

Analyzing Sustainable Practices in Fashion Supply Chain

Sheetal Soni, Sejal Baldawa

Department of Fashion Management Studies, National Institute of Fashion Technology, Jodhpur, Rajasthan, India 342037

ARTICLE INFO

ABSTRACT

Keywords:

Fast-fashion,
Sustainability,
Supply chain,
Energy efficiency,
Sustainable practices,
Consumer.

Kata Kunci:

Mode-cepat,
Keberlanjutan,
Rantai pasokan,
Efisiensi energi,
Praktik-praktik keberlanjutan,
Konsumen.

Fast fashion brands create high quantities of synthetic, petroleum-based garments that result in high levels of textile waste and emissions. To change the dreadful tag of hazardous production by fast fashion companies, top-notch fast fashion leaders started paying attention towards adopting sustainable practices, including sustainable supply chain management (SSCM) for a sustainable environment. This paper conducts a structured review of the annual reports on the topic of energy efficiency and environmental sustainability practices adopted by fashion brands in the supply chain management context. This study contrasts the sustainability reports of Reformation and Patagonia, two market leaders with compelling sustainability messaging, to assess SSCM in the fashion sector. This study tries to identify the factors and classification influencing energy efficiency and environmental sustainability initiatives that impact supply chain performance, the customer perspective based on the analysis of the data related to the sustainability of top fashion brands from their past five year annual reports.

SARI PATI

Merek-merek mode cepat membuat pakaian sintetis berbahan dasar minyak bumi dalam jumlah besar yang menghasilkan limbah dan emisi tekstil tingkat tinggi. Untuk mengubah tanda mengerikan produksi berbahaya oleh perusahaan mode cepat, para pemimpin mode cepat terkemuka mulai memperhatikan penerapan praktik berkelanjutan, termasuk manajemen rantai pasokan berkelanjutan (SSCM) untuk lingkungan yang berkelanjutan. Makalah ini melakukan tinjauan terstruktur terhadap laporan tahunan dengan topik praktik efisiensi energi dan kelestarian lingkungan yang diadopsi oleh merek fesyen dalam konteks manajemen rantai pasokan. Studi ini mengontraskan laporan keberlanjutan Reformasi dan Patagonia, dua pemimpin pasar dengan pesan keberlanjutan yang menarik, untuk menilai SSCM di sektor mode. Studi ini mencoba untuk mengidentifikasi faktor-faktor dan klasifikasi yang mempengaruhi inisiatif efisiensi energi dan kelestarian lingkungan yang berdampak pada kinerja rantai pasokan, perspektif pelanggan berdasarkan analisis data terkait keberlanjutan merek-merek fesyen terkemuka dari laporan tahunan lima tahun terakhir mereka.

Corresponding author:

Sheetal Soni
sheetaljasmatiya@gmail.com

Copyright © 2023 by Authors,
Published by IRJBS.
This is an open access article
under the CC BY-SA License



INTRODUCTION

The fast fashion industry was valued worldwide at 91.23 billion USD in 2021, and is approximated to get to 133 billion USD by 2026 (*Fast Fashion Market Value Forecast Worldwide 2021-2026* | Statista, n.d.). In 2018, the fashion industry was accountable for around 2.1 billion metric tons of GHG emissions, half of which were produced by fast fashion. To meet the mounting demand for economical clothing, brands have created supply chains that produce high amount of synthetic, petroleum-based garments in developing countries (Wren, 2022).

In current years, sustainability has become an important administrative issue (Bocken et al., 2014). With the increased sustainability challenge, different industries have begun working on the process, methods and products they deliver (Choi & Li, 2015). The companies are actually working in a related network where top brands or big industries are part of the original manufacturer's whole supply chain. Therefore, as overseeing sustainability issues are not restricted to the confines of central companies, organisations must widen their focus to the supplier who are part of their whole supply chain process (Zhu et al., 2005). Therefore, numerous organizations have started to take in hand the budding issue related to the challenge of sustainable supply chain management (SSCM) (Seuring & Müller, 2008). This seems to be the most difficult challenge as fast fashion companies have fragmented supply chains where the suppliers are distributed all over the world.

The fashion industry faces significant social and environmental challenges due to its huge annual consumption of over 30 million tons of textiles. In an effort to keep production costs low, many apparel companies have exploited the lack of environmental regulations and awareness in developing countries. Brands such as Benetton, Adidas, and C&A have faced criticism for their unsustainable supply chain practices. However, some fashion companies are embracing sustainability and implementing eco-friendly

practices in their supply chain, such as Patagonia, Reformation, H&M, and New Balance.

The fashion sector has a major impact on the planet. Both fashion companies and consumers are now demanding environmentally-friendly practices to reduce pollution. In the production of fashion products, intensive use of chemicals, water, and pesticides makes it vital for companies to adopt sustainable methods, such as following ISO 14000 sustainability guidelines. On the consumer side, growing environmental awareness has led to a shift in attitudes, directly affecting their choices in eco-fashion consumption. The present study focuses on introducing the supply chain operations for sustainable fashion and learning from the sustainable business strategies of renowned fashion brands like Reformation and Patagonia. The examination of these companies' annual reports from the previous five years, together with a comparative analysis, are included in the article to determine their contributions to the field of sustainable supply chains.

Literature Review & Research Gap

Sustainability in fashion presents numerous challenges. Fashion is typically defined as the adoption of specific behaviours and aesthetics by different groups of people over a set period (Easey, 2009). The fashion industry is constantly striving for novelty and creating new products in response to rapidly changing consumer demands, as fashion relies on constant change and the need to stay current and perceived as new (Hur & Cassidy, 2019). The rise in clothing consumption and subsequent increase in textile production can be attributed to growing environmental concerns. For example, global textile production per person rose from 5.9 kg to 13 kg annually between 1975 and 2018 (Peters et al., 2019). Forecasted for 2030, the global consumption of textile products is expected to escalate to 102 million tonnes from its present estimated annual amount of 62 million tonnes (Global Fashion Agenda Team & Boston Consulting Group, 2019). Consequently, fashion companies are

now producing nearly twice the amount of clothing compared to what they were producing before the year 2000 (Remy et al., 2016).

In response to the challenges in developing countries concerning the environment, society, and economy, companies are placing greater emphasis on sustainability and working to ensure uniform standards and quality across their supply chains regarding working and production conditions. (Turker & Altuntas, 2014). The fashion industry's current global environmental and social problems, including accusations of animal harm, unfair compensation and working conditions for employees, and excessive production resulting in pollution and hazardous waste, have brought the urgency of sustainability in the sector to public attention. (Moretto et al., 2018; Turker & Altuntas, 2014; Winter & Lasch, 2016).

Stefan Seuring and Martin Müller presented a framework for Sustainable Supply Chain Management (SSCM) in their essay "From a Literature Review to a Framework for Sustainable Supply Chain Management." The framework, which was published in the Journal of Cleaner Production, provides the most comprehensive understanding of how organizations approach SSCM (Wren, 2022). The analysis of 191 SSCM papers from 1994 to 2007, as described in the study, suggests that corporate SSCM plans should have three key components: 1) motivations for businesses to implement SSCM practices, 2) evaluation of suppliers in terms of risk and performance, and 3) management of sustainable products throughout the supply chain. This framework is particularly useful in evaluating fashion supply chains as legal definitions of sustainability are unclear, as it allows companies to disclose their progress using their preferred metrics. (Seuring & Müller, 2008).

Consumers are increasingly aware of the environmental impact of fashion fabrics and the ethical concerns regarding the production of fast fashion products. As a result, a new trend in

fashion retail has emerged, emphasizing principles of sustainability such as longer product lifespan, reduced frequent purchases, and ethical production and sales practices (McNeill & Snowdon, 2019). The impact of the COVID-19 crisis has led the fashion industry to realign for the new reality, and according to a study by McKinsey & Co., European consumers are now more focused on ecological concerns. This offers the fashion sector a chance to showcase its dedication to sustainability. Additionally, this could be a moment to decrease the seasonality trend in the fashion industry (Granskog et al., 2020). This study recognizes the adverse impact of the fashion industry on the environment and aims to highlight the need for significant changes in the industry's business model, such as slowing down production and implementing sustainable practices across the supply chain. By thoroughly analysing the annual reports of fashion brands, the study intends to provide concrete recommendations for the fashion industry.

METHODS

The primary objective of the study is to classify and recognize the factors that impact supply chain operations and environmental sustainability initiatives in the fashion sector. This study aims to assess the sustainability practices in the fashion sector by comparing the sustainability reports of Reformation and Patagonia, two companies that are well-regarded for their strong sustainability supply chain processes. The specific goals are to highlight the workings of a sustainable fashion supply chain, examine the sustainable practices of Reformation and Patagonia, and assess sustainability practices in the fashion sector through a comparative analysis of their annual sustainability reports of the previous five years. The research will rely on the collection of secondary data from publicly available sources. This includes official sustainability reports, publications, articles, and other relevant materials from Reformation and Patagonia websites, company disclosures, and reputable databases. The research employed a purposive sampling method, to select Reformation and Patagonia as the two case

study companies. These companies are well known for their strong sustainability supply chain processes and will be the focus of the analysis. The collected data from the sustainability reports of Reformation and Patagonia will be subjected to content analysis. This approach involved systematically categorizing and evaluating the sustainable practices under the identified performance categories and sub-categories. The performance categories for comparison of the annual reports of these two companies are 'People', 'Product', Partners & Suppliers' and Planet, which are further divided into sub-categories for detailed analysis and evaluation of sustainable practices of these companies. The performance categories used for the sustainable reporting analysis in the supply chain of Reformation and Patagonia are given in Table 1.

RESULTS AND DISCUSSION

The fashion industry's supply chains were analysed by comparing Reformation and Patagonia. Reformation boasts a comprehensive corporate sustainability strategy that aligns with its central business philosophy. This sustainability strategy is detailed in the company's 2019-2025 sustainability framework, which covers aspects such as people, the planet, products, and progress. The strategy is created in accordance with the United Nations' Sustainable Development Goals and outlines ongoing and finished actions for each dimension. It also details the next steps, community impact, and ultimate objectives.

(Pierre, 2021). Patagonia's commitment to sustainability forms the foundation of its business model and competitive advantage. In 2018, the company updated its mission statement to reflect this emphasis: "Our business exists to preserve our planet." Rather than creating a separate sustainability framework, Patagonia integrates sustainability into every decision through a four-step process: measuring impact, reducing impact, transitioning to renewable energy, and capturing carbon.

Life cycle assessment

Reformation's choice of materials greatly affects the overall impact of its products. The company has implemented the Ref Fibre Standards, which take into account various factors such as water usage, energy input, land use, eco-toxicity, greenhouse gas emissions, human toxicity, availability, and price, and even consider garment care practices, like microfiber shedding. Reformation's goal is to have 95% of its fabric used in clothing meet its Fibre Standards by 2022. Patagonia, on the other hand, focuses on sustainability throughout its supply chain, reducing its impact on water usage, water quality, energy consumption, greenhouse gas emissions, chemical usage, toxicity, and waste. The company also collaborates with its customers to ensure responsible product lifecycle management, including repair, reuse, and recycling. 92% of the materials used in Patagonia's products are dyed and finished at facilities that adhere to their Chemical

Table 1. Sustainable Supply Chain Evaluation Performance Categories

| Performance Category | Sub Category |
|----------------------|---|
| People | Inclusivity, fairness, and diversity |
| Product | Advanced components, waste reduction, accountability, regional fabrication, hangars and carriers, cutting-edge packaging, and clarity. |
| Planet | Climate Actions, Green Building, Low impact garment care, Resource efficiency and Sustainable Purchasing, Resource efficiency and Sustainable Purchasing, Carbon Footprint, Energy Management, Transportation |
| Partners & Suppliers | Code of Conduct, Business Integration, Environmental Certifications, Social Responsibility, Community Engagement and Impact |

Table 2. Comparative Analysis of Annual Reports (2016-2020)

| Performance Category | Performance Drivers | Reformation | Patagonia |
|-------------------------------|---|---|--|
| People | Diversity, equity, and inclusion | We're partnering with Mathison, a diversity-focused platform, to embrace open communication, feedback, fairness, and inclusivity, fostering a culture that values diverse perspectives and encourages information sharing in all directions. | The 2017 bottom line at Patagonia: We must and can do more to actively connect with individuals and groups who have traditionally been marginalized in the outdoor industry, the environmental movement, and within our own company. |
| Partners and Suppliers | Code of Conduct | Ref employs a color-coded evaluation system for its supplier evaluations and ongoing improvement initiatives. The aim is to maintain a rating of "Green" for at least 75% of Tier 1 facilities. Currently, all of their factories meet the highest standards, either rated as "Green" or "Yellow", and their suppliers undergo independent, third-party evaluations to guarantee fair, safe, and healthy work environments. | Suppliers must uphold written environmental standards, follow laws, regulations, and Patagonia Code, and undergo environmental responsibility monitoring. We support grassroots environmental nonprofits and co-founded 1% for the Planet in 2002. Supplier count reduced for audit quality and improvement support. |
| | Business Integration | The company participates in multiple MSIs like Textile Exchange, Sustainable Apparel Coalition, and Fair Labor Association. They focus on sustainable purchasing practices, relationship building, and company-wide participation. Plans include training, stakeholder map, and materiality matrix. | Patagonia operates a business model that involves producing and selling premium outdoor clothing products, both through distributors and directly to customers. The company also prioritizes creating social and economic value through its operations and positions itself as a responsible participant in the economic system, with a strong emphasis on environmental protection. |
| | Environmental Certifications | Certifications include GRS, Tencel Lyocell - Lenzing, GOTS, Fairtrade cotton, LWG, RWS, Oeko-Tex®, digital print process, and FSC. Company also certified for PUL with Gold/Silver rating from LWG and high traceability score. | Initiated pilot programs for Organic Certification in India and has seen a significant increase in the number of styles that are sewn with Fair Trade Certified™, rising from 24% in FY18 to 54%. Cotton is certified organic by the Global Organic Textile Standard (GOTS) and also certified by blue design. Pat of two organizations the Sustainable Apparel Coalition and 1% for The Planet. |

| Performance Category | Performance Drivers | Reformation | Patagonia |
|----------------------|--|---|--|
| | Social Responsibility | They evaluate suppliers rigorously, minimize audit overload, and analyze wages for top tier suppliers. Social responsibility training is provided for internal teams. To reduce environmental impact, Reformation guides energy, water, and waste reduction. They partner with organizations like Apparel Impact Institute, Blue Design, and ZDHC for water, energy, and chemistry efficiency programs. | Patagonia promotes corporate social responsibility through media outreach and campaigns. They collaborate with various organizations like Higg Index, Textile Exchange, Regenerative Organic Alliance, and Sustainability Working Group. Suppliers participate in Fair Labor Association and implement CEIP for minimizing environmental impact at supplier facilities. |
| | Community Engagement and Impact | Reformation incentivizes its employees to become involved in their local communities. Additionally, all employees receive regular training on the company's Business Practices Guidelines, which ensure they follow all applicable laws and company policies. The company also actively participates in the Better Buying program and looks for ways to improve their purchasing practices. 75% of Reformation employees participate in the company's Volunteer Time Off program each year. | Patagonia has dedicated 1% of its sales to support the protection and restoration of the environment. It has received over \$140 million in financial and non-monetary contributions, which it has distributed to local and global environmental organizations. The company's employees actively engage in environmental initiatives and run programs aimed at inspiring individuals outside of the company to make a positive impact. |
| Planet | Climate Actions | Patagonia places an emphasis on reducing their carbon emissions and putting resources into solutions that will eliminate more greenhouse gases than they produce. They also worked with Four Paws, a global animal welfare organization, to upgrade their animal welfare policy and establish a plan for its implementation. | Patagonia's sustainability initiatives include 1% for the Planet program, reducing waste, and implementing CEIP for addressing environmental concerns. They also launched Worn Wear for reselling used Patagonia clothes. |
| | Green Building | Patagonia creates sustainable stores by using innovative design and eco-friendly materials such as LED fixtures, rammed earth, and recycled fabric insulation. They aim to make their stores as sustainable as possible and calculate their construction footprint to offset 100% of their store builds. | The company designed an energy-saving system and implemented recycling and reuse of building materials to create a green distribution centre, which earned a Leadership in Energy and Environmental Design (LEED) Gold certification from the U.S. Green Building Council for its expansion. |

| Performance Category | Performance Drivers | Reformation | Patagonia |
|----------------------|---|--|---|
| | Low impact garment care | The company involves its PD and Quality teams to expand fabric testing and make sourcing decisions based on garment care. They also publish low-impact care guides for customers to minimize microfiber pollution and activate a green cleaning network and resources. | Developed robust programs for environmental responsibility and animal welfare to govern the way they create materials and products. They use preferred materials for 87% of their fabrics and certify all virgin down to the Advanced Global Traceable Down Standard. Additionally, they grow all the virgin cotton used in their clothing organically. |
| | Resource efficiency and Sustainable Purchasing | The company evaluates the environmental impact of their retail development and looks for opportunities to make their materials and processes more sustainable. For products that require a significant amount of water, such as denim, they monitor and minimize water usage. They also provide guidance to their suppliers on ways to reduce their energy consumption, water usage, and waste generation. | The 171,000 square foot addition to its Reno distribution centre was designed with energy-efficient materials handling and the use of recycled building materials. The company is committed to the mission of creating the best products while causing no unnecessary harm to the environment, and using their business as a means of inspiring and implementing solutions to the environmental crisis. |
| | Carbon Footprint | To ensure accountability and track progress towards their Climate Positive goals, Ref calculates their entire carbon footprint annually, which includes emissions from their onsite operations and throughout their supply chain. | The company has already achieved 100% renewable electricity in the US and 76% globally. They have set their sights on reducing energy usage throughout the supply chain and are actively working with suppliers to transition to renewable energy sources. Additionally, the company is investing in renewable energy projects to offset the remainder of their carbon footprint. |
| | Energy Management | Ref recognizes that up to 2/3 of a garment's environmental impact occurs after it is purchased, largely due to energy-intensive garment care. By using better materials in their products, Ref aims to reduce the need for professional cleaning services, and encourage sustainable practices like hand-washing and air-drying at home. | Since the 1980s, Patagonia donates 1% of sales to support environmental organizations. They aim for a 2025 carbon-positive goal, increasing recycled materials to 69% with a target of 100%. Patagonia rejects nuclear energy and fracked natural gas, prioritizing renewable sources. They uphold sustainable practices as Sustainable Apparel Coalition member. |

| Performance Category | Performance Drivers | Reformation | Patagonia |
|----------------------|-------------------------|---|---|
| | Transportation | Ref aims to transition most of their transportation to cargo ships while limiting air shipping to only 30% of their shipping activities. This is because air shipping generates approximately 30 times more carbon emissions compared to shipping via cargo ships. By making this shift, Ref hopes to significantly reduce its carbon footprint and achieve its sustainability goals. | Patagonia has set a goal to rely mostly on cargo ships for transportation and limit air shipping to only 10%. This is because air shipping has a much higher carbon footprint compared to shipping via cargo ship. |
| Products | Better Materials | The company is dedicated to reducing the environmental impact of silk, viscose, leather, and wool. They invest in new fibre innovation, create better trim standards, and support non-plastic-based leather alternatives through the Material Innovation Initiative. The company partners with Fashion for Good to accelerate sustainable fashion innovation, focusing on vegan/traceable leather, sweater yarns, regenerative organic cotton, and cleaner viscose. | The company uses a significant amount of recycled fabrics for its products, including polyester, nylon, and wool. In the past, the durable water repellents (DWRs) used in its waterproof outerwear were made with per fluorinated compounds (PFCs), which were unsustainable. Quickly responded to this issue by switching to a more sustainable shorter-chain C6 treatment for its DWRs, which can biodegrade more speedily. |
| | Recycling | The company is committed to achieving zero waste by recycling, composting organic waste, and recycling or donating textile scraps whenever possible. The company is currently recycling approximately 75% of all its garbage, and it aims to increase this percentage to over 85%. | The company collects retired garments for recycling, collaborates on energy projects with suppliers, and expands Worn Wear repair and resale. With 80% recycled polyester use, they prioritize sustainable materials, showcasing their commitment to environmental impact reduction and fashion industry sustainability. |
| | Traceability | The company is committed to promoting greater traceability and leverage at the fibre product level by investing in nominated products. By 2020, the company aims to achieve 100% traceability of Tier 1 and Tier 2 suppliers, while by 2022, it aims to achieve 95% or more traceability of Tier 3 suppliers. Additionally, the company aims to achieve 100% traceability to the farm level for all its animal and plant-derived materials by 2025. To achieve these targets, the company | The company has introduced a grievance system program to establish effective and trustworthy two-way communication channels with its Tier 1 finished-goods suppliers. With the goal of training 90% of its Tier 1 suppliers through the program, the company is committed to cultivating stronger relationships with its suppliers and promoting greater transparency and accountability in its supply chain. By taking these initiatives, the company is demonstrating its dedication to promoting |

| Performance Category | Performance Drivers | Reformation | Patagonia |
|----------------------|-------------------------------------|---|--|
| | | <p>plans to adopt physical and/or digital traceability technologies for all its fibres by 2025. These measures reflect the company's commitment to promoting transparency and accountability in its supply chain and promoting sustainability in the fashion industry.</p> | <p>responsible business practices, as well as social and environmental sustainability in the fashion industry.</p> |
| | <p>Local Manufacturing</p> | <p>Reformation produces more than 50% of its garments in Los Angeles, where they operate their own factory to manufacture products depending on the season and weekly styles. The company upholds the same sustainable standards and materials in its responsible manufacturing partnerships both in the United States and abroad, ensuring that all of its garments are produced in a sustainable and ethical manner.</p> | <p>Patagonia's production team has a strong preference for factories that are clean, well-lit, and employ experienced sewing operators. They prioritize partnering with factories that share their values and philosophy. The company is committed to continuously improving social and environmental conditions and encourages their team to lead an examined life.</p> |
| | <p>Hangers and Totes</p> | <p>Reformation prioritizes sustainability, using recycled paper hangers and advocating for reusable totes to reduce waste and landfill impact. These efforts encourage responsible consumer habits for a more sustainable future.</p> | <p>The hangers' raw materials are obtained from various sources, including beach clean-ups and local recycling initiatives in South Africa. By collecting plastic waste from the ocean and diverting post-consumer and post-commercial plastics from the waste stream</p> |
| | <p>Packaging Innovations</p> | <p>There are several types of bags in use, including 100% compostable bags made from bio-based materials and 100% recycled LDPE bags with a biodegradable polymer that facilitates their breakdown in landfills. To replace plastic polybags, a white Kraft inner bag is now being used, accompanied by a collateral card with sustainability-related messaging, and paper hang tags that are 100% recyclable. A compact and slim profile has been prioritized to minimize transit emissions.</p> | <p>Patagonia has replaced plastic polybags with a white Kraft inner bag, recognizing the significant potential to reduce plastic waste. The company works with its wholesale dealers to ensure that poly bags are recycled. Additionally, all of Patagonia's packaging is made from 100% recycled materials and is entirely biodegradable, thus helping to prevent plastic pollution in the ocean.</p> |

| Performance Category | Performance Drivers | Reformation | Patagonia |
|----------------------|---------------------|---|--|
| | Transparency | The company publishes its Sustainability Report on a quarterly basis and regularly updates its methodology using third-party verification. It has also established a Sustainability Advisory Board and ensures that its strategy and report align with the Sustainable Development Goals. Robust training programs and internal engagement with all teams are developed and delivered to achieve these goals. | Describe the environmental impact of representative items from various product lines in their print and online catalogues using the finest research and data presently available. For the past 16 years, they have listed the companies they collaborate with globally on their website. |

and Environmental Impacts Program, and 52% of their fabrics are made from recycled (31%) or renewable (21%) sources, by weight.

Reformation is conscious of the environmental impact of its products and avoids using virgin synthetic fibres, commonly known as fossil-fuel fabrics, due to concerns about microplastic pollution. The company offers trendy, stylish clothing made from sustainable materials, with over 50% of its garments made from Tencel, Viscose, and recycled materials which require fewer resources like water compared to cotton. Additionally, 15% of its clothing is made from vintage or unused fabrics that would otherwise go to waste. Although cashmere only makes up a small percentage of the materials they purchase, it has a large carbon footprint, accounting for almost half of the total due to its high carbon intensity. Reformation is continuously seeking to incorporate more environmentally-friendly fibres into its production and aims to eliminate the use of conventional silk and cashmere in the coming year.

Patagonia aims to produce the best possible products while causing no unnecessary harm. The company follows this principle throughout the entire production process, evaluating each aspect, including fibre processing, fabric weaving and knitting, dyeing and finishing, as well as the

suppliers involved at every stage. Currently, the brand is focused on using environmentally friendly dyes in its production, as traditional dyeing methods often use a lot of water and involve chemicals that Patagonia wants to avoid.

Associations

Reformation places a strong emphasis on transparency and the traceability of its supply chain. The company requires the disclosure of all facilities involved in the production of its products, regardless of the production process or facility level. This includes but is not limited to, mills, dye houses, printers, yarn spinners, and fibre producers. Reformation hosts workshops for its suppliers to improve their capacity and is a member of organizations such as the Fair Labour Association and multi-stakeholder initiatives with a focus on industry collaboration and shared learning, such as the Textile Exchange and the Sustainable Apparel Coalition.

Patagonia works to ensure the traceability of its materials by mapping out all entities in the supply chain and implementing robust chain-of-custody guidelines for its suppliers to minimize the risk of using less sustainable materials. The company is a member of various sustainability initiatives, including the Higg Index of the Sustainable Apparel Coalition, the Textile Exchange, the

Regenerative Organic Alliance, and the Climate Action Corps. These initiatives allow for industry-wide benchmarking and collaboration to improve sustainability, with a focus on the supply chain and materials used. Patagonia also offers unique benefits to its employees and promotes the reuse of worn clothing through its repair program.

Supply Chain

Reformation prioritizes transparency and accountability in its supply chain, making it more sustainable than larger fashion brands. They control much of the production process by operating a 70% in-house manufacturing facility in Los Angeles, where design, production, and shipping are all managed under one roof. The building runs on renewable energy and Reformation takes steps to offset its carbon footprint, making it fully carbon neutral.

In 2019, Patagonia established an eco-friendly distribution centre by implementing a system to reduce energy consumption and utilize recycled and sustainable building materials. The building features a steel frame, insulation, and window glass made of recycled materials. Energy-efficient lighting, a radiant heating system using copper tubing and hot water, tiles, carpet with recycled content, and sustainably harvested or reclaimed wood construction all contribute to the centre earning a LEED Gold certification from the U.S. Green Building Council. Patagonia's memberships in various nature conservation, sustainability, and anti-child labour organizations demonstrate their commitment to making a positive impact and are not just for show. The company upholds a high standard set by these organizations, showcasing their credibility. (Pierre, 2021; Sustainability Report 2019: year in Review, 2019)

Criteria for Suppliers

Reformation has implemented a system that evaluates its suppliers based on a colour code rating. The aim is to keep 75% of their primary facilities "Green" rated. To align with the standards

set by the Fair Labour Association, the audit protocol was revised, leading to 51% of the facilities being rated as "Green". All the factories are now held to the highest standards and suppliers are subject to impartial, third-party evaluations to make sure workers are treated fairly and work in safe and healthy conditions.

Patagonia is dedicated to making sure the origin of its materials is traceable by creating a map of all entities in its supply chains and enforcing strict chain-of-custody procedures for its suppliers to minimize the chance of using unsustainable materials. They work closely with suppliers to improve energy efficiency through renewable energy projects and promote their Worn Wear repair and resale program. Patagonia is open about its efforts and provides detailed information on its website. 90% of their Tier 1 suppliers for finished goods are trained through their grievance system program to establish effective communication and trust. Suppliers must have written environmental policies and standards, comply with environmental laws and Patagonia's code and benchmarks, and be willing to undergo separate evaluations for their environmental responsibility.

Communication With Suppliers

Ref's direct suppliers are expected to regularly monitor all approved subcontractors and sub-suppliers for adherence to their Code and Additional Policies. They require their suppliers to agree to comply with their Supplier Code and extend this requirement to all of their sources involved in producing goods and services for Reformation. By doing this, their suppliers are confirming that the materials used in Reformation products comply with all laws of the countries where they operate. If a supplier fails to comply with their standards or corrective action plans, they may be removed from Ref's supply chain. The company has incorporated a "RefScale" rating system into its product pages, which is a score determined internally (and verified by an outside party) that measures the environmental impact of each item in terms of

water consumption, CO2 emissions, and waste production compared to similar products from competitors. The company wants to be transparent about every aspect of its supply chain, including who made its clothes and is working to implement its Code of Conduct for all of its Tier 2 suppliers, including mills and wet processing facilities. They are aware of the potential risk of human trafficking and slavery in the lower levels of their supply chain and are taking steps to address these issues.

Patagonia has a long-standing commitment to supporting environmental non-profit organizations, including co-founding 1% for the Planet. They seek to establish partnerships with suppliers who share similar values and have reduced the number of suppliers they work with. While this may result in increased bargaining power for the suppliers and limited opportunities for the buyer, it also allows for consistent quality control and improvement of the suppliers. Despite the increased economic risk, Patagonia provides individual support to the suppliers. In 2011, they expanded their efforts to include labour practices in the mills that produce their fabrics, and in 2014 joined Fair Trade USA's apparel program. The result was the successful launch of 10 Fair Trade styles, which has since grown to 480 styles and 14 factories. These efforts have directly benefited over 15,700 factory workers and have allowed for the scaling of Fair-Trade production for the factories.

Improving Supply Chain Performance

Patagonia has taken action to decrease waste, including tracking and disclosing information about its supply chain, contributing 1% of profits to environmental causes, and creating a platform named Worn Wear to resell used Patagonia clothing. Additionally, they have developed new eco-friendly materials, such as desert shrub-based rubber to replace traditional petroleum-based wetsuit materials. The company has also used its blog "The Cleanest Line" and a documentary called "Dam Nation" to raise awareness about environmental issues. However, in 2010, Patagonia

faced criticism for its sourcing of feathers from Hungary, where live-plucking and force-feeding were reported by the animal welfare organization Four Paws. In response, Patagonia established the Traceable Down Standard (TDS), which prioritizes animal welfare and ensures supply chain transparency. In 2013, the first TDS-certified products were introduced, and the following year, NSF was contracted to further develop the TDS and make it accessible to third-party providers. As a result, Patagonia declared that all feathers used in their products are now traceable, enabling customers to verify the entire down supply chain.

Areas of improvement

In general, the brand is a trailblazer in ethical fashion with its open and transparent sustainability practices. The only concern is that Reformation is not completely transparent about its environmental problems. It is difficult to avoid the notion that the Reformation is indulging in some form of greenwashing. However, with more efforts and clarity on chemicals and animal welfare, Reformation has the potential to reach a top rating among brands that follow sustainable practices in their supply chain. Reformation considers traceability to be critical in maintaining stringent fibre and production standards. However, the company's desire to grow may put pressure on its sustainability goals. The recent launch of Ref Jeans exemplifies this conflict: The firm is outsourcing the production of jeans, a highly harmful type of clothing that requires 1,500 gallons of water per production cycle, to a third party. Management should see this as a chance to educate the industry on its best practices, but they should also invest in tools and technologies to ensure compliance and effective supply chain management. Reformation has room for improvement in its animal welfare practices, as the brand still uses leather and exotic animal hair in some of its products. It is recommended for Reformation to transition using vegan leather alternatives to align with ethical standards in the supply chain.

In contrast, Patagonia prioritizes the environment and animal welfare over profits. This is evident through their actions when faced with criticism from animal protection organizations, where they promptly took action to improve their production practices, such as in the case of feathers and wool. Patagonia also takes a strong stance on environmental issues and uses its resources, as the company is privately managed. In all situations, the brand makes decisions based on what is right and in the best interest of the environment and animals, rather than solely on financial gain. To address these concerns, it is suggested that Patagonia use its unique marketing strategies to provide more information about its factory locations and the reasons behind them. Although the information can be found on Patagonia's "The Cleanest Line" blog, a marketing campaign that focuses explicitly on this topic could help increase customer awareness and maintain its image as a socially and environmentally responsible company. Patagonia's exceptional repair service sets them apart in the clothing industry and shows their stance against fast fashion. While a company cannot single-handedly change consumption patterns, Patagonia's efforts to encourage sustainability and make it socially acceptable demonstrate its forward-thinking approach.

MANAGERIAL IMPLICATIONS

To achieve a more sustainable future for the fashion industry, companies must embrace circularity in their business models. This means moving away from the traditional linear model of "take, make, waste" and towards closed-loop systems where resources are kept in use for as long as possible. This could involve integrating closed-loop supply chains, reducing waste through better materials management and end-of-life management, and encouraging the reuse and repurposing of clothing and textiles. Companies must also prioritize the use of renewable energy and work to reduce their overall energy consumption, as well as explore alternative methods for transportation and logistics to minimize the environmental impact of shipping

products across the globe. Furthermore, companies must engage with their stakeholders and collaborate with industry partners to drive change and make a meaningful impact on the environment.

This research aims to address the gap in understanding the sustainability practices in fast fashion supply chains. The fashion industry is a major player in the global economy, making it imperative to find practical and sustainable solutions to its negative impacts on the environment and society. The fast fashion industry is especially problematic in this regard. There is a lack of regulation and standards for sustainability reporting (Lai & Stacchezzini, 2021), which can make it difficult to accurately assess the sustainability practices of fast fashion businesses. Some companies engage in "greenwashing" and make false claims about the sustainability of their products (Santos et al., 2023), but there are others who are making sincere efforts to become more environmentally friendly. The study shows that companies take sustainability reporting seriously (Lai & Stacchezzini, 2021; Tarquinio & Xhindole, 2022). Brands like Reformation and Patagonia are setting a good example for others to follow, and the fashion industry as a whole needs to prioritize sustainability and increase awareness of eco-friendly products. To address the negative effects of the fashion industry, it is necessary to find realistic solutions that are specific to the challenges it faces. It is important to differentiate between different sub-sectors in the fashion industry in future studies on sustainability in fashion supply chains. Fast fashion and luxury brands, for instance, use different materials, production processes, and marketing strategies and therefore require customized approaches to make their supply chains more sustainable.

CONCLUSION

To achieve a more sustainable future for the fashion industry, companies must embrace circularity in their business models. This means moving away from the traditional linear model of "take, make, waste" and towards closed-loop systems where

resources are kept in use for as long as possible. This could involve integrating closed-loop supply chains, reducing waste through better materials management and end-of-life management, and encouraging the reuse and repurposing of clothing and textiles. Companies must also prioritize the use of renewable energy and work to reduce their overall energy consumption, as well as explore alternative methods for transportation and logistics to minimize the environmental impact of shipping products across the globe. Furthermore, companies must engage with their stakeholders and collaborate with industry partners to drive change and make a meaningful impact on the environment.

This research aims to address the gap in understanding the sustainability practices in fast fashion supply chains. The fashion industry is a major player in the global economy, making it imperative to find practical and sustainable solutions to its negative impacts on the environment and society. The fast fashion industry is especially problematic in this regard. There is a lack of regulation and standards for sustainability reporting (Lai & Stacchezzini, 2021), which can

make it difficult to accurately assess the sustainability practices of fast fashion businesses. Some companies engage in "greenwashing" and make false claims about the sustainability of their products (Santos et al., 2023), but there are others who are making sincere efforts to become more environmentally friendly. The study shows that companies take sustainability reporting seriously (Lai & Stacchezzini, 2021; Tarquinio & Xhindole, 2022). Brands like Reformation and Patagonia are setting a good example for others to follow, and the fashion industry as a whole needs to prioritize sustainability and increase awareness of eco-friendly products. To address the negative effects of the fashion industry, it is necessary to find realistic solutions that are specific to the challenges it faces. It is important to differentiate between different sub-sectors in the fashion industry in future studies on sustainability in fashion supply chains. Fast fashion and luxury brands, for instance, use different materials, production processes, and marketing strategies and therefore require customized approaches to make their supply chains more sustainable. ■

REFERENCES

- Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42–56. <https://doi.org/10.1016/J.JCLEPRO.2013.11.039>
- Choi, T. M., & Li, Y. (2015). Sustainability in Fashion Business Operations. *Sustainability 2015*, Vol. 7, Pages 15400-15406, 7(11), 15400–15406. <https://doi.org/10.3390/SU71115400>
- Easey, M. (2009). *Fashion Marketing* (Third). Wiley-Blackwell.
- Fast fashion market value forecast worldwide 2021-2026 | Statista*. (n.d.). Retrieved July 24, 2022, from <https://www.statista.com/statistics/1008241/fast-fashion-market-value-forecast-worldwide/>
- Global Fashion Agenda Team & Boston Consulting Group. (2019). *2019 Update: Pulse of the Fashion Industry*.
- Granskog, A., Lee, L., Magnus, K.-H., & Sawers, C. (2020). *Survey: Consumer sentiment on sustainability in fashion*.
- Hur, E., & Cassidy, T. (2019). Perceptions and attitudes towards sustainable fashion design: challenges and opportunities for implementing sustainability in fashion. *International Journal of Fashion Design, Technology and Education*, 12(2), 208–217. <https://doi.org/10.1080/17543266.2019.1572789>
- Lai, A., & Stacchezzini, R. (2021). Organisational and professional challenges amid the evolution of sustainability reporting: a theoretical framework and an agenda for future research. *Meditari Accountancy Research*, 29(3), 405–429. <https://doi.org/10.1108/MEDAR-02-2021-1199/FULL/HTML>
- McNeill, L. S., & Snowdon, J. (2019). Slow Fashion – Balancing the Conscious Retail Model within the Fashion Marketplace: *Australasian Marketing Journal*, 27(4), 215–223. <https://doi.org/10.1016/J.AUSMJ.2019.07.005>
- Moretto, A., Macchion, L., Lion, A., Caniato, F., Danese, P., & Vinelli, A. (2018). Designing a roadmap towards a sustainable supply chain: A focus on the fashion industry. *Journal of Cleaner Production*, 193, 169–184. <https://doi.org/10.1016/j.jclepro.2018.04.273>
- Peters, G. M., Sandin, G., & Spak, B. (2019). Environmental Prospects for Mixed Textile Recycling in Sweden. *ACS Sustainable Chemistry and Engineering*, 7(13), 11682–11690. https://doi.org/10.1021/ACSSUSCHEMENG.9B01742/ASSET/IMAGES/LARGE/SC-2019-017424_0011.JPEG
- Pierre, J. (2021). Polluted Profit: Understanding the Managerial and Ethical Considerations of Sustainability in the Fashion Industry. *Joseph Wharton Scholars*.
- Remy, N., Speelman, E., & Swartz, S. (2016, October 20). *Style that's sustainable: A new fast-fashion formula | McKinsey*. McKinsey Sustainability. <https://www.mckinsey.com/business-functions/sustainability/our-insights/style-thats-sustainable-a-new-fast-fashion-formula>
- Santos, C., Coelho, A., & Marques, A. (2023). A systematic literature review on greenwashing and its relationship to stakeholders: state of art and future research agenda. *Management Review Quarterly*, 1–25. <https://doi.org/10.1007/S11301-023-00337-5/TABLES/7>
- Seuring, S., & Müller, M. (2008). From a literature review to a conceptual framework for sustainable supply chain management. *Journal of Cleaner Production*, 16(15), 1699–1710. <https://doi.org/10.1016/j.jclepro.2008.04.020>
- Sustainability Report 2019: year in Review. (2019). *Sustainability Report 2019: year in Review*. Thereformation.Com. [https://media.thereformation.com/image/upload/v1641499376/pdfs/2019:Year in review %7C Reformation.pdf](https://media.thereformation.com/image/upload/v1641499376/pdfs/2019:Year%20in%20review%7CReformation.pdf)
- Tarquinio, L., & Xhindole, C. (2022). The institutionalisation of sustainability reporting in management practice: evidence through action research. *Sustainability Accounting, Management and Policy Journal*, 13(2), 362–386. <https://doi.org/10.1108/SAMPJ-07-2020-0249/FULL/PDF>
- Turker, D., & Altuntas, C. (2014). Sustainable supply chain management in the fast fashion industry: An analysis of corporate reports. *European Management Journal*, 32(5), 837–849. <https://doi.org/10.1016/j.emj.2014.02.001>
- Winter, S., & Lasch, R. (2016). Environmental and social criteria in supplier evaluation – Lessons from the fashion and apparel industry. *Journal of Cleaner Production*, 139, 175–190. <https://doi.org/10.1016/J.JCLEPRO.2016.07.201>
- Wren, B. (2022). Sustainable supply chain management in the fast fashion Industry: A comparative study of current efforts and best practices to address the climate crisis. *Cleaner Logistics and Supply Chain*, 4, 100032. <https://doi.org/10.1016/J.CLSCN.2022.100032>
- Zhu, Q., Sarkis, J., & Geng, Y. (2005). Green supply chain management in China: Pressures, practices and performance. *International Journal of Operations and Production Management*, 25(5), 449–468. <https://doi.org/10.1108/01443570510593148/FULL/XML>