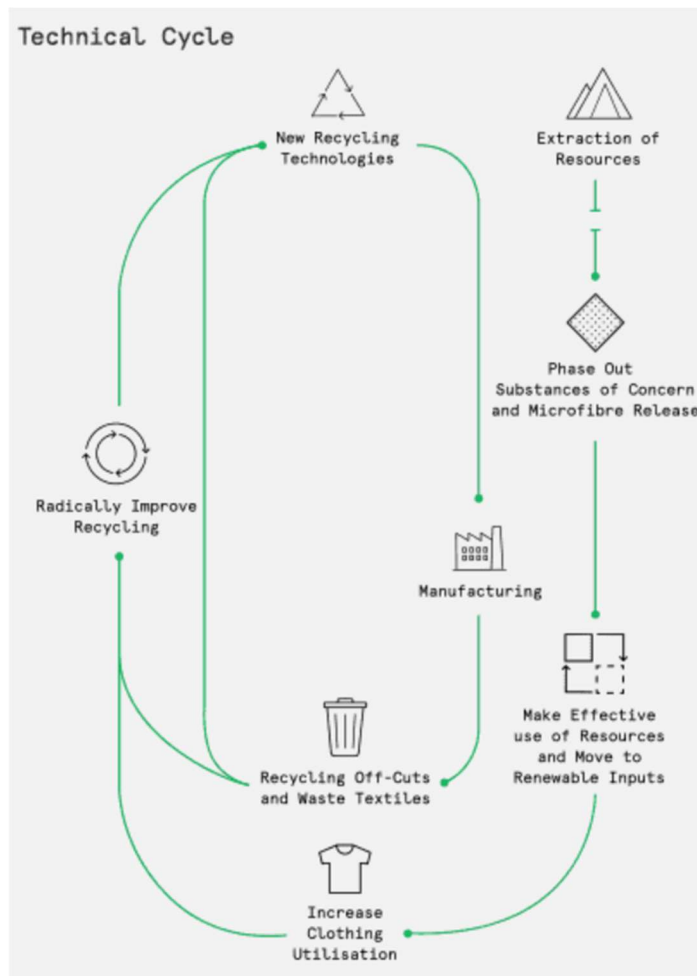


Figure 4. Technical Cycle

Each year, more than 150,000,000,000 trees are cut down and made into textiles, most of them from endangered ancient forests. From 2013 to 2020, it is predicted that the tree quantity felled and made into textiles will double each year. In 2014, McCartney was the first key designer signed canopy's ban on such fashion purchases. She also was the first abrogated agreement with the viscose manufacturer. Instead, McCartney made sustainable access to viscose, as well as trace all viscose fibres back to the Sweden forests that sustainably manages and certifies.

As Conca provides that produce polyester and nylon needs to take seventy billion barrels of oil and to completely decompose needs take about two hundred years[3]. For the time being, there is no fibre that can completely replace polyester and nylon. The only thing can do is turn 'waste' materials into something useful to build a fully circular and restorative system. However, even McCartney still looking for new technologies that will enable her to recycle polyester fabrics back into fabrics, because according to Ellen MacArthur Foundation, there are only 1% of textiles are currently recycled back into textiles. For instance, she uses recycled nylon, waste such as industrial plastic, waste fabric and fishing nets from oceans is recycled and renewed into a new nylon yarn that as the same quality as raw nylon. And she found recycled polyester, since 2012, all the handbags of McCartney using recycled polyester lining made of recycled water bottles come from the ocean. And then McCartney turns these innovative technical materials into her luxurious products that successfully integrate sustainability and luxury, see figure 5.

MATERIAL WORLD

Here's how Stella McCartney is incorporating innovative new fabrics into her runway collections.

By Claire Dodson



1



3

5



2



4

	1. ECO ALTER NAPPA	2. ECONYL NYLON BY AQUAFIL	3. RE.VERSO REGENERATED CASHMERE	4. SUSTAINABLE VISCOSE	5. BOLT THREADS MICROSILK YARN
Introduced	Fall 2013	Fall 2016	Fall 2016	Spring 2017	Fall 2017
Source	Plastic water bottles and vegetable oil	Post-consumer nylon waste, including fishing nets and fluff from nylon carpets	Material waste from textile manufacturing (mostly yarn)	Certified-sustainable trees	Sugar
Process	The bottles are shredded and turned into pellets, which are heated and put through a procedure called extrusion that turns them into fibrous threads.	Fishing nets and other nylon materials are gathered from European waters through an initiative called Healthy Seas. The waste is put through a chemical recycling process that results in high-quality, 100% virgin nylon that is recyclable.	Scraps from Italian factories are cleaned, sorted, and processed into woolen fibers that are spun into new yarns. The recycling preserves the Mongolian grasslands that are being over-grazed as a result of increased demand for cashmere goats.	Pulp is harvested from Swedish forests where every felled tree is quickly replaced and biodiverse or old-growth areas are left untouched. A German factory then uses a sustainable chemical solution to transform the pulp into fluffy viscose filament.	In a lab, the sugar undergoes a yeast fermentation process to make proteins that mimic the strength, durability, and elasticity of spider silk. The proteins are then converted into powder and spun into yarn fibers.
Target use	Shoes, bags	Bags, outerwear	Sweaters and other knitwear	Trousers, tops, dresses, evening wear	Dresses, tops, trousers
Recent example	Sneak-Elyse shoes and Stella Popper bags from fall 2016	Falabella Go Backpack from fall 2016	Ken Crew Neck Jumper from fall 2017	Sustainable viscose jersey dresses from spring 2018	Stella McCartney x Bolt Threads custom-knitted gold dress, designed for a new MoMA exhibit

Figure 5. How Stella McCartney is incorporating innovative new fabrics into her runway collections

2.2. Biomaterials

Biomaterials are renewable resources that are natural materials made for a circular economy, which can be safely decomposed into the ecological environment, without negative impact, as well as offering food for bacteria and microorganisms, see figure 6. Wool and cotton are the most used biological materials. As a sustainable luxury brand, Stella McCartney mainly chooses organic cotton and recycled cashmere.

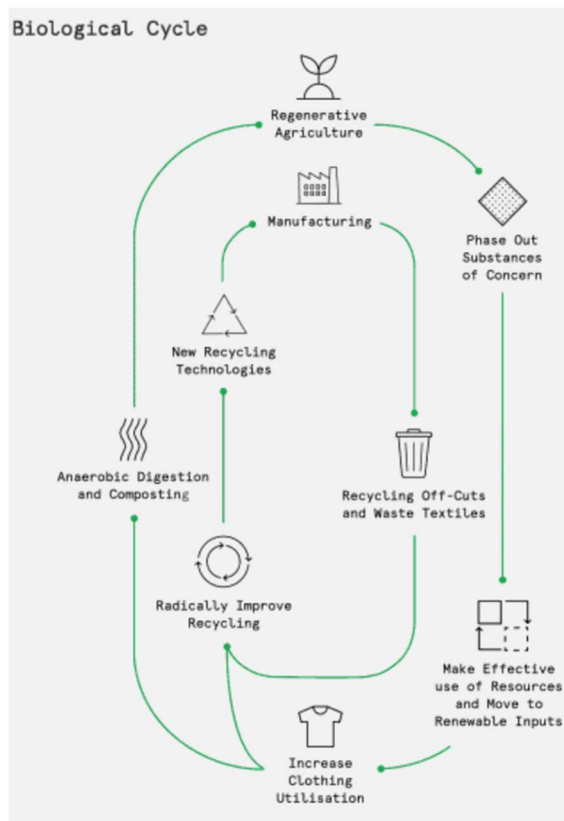


Figure 6. Biological Cycle

Because conventional cotton planting will cause serious degradation of the soil, and production and processing require a great deal of water consumption, for instance, the water needed to manufacture one cotton T-shirt is 713 gallons, that is enough for a man to live nine hundred days. And traditional production practices also need to apply many fertilizers and pesticides, which will threaten biodiversity and farmers' health. Furthermore, the cultivation of traditional cotton can also cause climate change, according to Gilet, the fashion business accounts for 10% emissions of the global greenhouse gas, mainly from the production of polyester and the use of fertilizer for natural fibre. Organic cotton eliminates the application of enduring and toxic chemicals, upgrades the health of the soil, and enhances water conservation as well as helps to keep biodiversity and healthier ecosystems, and contributes to relieving climate change by improving the carbon sequestration capacity of the soil. Besides non-organic cotton exhausts over 46 percent more greenhouse gas than organic.

Wool is a high value and durable textile, wool items may stay longer due to being washed less, reclaimed more, and then biodegrade at the end of their life. But land use, water pollution, global warming, and animal cruelty, worker exploitation are all disadvantages related to wool production. Furthermore, cashmere, as the favourite of luxury brands, has the greatest influence on the natural environment, about one hundred times than wool. A cashmere sweater needs four goats to provide enough fibre, while a sheep provides enough fibre but only can produce five sweaters. And farmers have increased the number of goats in the herds to get more cashmere, which has a great impact on the environment. Goats' hooves pierce the soil surface, which will make the grass unable to grow again and make the grassland desertification.

McCartney uses Re.Verso which is a recycled cashmere made from cashmere waste from Italian factories. The method is to identify the differences between different fibres by hand to classify cashmere waste, and the vast majority of them do not need to be dyed and can be directly classified by colour and fibre to ensure the content of fibre and the safety of the chemical. And Re.Verso is certified by GRS to guarantee that all recycling procedures can be traced and verified.

The recycled cashmere also can get rid of the dyeing stage, economizing chemicals, water and eliminating the resulting wastewater. Also, cruelty to animals does not occur and the demand to produce natural, raw fibres will also be reduced, this also will save almost 11 kg of CO2 per kilogram of wool yarn.

2.3. Animal Welfare

People pay more and more attention to the circumstances of raising and killing animals to obtain their items. eighty-five percent of the fur and leather in the industry from animals living in confinement in leather and fur farms, which keep countless animals, usually in bad circumstances. These intensive-captivity animal factories do not care about the animal’s welfare, only about profit margin. And in the fashion industry, luxury brands are more concerned by the public about this, because they rely more on animal materials such as fur, leather, and cashmere. In addition to cruelty to animals, fur dyeing and leather tanning procedures are inordinately detrimental to the ecological environment and laborers.

Stella McCartney claims that they only use and promote vegetarian leather and Fur-Free-Fur, see figure 7 and 8. They produce Fur-Free-Fur materials in an environmentally friendly method. However, the products are made of acrylic acid, polyester, wool, or mohair, which is not biodegradable. As a result, they only can encourage customers to take care of their clothing and keep it forever. For vegetarian leather, Stella McCartney using alter-nappa for their products, such as bags and shoes, see figure 9.



Figure 7. Stella McCartney Vegetarian Leather Products



Figure 8. Stella McCartney Fur-Free-Fur Products



Stella McCartney's Resort 2017 platform is made with a leather substitute using renewable vegetable oil and recycled polyester

Figure 9. Stella McCartney alter-nappa shoes

The alter-nappa is made of polyester and polyurethane and has been lined using recycled polyester. This lessens a great deal of petroleum using in items. And the alter-nappa paint coat is made from over fifty percent of vegetable oil, a sustainable, natural source. McCartney changed polyurethanes into water-borne and solvent-free polyurethanes. Not only lessening energy and water consumption but also not include solvents so that it is safer for workers to use. But sustainable luxury brands are still at a disadvantage, such as Stella McCartney, who must pay 27% more tax when she brings non-leather accessories to the United States. And because of material issues, Gucci's \$5900 Python handbag sold far more than McCartney's best-selling bag, Falabella, made of vegetarian Leather and lined with nylon made from recycled bottles, see figure 10.



Figure 10. Stella McCartney best-selling bag - Falabella.

2.4. Social Responsibility

Social responsibility means that a firm is ethical, charitable, and environmentally friendly to all its members. However, regrettable working circumstances and exploitation of workers still are part of the production of clothing and accessories. For example, in New York, the fire at the triangle shirt manufactory in 1911, killed 146 workers, who were often locked in the manufactory without rest. In 2013, five garment manufactories in Rana Plaza collapsed illegally built floors, killing 1134 labourers, see figure 11. The disaster showed once again the poor working circumstances of global clothing workers. The exposure of these events, enable people saw the social responsibility predicament of clothing production and consumption. According to Shannon Whitehead of the Huffington Post, only 2% of clothing firms pay labourers a fair salary for a living. The whole industry faces the challenges of fair salaries, working hours, compulsory restrictions on child labour and the safety of more than 10,000,000 employees. The

lack of transparency in the supply chain makes it nearly impossible to determine if the firm's business policies are sustainable and ethical. Firms perhaps disclose their suppliers, but they almost cannot know where their suppliers find their products. To seek out items that are unadulterated ethical, sources of crude materials must be found outside the manufactory.



Figure 11. disaster in Rana Plaza

Stella McCartney has made many efforts in this area, such as joined the ethical trade initiative in 2012 and continue to report their activities and advances to ETI every year. ETI is a leading alliance of firms, trade unions and NGOs to promote respect for labourers' rights in the world. In 2015, world leaders and governments launched the sustainable development goals and modern slavery act, which legally required companies to be accountable to global citizens by 2016 and set new standards of measurement. Therefore, McCartney has issued its modern slavery statement every year since 2016, and in 2017, in cooperation with ergon associates, conducted a modern slavery risk assessment of all business activities. The assessment focused on five areas: forced labour, child labour, low salaries, long working hours and modern slavery, including McCartney's own business as well as product supply chains, procurement supply chains, and franchising partners.

3. Middle-of-Life (Use Phase, Resale)

Consumers behaviour is a significant element of sustainable development, according to evaluation fifty percent of the environmental influence of clothing happen comes from customers ' utilize. At consumer use phase, luxury brands can only make efforts by focusing on manufacturing good quality and durable products, and reduce the influence of clothing care on the environment by consumers education as well as encourage consumers resale or donate their garments which they do not like anymore.

In terms of quality and long-term use, luxury products have their natural advantages, compared with mass-market products, luxury items demonstrate the traits of endurance, long-term life, and generation by generation, thus reducing a large number of waste generated by the use of natural resources. So, most luxury goods are able to market items designed to be "everlasting". Also, because of the characteristic of high-quality and long-term keep of luxury, for reuse as well as reduce the risk of obsolescence of expensive luxury, considering the circulation of vintage style, some consumer like to explore new positions in retro luxury garments or mix vintage luxury with the new one.

For example, in this regard, for prolong the life of clothing, Stella McCartney has made two attempts. Firstly, Stella McCartney worked with H & M and Ginetex to develop the system of

clever-care labelling, which aims to educate customers to care for their clothing while reducing environmental influence by wash less to keep garments longer. Secondly, Stella McCartney cooperates with RealReal, to urge customers to send unwanted McCartney clothes to RealReal for resale by giving customers shopping coupons to buy their new products, so that their old products have new life again, rather than being discarded immediately, so as to promote customers to take part in the recycle economy.

4. End-of-Life (Remake)

According to Finn and Fraser, many clothes that are no longer needed are often abandoned because they are thought to be badly worn or damaged. As Ellen MacArthur Foundation reported that less than one percent of garments will enter the recycling system and become new garments. If people can realize the value of these products, the unwanted garments may be reused or recycled more. Due to people lack the understanding of sustainability in practice, the sustainable fabric concept recommends educating the customers to assure that these premium products that can be used return to the secondary-market for remake and upgrading[4].

Remake is a conception that utilizes unwanted clothing to produce new products. Therefore, the combination of luxury fashion and remake concept is in line with the sustainable development strategy. It breaks the regulations while releases new dimensionality, many designers have tried a lot in this area. The most obvious example of retro or remade haute couture is the retro Valentino dressed by Julia Roberts on the red carpet of Oscar in 2001, see Figure 12. One collection of Stella McCartney 2019 is also a great case of remaking. Stella McCartney tore many clothes took from the landfill, and then made a colourful garment, see Figure 13. She also remade all the stock textiles she used in the past decade, which should have been burned in the luxury industry, she turned them into the gorgeous garments for her fashion show.

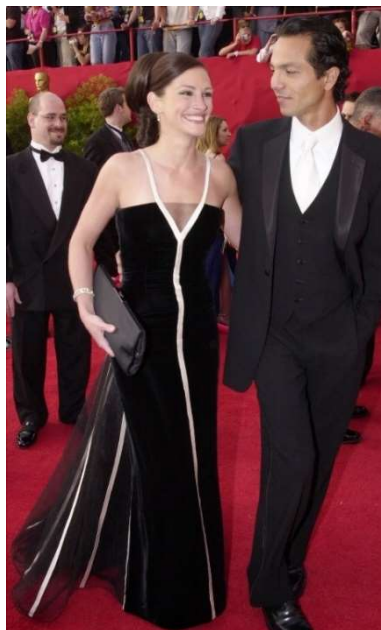


Figure 12. Retro Valentino dress



Figure 13. Stella McCartney Remake Dress

However, there are also fashion brands that use new fabrics to create products that look like remakes, and there is no evidence that this is intentional, but the results can be disadvantageous to the sustainability of the fashion industry. For example, the Spanish brand Desigual's £ 150 men's jacket, see figure 14, through standardized tailoring and sewing production procedures, produces new remake clothing without use recycle fabric or old components. After reflecting on this situation, we can surmise that it is necessary to use more transparent methods, such as a certified sustainable label or a more reliable green declaration, so that customers can identify the real remake clothing.



Figure 14. Desigual Fake Remake Jacket

5. Conclusion

The biggest challenge for the luxury industry is that the key mystery surrounding the confidentiality of processes and materials, the protection of its exquisite craftsmanship and the maintenance of its identity conflicts with sustainable management, which requires transparency and exoteric communication, while there are few luxury brands like Stella McCartney who publish almost all their own supply chain information and conduct long-term self-examination. In addition, luxury brands face the additional challenge that needs to balance products' sustainability and attractiveness of aesthetics. They must use materials that meet customers' desires of product sustainability and do not lose the style norms and esthetical taste attached to their items. However, it is very difficult. Although consumers are more and more concerned about sustainability and morality, they will not purchase what they are concerned about. As Mauer demonstrates that the view of luxury customers is that sustainability remains less attractive than commodity. For example, luxury brands like Stella McCartney, which completely reject real leather, are still very rare in the luxury industry. Although in recent years, many luxury brands have also realized the value of sustainability, and large luxury brands have made significant progress in sustainability, just as they can't give up leather, their ethical activities compared with the total environmental footprint can be regarded as almost negligible. This tension between confidentiality and transparency is not merely operational but cultural. Luxury brands often guard their artisanal techniques as trade secrets-such as proprietary weaving methods or dyeing processes-to maintain exclusivity and market differentiation. For instance, traditional haute couture houses rely on undisclosed suppliers for rare materials, fearing that transparency could lead to imitation and commoditization. Yet, as Stella McCartney demonstrates, full disclosure can enhance brand trust without eroding uniqueness. Her approach includes detailed reports on material sources, like recycled ocean plastics for handbags, which align with circular economy principles. However, this remains an exception; most brands resist due to perceived risks to intellectual property and consumer perception of luxury as elusive and elite. The rarity of such initiatives highlights an industry-wide inertia, where short-term competitive advantages overshadow long-term ethical gains.

Furthermore, the aesthetic-sustainability balance involves complex consumer psychology. Luxury items symbolize status and desire, often tied to heritage materials like leather and fur. McCartney's Falabella bag, made from recycled polyester, exemplifies the struggle: its eco-credentials appeal to ethically conscious consumers, but the material lacks the tactile richness and prestige association of traditional leather. This creates a "green gap," where even environmentally aware consumers prioritize sensory and symbolic value. As seen in Figure 10, the Falabella's design innovates with sustainable linings, yet it underperformed commercially against Gucci's leather alternatives. This visual comparison underscores how material limitations-such as the inability to replicate the sheen and durability of animal-based products with synthetics-hinder widespread adoption. Brands thus face a dilemma: innovate with sustainable fabrics like alter-nappa used in McCartney's shoes, as shown in Figure 9 while risking aesthetic compromise, or maintain conventional materials and incur environmental costs.

The slow progress of ethical activities among major brands stems from systemic barriers. For example, Gucci's "sustainable" collections represent incremental changes, such as using organic cotton in limited lines, while their core leather goods-accounting for most revenue-remain ecologically intensive. This tokenism arises from economic dependencies: leather and fur command premium prices and customer loyalty, making large-scale shifts financially risky. Additionally, technical constraints play a role; recycled materials like polyester face low recycling rates, limiting their scalability. Consumer behavior amplifies this: despite growing eco-awareness, purchasing habits lag, as buyers associate luxury with indulgence rather than

restraint. This inertia is evident in disposal practices, where fast-fashion mentalities persist even in high-end markets.

We hope that there will be more fully sustainable luxury brands like Stella McCartney in the luxury industry, which can innovate more sustainable and recycled materials, and extend the life-cycle of clothing through superior design, production and upcycle or reuse. Fortunately, the unique business model of the luxury industry also means that luxury brands have good conditions to readjust to the demands of sustainable development. First of all, they have an intimate connection with suppliers, which means a long-term and reliable relationship. In order to protect their unique technology and fabric sources, large luxury companies began to invest in their factories of origin and source, which is the real way to control the supply chain. Second, the premium crude fabrics they use are the main nominees for the circular economy initiative: recycling, upgrading, and incorporating special designs to heighten the luxuries' value.

The potential for scaling McCartney-like innovations lies in leveraging luxury's inherent strengths. For instance, long-term supplier relationships-common in brands like LVMH-enable deep collaboration on traceability, such as McCartney's sourcing of viscose from sustainably managed Swedish forests. This vertical integration allows for closed-loop systems, where "premium crude fabrics" can be repeatedly upcycled without quality loss. McCartney's Re.Verso cashmere, made from factory waste, showcases this: it reduces CO₂ emissions by 11kg per kilogram while maintaining luxury appeal. End-of-life strategies further exemplify this; her remake initiatives, such as transforming landfill textiles into haute couture pieces, as depicted in Figure 13, turn waste into value. This not only extends product lifecycles but also aligns with consumer trends like vintage resale, demonstrating how luxury's focus on durability can drive circularity.

However, realizing this potential requires overcoming inertia. Brands must invest in technologies for material innovation, such as water-borne polyurethanes used in McCartney's alter-nappa that reduce toxins without compromising aesthetics. Policy reforms could accelerate this-e.g., revising tariffs that penalize non-leather goods-to level the economic playing field. Meanwhile, educating consumers on lifecycle impacts, through initiatives like McCartney's Clever Care labeling, can shift perceptions, making sustainability a core element of luxury desirability rather than an afterthought.

With the improvement of customer eco-consciousness and the response of factories to the needs of customers and stockholders, the changes in the fashion industry are taking place. The luxury industry is catching on to this demand and starting to invest its manufacture model again to incorporate sustainability deliberations. Can sustainability and luxury brands coexist? The answer is yes, but unfortunately, the change that allows them to truly coexist is very slow.

This gradual shift is fueled by generational changes; Gen Z consumers, who prioritize ethics, are becoming 80% of the luxury market base. Their demand for transparency and accountability-evidenced by movements like Extinction Rebellion, referenced in Figure 1, pushes brands toward McCartney's model. Factories are responding, as seen in partnerships with entities like Real for resale programs, which promote reuse. Yet, the pace remains sluggish due to entrenched practices: inventory destruction persists, and material innovations like recycled nylon face scalability hurdles. Ultimately, coexistence is feasible but requires systemic alignment-where luxury's heritage of excellence evolves to encompass ecological stewardship, turning sustainability into a new hallmark of true exclusivity.

Acknowledgments

This paper was supported by Wenzhou Polytechnic, Wenzhou, Zhejiang.

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