

## Review Article

# Sustainable Fashion In The Circular Economy Era: Practices, Challenges, And Emerging Trends

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## A B S T R A C T

The global fashion industry is undergoing a significant paradigm shift as sustainability and circular economy (CE) principles gain increasing attention from businesses, policymakers, and consumers. Traditionally associated with high resource consumption, pollution, and social challenges, the fashion sector is now under pressure to adopt environmentally and socially responsible practices. This study explores the integration of sustainable fashion management and circular economy strategies across the entire value chain, including sourcing, production, design, distribution, and end-of-life management. It synthesises recent research on circular design methodologies, eco-friendly and innovative materials, ethical business practices, consumer behaviour towards sustainable fashion, and corporate sustainability reporting. The review identifies key challenges that hinder progress, such as excessive waste generation, depletion of natural resources, greenwashing practices, supply chain opacity, and the slow adoption of circular business models. In addition, it emphasises the importance of technological innovation, such as digital supply chain tracking, AI-driven design, and advanced recycling techniques, as well as policy interventions that support sustainability and circularity. Collaborative initiatives among brands, non-governmental organisations, governments, and consumers are highlighted as critical drivers for large-scale adoption. Finally, education and capacity-building efforts are underscored as essential for equipping industry professionals and consumers with the knowledge and skills needed to transition towards a sustainable and circular fashion ecosystem. By addressing these aspects, the fashion industry can move toward a more responsible, regenerative, and resilient model that balances environmental, social, and economic objectives while promoting long-term sustainability.

**Keywords:** Sustainable fashion, circular economy, eco-friendly materials, sustainable supply chain, circular design, consumer behaviour, green practices

## Introduction

The fashion industry is one of the largest and most resource-intensive sectors globally, contributing substantially to

environmental degradation, greenhouse gas emissions, water pollution, and textile waste, as well as social and ethical challenges such as labour exploitation and poor working conditions.<sup>1</sup> Fast fashion, characterised by

rapid production cycles, low-cost garments, and high consumption rates, has exacerbated these issues, leading to unsustainable patterns of resource use and mounting environmental pressure. With growing global awareness of climate change, resource depletion, and social inequities, both consumers and policymakers are demanding more responsible production and consumption practices, prompting a significant shift toward sustainable fashion and circular economy (CE) frameworks.

Sustainable fashion emphasises reducing environmental harm and promoting social responsibility through strategies such as eco-friendly material sourcing, low-impact production techniques, ethical labour practices, and conscious consumption.<sup>2</sup> The circular economy model complements these efforts by advocating for the extension of product lifecycles, the design of recyclable and reusable garments, waste minimisation, and closed-loop production systems, thereby creating a more regenerative and resource-efficient fashion ecosystem. The integration of sustainability and circularity not only addresses environmental and social concerns but also offers economic opportunities for brands, including innovation in materials, design, and business models, as well as enhanced consumer trust and brand reputation.

This article aims to synthesise contemporary research on sustainable fashion management and circular economy practices, highlighting key strategies, technological innovations, and industry initiatives. It further explores the challenges impeding widespread adoption, such as greenwashing, lack of transparency, high costs of sustainable materials, and limited recycling infrastructure. Finally, the article identifies emerging trends and future directions, including policy support, technological advancements, collaborative initiatives, and education, which collectively can facilitate a transition toward a more sustainable and circular fashion industry. By providing a comprehensive overview, this study seeks to inform researchers, industry practitioners, and policymakers about the current state and potential pathways for achieving sustainability and circularity in fashion.

### **Sustainable Fashion Management**

Sustainable fashion management encompasses strategies, practices, and policies that reduce the environmental and social impacts of the fashion industry across the entire value chain. It involves integrating sustainability into sourcing, production, design, distribution, and consumer engagement while maintaining economic viability and ethical responsibility. This section explores key aspects of sustainable fashion management and highlights how industry stakeholders are increasingly adopting innovative approaches to achieve sustainability goals.

### **Sustainable Supply Chain Management**

Sustainable supply chain management (SSCM) emphasises transparency, responsible sourcing, and ethical labour practices throughout the fashion value chain. Companies are increasingly adopting life-cycle assessments (LCAs), carbon footprint tracking, and environmental impact monitoring tools to identify high-impact stages of production and implement corrective measures.<sup>3</sup> By ensuring traceability and accountability from raw material sourcing to retail, SSCM not only minimises environmental harm but also addresses social concerns such as fair wages, safe working conditions, and equitable labour practices. Many fashion brands now collaborate with suppliers to enforce sustainability standards and encourage continuous improvement in environmental and social performance.

### **Sustainable Sourcing and Procurement**

Sustainable sourcing involves procuring materials and components that have a reduced ecological footprint. Brands are progressively shifting toward eco-friendly fibres, renewable resources, and low-impact dyes while prioritising suppliers certified under standards such as the Global Organic Textile Standard (GOTS) and Fair Trade.<sup>4</sup> In addition to material selection, sustainable procurement practices also focus on reducing water and energy consumption, lowering greenhouse gas emissions, and supporting socially responsible suppliers. These measures contribute to a more resilient and ethical supply chain, aligning brand operations with consumer expectations and regulatory requirements.

### **Sustainable Production Techniques**

Sustainable production techniques aim to minimise environmental impacts during manufacturing. Innovations such as waterless dyeing, digital printing, and biodegradable chemical treatments reduce water usage, chemical discharge, and energy consumption.<sup>5</sup> Advanced technologies like 3D knitting and automated pattern-making improve material efficiency, reduce waste, and enable customised production. Furthermore, sustainable production emphasises the adoption of renewable energy sources and cleaner manufacturing processes, enabling brands to lower their carbon footprint and reduce reliance on fossil fuels.

### **Eco-Friendly Materials and Fibres**

The selection of eco-friendly materials is central to sustainable fashion. Natural and organic fibres, such as organic cotton, bamboo, hemp, and Tencel, require fewer pesticides, lower water consumption, and generate fewer emissions compared to conventional textiles. Recycled fibres, including recycled polyester and nylon, help divert waste from landfills and reduce the demand for virgin resources.<sup>6</sup> Emerging alternatives, such as mushroom-based leather, plant-based textiles, and bio-fabricated

materials, are gaining traction as innovative solutions to meet environmental and ethical standards.

### Sustainable Design Principles

Sustainable design integrates principles that extend the life cycle of garments and promote resource efficiency. Designers focus on durability, modularity, multifunctionality, and minimalist aesthetics to create products that remain relevant over time.<sup>7</sup> “Design for disassembly” is becoming increasingly popular, allowing garments to be easily taken apart at the end of their life cycle for recycling or repurposing. By embedding circularity into the design process, brands can significantly reduce waste and facilitate closed-loop systems.

### Ethical and Social Responsibility

Ethical fashion emphasises social responsibility, including fair wages, safe working conditions, and community engagement. Consumer awareness about labour exploitation and ethical concerns has prompted brands to implement transparent supply chain reporting, independent audits, and certification programmes.<sup>8</sup> Ethical responsibility also includes promoting diversity, equity, and inclusion within the workforce and supporting community-based initiatives, which enhances brand reputation and consumer trust.

### Consumer Behaviour and Sustainable Choices

Consumer demand plays a crucial role in driving sustainable practices. Studies indicate that modern consumers increasingly value eco-friendly labels, sustainability certifications, and transparent brand practices.<sup>9</sup> However, a significant value-action gap exists, where awareness does not always translate into actual purchase behaviour. Price sensitivity, limited availability of sustainable products, and lack of clear information remain key barriers to widespread adoption. Brands are therefore focusing on consumer education and awareness campaigns to encourage responsible consumption.

### Corporate Sustainability Reporting

Corporate sustainability reporting is essential for communicating environmental and social performance to stakeholders. Companies are adopting internationally recognised frameworks such as the Global Reporting Initiative (GRI), Sustainable Development Goals (SDGs), and Environmental, Social, and Governance (ESG) reporting to measure and disclose their sustainability efforts [10]. Transparent reporting helps build stakeholder trust, strengthens accountability, and enables continuous improvement. It also provides investors, regulators, and consumers with the information needed to evaluate brand commitment to sustainable and ethical practices.

**Table I. Sustainable Fashion Management Practices**

S. No.	Area	Key Practices	Expected Outcomes
1	Sustainable Supply Chain	Transparency, LCA, ethical sourcing	Reduced environmental impact; improved accountability
2	Sustainable Sourcing	Organic and certified materials (GOTS, Fair Trade)	Lower chemical use; better worker welfare
3	Sustainable Production	Waterless dyeing, digital printing, 3D knitting	Reduced waste; lower emissions
4	Eco-Friendly Materials	Organic cotton, bamboo, Tencel, recycled polyester	Lower ecological footprint
5	Sustainable Design	Durability, modularity, design for disassembly	Extended product lifespan
6	Ethical Responsibility	Fair wages, safe workplaces, compliance audits	Better social sustainability
7	Consumer Behavior	Eco-label preferences, awareness campaigns	Increased sustainable consumption
8	Sustainability Reporting	GRI, ESG, SDG alignment	Improved transparency and trust

### Circular Economy Practices In Fashion

The adoption of circular economy (CE) principles in the fashion industry has emerged as a key strategy for reducing environmental impact, optimising resource use, and

creating a more sustainable value chain. CE practices aim to extend product lifecycles, minimise waste, and enable the continuous reuse, recycling, and repurposing of materials. This section highlights major circular economy strategies that are shaping the future of sustainable fashion.

## Circular Design Methodologies

Circular design focuses on creating garments and fashion products that are durable, modular, repairable, and recyclable. Designers increasingly incorporate cradle-to-cradle frameworks, zero-waste patterns, and modular components to ensure that materials can be fully recovered or reused at the end of a product's life.<sup>11</sup> By integrating circularity into the design stage, brands can reduce resource consumption, minimise textile waste, and create products that are adaptable to changing consumer needs, thereby supporting both environmental and economic sustainability.

### Closed-Loop Production Systems

Closed-loop production systems aim to keep materials within the fashion supply chain for as long as possible. Pre-consumer textile waste and post-consumer garments are collected, sorted, and processed through mechanical or chemical recycling technologies to produce high-quality fibres suitable for new products.<sup>12</sup> These systems reduce landfill disposal, lower the demand for virgin materials, and mitigate the environmental footprint of textile manufacturing. Leading brands are now investing in recycling infrastructure and collaborating with specialised partners to scale closed-loop production models.

### Product Life Extension

Extending the lifespan of garments is a critical CE strategy. Repair services, resale markets, rental platforms, and refurbishment initiatives allow consumers to use products for longer periods, delaying their entry into waste streams.<sup>13</sup> Brands such as Patagonia, Levi's, and The North Face have popularised repair culture, offering warranties, repair programmes, and second-hand sales that encourage conscious consumption. Product life extension not only reduces environmental impact but also builds consumer loyalty and brand value.

### Waste Reduction and Recycling

Waste reduction strategies target both pre-consumer and post-consumer stages. Efficient cutting techniques, precision pattern-making, and optimised production planning minimise fabric scraps during manufacturing. Post-consumer waste is managed through take-back schemes, collection drives, and partnerships with recycling organisations.<sup>14</sup> Together, these approaches help reduce landfill contributions and support the creation of new materials from existing textile waste.

## Circular Business Models

Circular business models focus on shifting consumption patterns away from linear "take-make-waste" approaches. Models such as product rental, resale, subscription services, and upcycling allow consumers to access fashion sustainably without relying heavily on virgin materials.<sup>15</sup> These models appeal to environmentally conscious consumers and provide alternative revenue streams for businesses, while also reducing the environmental impact associated with traditional fast fashion.

### Upcycling and Repurposing

Upcycling transforms discarded textiles and pre-existing garments into new products with added value. Designers and brands are increasingly embracing upcycling as a creative and sustainable alternative to conventional mass production.<sup>16</sup> Upcycled fashion not only diverts waste from landfills but also promotes innovative design, storytelling, and consumer engagement, aligning with both environmental and social sustainability goals.

### Reverse Logistics

Efficient reverse logistics is essential for implementing circular fashion strategies. It involves the collection, sorting, and transportation of used garments for recycling, reuse, or remanufacturing.<sup>17</sup> Effective reverse logistics systems enable brands to recover valuable materials, reduce waste, and close the loop in their supply chains. Technological solutions such as RFID tracking, digital labelling, and inventory management tools enhance the efficiency of reverse logistics operations.

### Policy and Regulation

Government policies and regulations play a pivotal role in promoting circular fashion practices. Extended Producer Responsibility (EPR), eco-design mandates, and waste reduction policies encourage brands to adopt sustainable production methods and take responsibility for end-of-life products.<sup>18</sup> The European Union's Strategy for Sustainable and Circular Textiles exemplifies such regulatory frameworks, providing guidelines for recycling, eco-friendly design, and resource-efficient practices. Policy support not only incentivises businesses to embrace CE principles but also ensures alignment with national and international sustainability targets.

**Table 2. Challenges in Achieving Sustainability and Circularity**

Challenge Category	Specific Challenge	Impact on Industry
Economic	High cost of sustainable materials	Limits adoption by SMEs
Technological	Limited recycling of blended fabrics	Reduces closed-loop efficiency
Consumer-Related	Price sensitivity toward sustainable products	Low demand for green fashion

Regulatory	Weak enforcement of sustainability laws	Poor compliance in developing countries
Operational	Supply chain opacity	Increases risk of greenwashing
Environmental	Excess waste generation	Higher landfill burden

## Intersectional Topics In Sustainable And Circular Fashion

The transition toward sustainability and circularity in the fashion industry intersects with multiple environmental, social, technological, and educational dimensions. Addressing these intersectional topics is crucial for creating a holistic and systemic approach that enables long-term positive impacts across the fashion ecosystem.

### Environmental Impact Assessments

Environmental impact assessments, including Life Cycle Assessments (LCAs), provide comprehensive insights into the ecological footprint of fashion products. Studies consistently show that the fashion industry contributes significantly to water pollution, greenhouse gas emissions, energy consumption, and microplastic release into aquatic ecosystems.<sup>19</sup> These assessments highlight critical intervention points, guiding brands to implement sustainable practices such as eco-friendly material sourcing, water-efficient production processes, energy optimisation, and waste minimisation. By systematically evaluating environmental impacts, companies can make informed decisions to reduce negative consequences and enhance sustainability performance across their supply chains.

### Socio-Economic Implications

Sustainable and circular fashion practices have important socio-economic implications. Adoption of ethical sourcing, fair labour practices, and community-based initiatives can generate green jobs, support artisans, and reduce exploitation in complex global supply chains.<sup>20</sup> Circular economy models, including resale, rental, and upcycling, also provide economic opportunities for local businesses while promoting resource efficiency. However, the transition to sustainable and circular systems involves initial investment costs, technological adoption, and capacity-building requirements, which may pose challenges for small and medium-sized enterprises (SMEs). Strategic planning and supportive policies are therefore necessary to balance economic feasibility with social and environmental benefits.

## Technological Innovations

Technological innovations are increasingly driving sustainable and circular fashion. Digital tools such as artificial intelligence (AI), blockchain, RFID tagging, and digital twins enhance supply chain transparency, traceability, and operational efficiency.<sup>21</sup> These technologies enable real-time monitoring of resource use, product origins, and end-of-life pathways, facilitating closed-loop systems and circular business models. In parallel, biotechnology innovations—such as lab-grown leather, bio-fabricated fibres, and microbial dyes—offer environmentally friendly alternatives to conventional materials, reducing dependence on resource-intensive inputs and minimising chemical pollution.

### Collaboration and Partnerships

Collaboration across multiple stakeholders is critical for scaling sustainability and circularity initiatives. Partnerships among brands, non-governmental organisations (NGOs), policymakers, industry associations, and consumers support knowledge sharing, joint resource optimisation, and coordinated action.<sup>22</sup> Multi-stakeholder alliances enable the development of industry-wide standards, enhance supply chain traceability, and foster collective problem-solving. Collaborative efforts also strengthen policy advocacy and accelerate the adoption of circular business models by providing shared infrastructure, technical expertise, and market incentives.

### Education And Capacity Building

Education and capacity-building initiatives are essential to equip both industry professionals and consumers with the knowledge and skills required for sustainable transitions. Academic institutions are increasingly offering programmes in sustainable fashion management, circular economy principles, and ethical design, preparing future leaders to drive innovation and responsible practices.<sup>23</sup> Consumer education campaigns also play a pivotal role in influencing purchasing behaviour, raising awareness about environmental impacts, and promoting responsible consumption. By fostering a culture of sustainability and circular thinking, education empowers stakeholders at all levels to contribute effectively to the transformation of the fashion industry.

**Table 3. Future Directions for Sustainable and Circular Fashion**

Future Direction	Key Focus Areas	Potential Benefits
Innovative Materials	Lab-grown leather, bio-fibers	Reduced reliance on virgin materials
Advanced Recycling	Chemical recycling, AI sorting	High-quality recycled fibers
Stronger Legislation	EPR schemes, eco-design rules	Increased compliance and accountability

Transparency Tools	Blockchain, digital product passports	Traceability and consumer trust
Collaborative Models	Brand–NGO–government partnerships	Faster implementation of CE
Education & Awareness	Academic programs, consumer campaigns	Better understanding and adoption

## Challenges In Achieving Sustainability And Circularity

Despite significant advancements in sustainable and circular fashion practices, the industry continues to face multiple barriers that hinder widespread adoption and implementation. These challenges are economic, technological, consumer-related, regulatory, and operational in nature, and they collectively slow the transition toward a fully sustainable and circular fashion ecosystem.

One of the most significant challenges is the high cost of sustainable materials and technologies. Eco-friendly fabrics, bio-fibres, and advanced production techniques often come at a premium compared to conventional alternatives. This cost barrier can be particularly restrictive for small and medium-sized enterprises (SMEs) and emerging brands, limiting their ability to adopt environmentally friendly practices at scale. Similarly, limited recycling and waste management infrastructure, especially in developing countries, constrains the practical implementation of closed-loop systems and the effective recovery of textile materials for reuse.<sup>24</sup>

Consumer behaviour also poses a challenge. Although awareness about sustainable fashion is increasing, many consumers are still reluctant to purchase eco-friendly products due to higher prices, limited availability, and concerns about quality and durability. This creates a value-

action gap, where positive attitudes toward sustainability do not necessarily translate into actual purchasing decisions. Compounding this issue is the prevalence of greenwashing and the lack of standardised labelling and certification frameworks, which can mislead consumers and erode trust in sustainability claims.

Supply chain opacity and ethical concerns further complicate the transition. Complex, multi-tiered supply chains often obscure the origin of materials and the conditions under which products are manufactured, increasing the risk of labour exploitation, unethical practices, and environmental non-compliance. Finally, limited policy enforcement and regulatory oversight in several regions, particularly in developing countries, weaken the incentives for brands to adopt circular and sustainable practices consistently. Inconsistent legislation and weak monitoring mechanisms make it difficult to achieve industry-wide compliance and accountability.

Collectively, these economic, technological, consumer-related, and regulatory challenges present significant obstacles to scaling sustainable and circular fashion practices globally. Addressing these barriers requires a combination of innovation, stakeholder collaboration, policy intervention, and consumer education to create a supportive ecosystem that enables a meaningful and lasting transition toward sustainability and circularity in the fashion industry.

**Table 4. Eco-Friendly Materials Used in Sustainable Fashion**

Material	Source	Environmental Advantage
Organic Cotton	Chemical-free cultivation	Less water, no pesticides
Bamboo Fiber	Fast-growing bamboo	Biodegradable, low water use
Tencel (Lyocell)	Wood pulp	Closed-loop chemical process
Recycled Polyester	PET bottles & textile waste	Reduces plastic pollution
Hemp Fiber	Hemp plant	Very low water & pesticide use
Piñatex	Pineapple leaves	Waste-based vegan leather

## Future Directions

The successful transition of the fashion industry toward sustainability and circularity will depend on a combination of technological innovation, policy support, collaborative business strategies, and consumer engagement. Innovative materials such as bio-engineered fibres, lab-grown leather, and biodegradable textiles are expected to play a pivotal role in reducing environmental impact and minimising reliance on resource-intensive conventional fabrics. These

materials not only offer superior sustainability performance but also enable creative design opportunities that align with circular economy principles.<sup>25</sup>

Advanced recycling technologies capable of efficiently separating blended fabrics and recovering high-quality fibres are critical for establishing true closed-loop systems. Chemical recycling, enzymatic processes, and AI-assisted sorting technologies are expected to enhance the feasibility of recycling complex textile products, thereby minimising waste and reducing dependency on virgin resources.

Stronger legislation and policy incentives are also essential for accelerating sustainable practices. Governments and regulatory bodies can support industry adoption through extended producer responsibility (EPR) mandates, eco-design requirements, tax incentives, and stricter enforcement of environmental and labour standards. Such frameworks provide a clear roadmap for brands, encourage investment in sustainable innovations, and ensure accountability across the supply chain.

Transparency and traceability through digital solutions, including blockchain, digital product passports, and RFID tracking, can significantly enhance consumer trust and facilitate circular business operations. By enabling the monitoring of product origins, material composition, and end-of-life management, these technologies support responsible consumption and supply chain optimisation.

Collaborative business models that engage multiple stakeholders—including brands, suppliers, NGOs, policymakers, and consumers—are vital for scaling sustainability initiatives. Multi-stakeholder partnerships can drive knowledge sharing, optimise resources, and implement circular strategies that are economically viable, socially responsible, and environmentally beneficial.

Finally, consumer education and awareness initiatives are necessary to bridge the value-action gap, encouraging responsible purchasing and fostering long-term behavioural change. By equipping consumers with information on product sustainability, environmental impacts, and circular options, brands can influence market demand and support the adoption of circular fashion practices.

## Conclusion

Sustainability and circular economy principles present transformative pathways for reshaping the global fashion industry into an environmentally responsible, socially ethical, and economically resilient system. By integrating sustainable design practices, eco-friendly and innovative materials, closed-loop production and recycling systems, and encouraging responsible consumer behaviour, the fashion sector has the potential to significantly reduce its environmental footprint and promote social equity throughout the supply chain. These strategies not only mitigate resource depletion, pollution, and waste but also enhance brand reputation, consumer trust, and long-term economic viability.

Despite significant progress, the industry continues to face challenges, including high costs of sustainable materials, limited recycling infrastructure, consumer resistance due to pricing, greenwashing, and supply chain opacity. Overcoming these obstacles requires a multifaceted approach that combines technological innovation, robust policy frameworks, multi-stakeholder collaboration, and

education at all levels. Emerging technologies such as AI, blockchain, digital product passports, and advanced recycling methods can provide the tools needed to track, optimise, and circularise supply chains, while legislation and incentives can motivate brands to adopt sustainable practices consistently.

Collaboration among brands, NGOs, policymakers, researchers, and consumers is essential to create systemic change, scale circular initiatives, and share knowledge and resources effectively. Additionally, education and capacity-building programmes for both professionals and consumers can bridge the awareness-action gap, fostering behavioural change and supporting the adoption of sustainable consumption and production patterns.

In conclusion, achieving a fully sustainable and circular fashion ecosystem requires coordinated, multidimensional action across design, production, supply chains, policy, and consumer engagement. By embracing these principles, the fashion industry can transition toward a regenerative and ethical model that balances environmental stewardship, social responsibility, and economic growth. This comprehensive approach not only addresses the immediate challenges of the industry but also ensures a resilient, inclusive, and future-ready fashion landscape.

## References

1. Fletcher, K. Sustainable Fashion and Textiles. Earthscan, 2014.
2. Ellen MacArthur Foundation. A New Textiles Economy: Redesigning Fashion's Future, 2017.
3. Shen, B. "Sustainable supply chain management in fashion." *Journal of Cleaner Production*, 2014.
4. Henninger, C. et al. Sustainable Fashion, Springer, 2017.
5. Hethorn, J., & Ulasewicz, C. Sustainable Fashion: What's Next?, 2018.
6. Karthik, T., & Murugan, R. "Eco-friendly fibers in fashion." *Textile Review*, 2016.
7. Gwilt, A. Fashion Design for Sustainability, Laurence King, 2020.
8. Dickson, M. et al. The Social Responsibility of the Fashion Industry, 2015.
9. Joergens, C. "Ethical fashion consumption." *Journal of Fashion Marketing*, 2006.
10. Global Reporting Initiative (GRI). Sustainability Reporting Standards, 2020.
11. Earley, R., & Goldsworthy, K. "Circular design strategies." *Textile Research Journal*, 2019.
12. Sandin, G., & Peters, G. "Environmental impact of textile recycling." *Waste Management*, 2018.
13. Patagonia. Worn Wear Initiative, 2020.
14. Domina, T., & Koch, K. "Textile waste recycling practices." *Journal of Consumer Studies*, 2017.

15. Pedersen, E., & Andersen, K. "Circular business models in fashion." *Business Strategy and the Environment*, 2018.
  16. Paras, M., & Curteza, A. "Upcycling in fashion." *International Journal of Clothing Science*, 2018.
  17. Govindan, K. "Reverse logistics for sustainability." *Omega Journal*, 2014.
  18. European Commission. *EU Strategy for Sustainable and Circular Textiles*, 2022.
  19. Niinimäki, K. "Environmental impact of fashion." *Nature Reviews Earth & Environment*, 2020.
  20. Muthu, S. *Sustainable Fashion: Socio-Economic Perspectives*, Springer, 2018.
  21. Sun, S. et al. "Technological innovation for sustainable textiles." *Sustainability*, 2021.
  22. Fashion for Good. *Innovation Platform Report*, 2020.
  23. Lewis, T. "Capacity building for sustainable fashion." *Journal of Education for Sustainability*, 2019.
  24. Bick, R., Halsey, E., & Ekenga, C. "Challenges in sustainable apparel." *Environmental Health Review*, 2018.
  25. Pal, R., & Gander, J. "Future directions for circular fashion." *Sustainable Production and Consumption*, 2021.
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