Traceability through Certification towards Building Fashion for Good

Shiva Shankar Iyer
Student
work.shivashankar@gmail.com

Lakshmi Shankar Iyer
Associate Professor
lakshmi.iyer@christuniversity.in
School of Business and Management
CHRIST (Deemed to be University)
Bangalore

Abstract

Traceability in the fashion industry is the capability to trace the source of raw material, manufacturing process, distribution process up to the retailer's doorstep. The term 'Green Washing' emerged when fashion houses were unable to support traceable information about their product while batting for sustainable practices, there is a clear lack of data on the full life cycle from fibre to end of life and back to fibre, considering the length of a product's lifecycle before it is reused or recycled. Promotion of a sustainable circular economy for fashion is possible by leveraging data through complete disclosures and transparency.

This paper focuses on the role of certification agencies and authorities who provide the stamp of authenticity through sustainable certification, and storing the information such that the same is accessible to the consumer to allow them to make an informed purchase decision through 'cause-driven consumerism'. The study proposes a technological framework to capture the activities on traceable items which is present in a decentralised manner across the entire value chain.

Keywords: *traceability, sustainability, circular economy, fashion, certification*

Introduction

The fashion industry is plagued with reports of counterfeit products and allegations of human rights violations, along with disregard for environment friendly manufacturing regulations. The United Nations Economic Commission for Europe has invited all the major stakeholders in the apparel value chain: garment, footwear manufacturers, retailers and Governments to undertake the 'Sustainability Pledge' to improve and implement measures which accelerate the ethical considerations of the push towards a circular economy. Major fashion houses are opening up to using technology to trace the fibres used for manufacture, from origin; all the way to the customer's closet. Information about the fibre is stored in a blockchain database to track the apparel's co-ordinates in real-time as well providing information on whether the said fabric is recyclable. Consumer activism in the fashion vertical is increasing day by day, with the advent of the information age and the ability of the consumer to see through brands proposed 'green-washing' initiatives, camouflaged as environment friendly measures. Due to the increased interest among various stakeholders in understanding the value chain mapping in fashion, the role of certification agencies has become paramount. The agencies ensure product traceability to reduce compliance risk in the textile value chain and automate the chain of custody from fibre to fabric.

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Literature Review

As per the paper titled 'The Implementation of Traceability in Fashion Networks', the term traceability refers to a combination of processes such as purchasing, production and distribution, where the clothing in the respective value chain is identified on the basis of its origin and the path undertaken from the manufacturer to the retailer (Macchion, Furlan, & Vinelli, 2017). The authors unanimously state that ensuring transparency in the fashion supply chain is a must, especially in the luxury segment; due to risks of counterfeit products entering the marketplace in a high-priced and premium vertical. A solution proposed by the authors was to ensure the presence of a Radio Frequency Identification Tag on every finished product. Sustainability, traceability, and transparency can be ensured by involving major stakeholders in the fashion circular chain, such as media houses, industry governing bodies and government agencies to promote positive pressure on fashion houses and accelerate the development of trackable supply chain networks (Garcia-Torres, Garcia, Saenz, & Seuring, 2022). The Danish Fashion Institute has accepted and supported the principles of the UN Global Compact, with a clear intent to ensure these principles to all stakeholders and shareholders. The principles involved are with respect to labour, human-rights, environment, and anti-corruption to align the organisation with Environmental, Social and Governance Goals (ESG) (Eva Kruse, 2011). On the other hand, the authors of the paper 'Sustainability and the Fashion Industry: Conceptualizing Nature and Traceability' argue that the onus of promoting sustainable practices and awareness in the fashion world is on the consumer, while ensuring that the dual objectives of customer gratification during a purchase decision as well as creation of a social impact in the buying cycle of the public (Joy & Pena, 2017). According to a McKinsey Study conducted among consumers during the Covid-19 pandemic; there is a higher priority among consumers towards ESG goals of fashion houses and its respective environmental and social responsibilities. More ever, 65% of the respondents indicated that they are planning to purchase more durable fashion items and 65% of the respondents have supported fashion brands which delayed the launch of new collections during the devastating Covid-19 crisis (Granskog, 2020). Organisations face the risk of data breaches and data manipulation in an unknown and insecure environment, which may lead to them losing the competitive advantage. This is due to a compromise on customer data and the apparel's co-ordinates and product information from the place of supply to retailer. A blockchain based network is recommended at the operation level to build trust among the network stakeholders from manufacturer to retailer, and promote traceability in multi-tier clothing and textile supply chain (Agrawal, Kumar, Pal, Wang, & Chen, 2021). In a case study of H&M's green operations, the author Gul Kaner examines how fashion houses use the term greenwashing to mislead consumers on the environmental practices followed by an organisation to create a product. The literature introduces the Fashion Revolutions Transparency Index, a metric used to review the level of public disclosures by fashion brands on human rights and environmental practices (Kaner, 2021).

Major brands are disclosing information about their Tier-1 manufacturers, where activities such as cutting, sewing and shipping of products are conducted. With regards to sustainable products in the fashion industry, purchase decisions by consumers can be affected by sustainable certification, wherein a trusted third party verifies objective evidence to provide a stamp of authority for the said product (Lee, Bae, & Kim, 2020). The paper examines whether the consumer's attitude towards a product can change based on the reputation of the certification agency. Consumers do not have the full picture about a fashion product; hence an authorized and centralized agency provides an authentic signature of sustainable practices followed while manufacturing the final product. Vietnam being one of the leading apparel manufacturing countries in the South-East Asia region, has attempted to pursue sustainability in fashion by using renewable energy resources during the manufacturing process. Retailers in Vietnam are encouraged to identify best practices in the field of sustainable sourcing of raw materials, while ensuring

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the highest standard of quality in their supply chain networks (Nayak, Akbari, & Far, 2019). The fashion industry is considered to be the second most destructive industry to the environment, only next to the oil and gas industry (Moorhouse & Moorhouse, 2017). The paper reviews different practices and approaches taken up by major multinational companies to promote the usage of a circular economy model among its products. The authors of the paper 'Circular economy at the micro level: A dynamic view of incumbents' struggles and challenges in the textile industry' argue that fashion companies following a linear economic system of profit making, increase their exposure to raw material price volatility and supply chain restrictions (Franco, 2017). In this regard, supplier-buyer innovations through collaborative efforts in the areas of supply chain architecture and quality of circular products to be sold are the need of the hour.

The current paper explores the various certifications available for the fashion industry while tracking the process flow from raw material to the finished product. This is due to the fact that traceability as a concept is relevant and significant in fashion industry as some of the processes might affect the environment in an adverse manner.

Research Methodology

The process of tracing the origins, movement and evolution of products and materials is known as traceability. This concept ensures visibility across suppliers for better monitoring and uncovering social and environmental issues. In the fashion industry, it is difficult to achieve this goal as thousands of products and suppliers along the value chain are spread across the globe. With a revenue of about US$2 trillion, fashion industry naturally becomes a good candidate for consumers to be conscious about the source and nature of the materials and processes involved in the final product as it reaches the consumer.

The process of traceability is conducted in a digital fashion as the manual processes are cumbersome. Some of the certifications could be in the form of pdfs, paper form or in digital form. It is meaningful and pragmatic if these certifications are standardized so that the consumers can retrieve them as per their requirement in the entire process. The paper collates the three levels of traceability across 10 fashion brands. These brands claim that they issue certifications throughout the production journey.

The analysis is conducted based on the various levels of certifications issued to these brands at the raw material, manufacturer, retailer and customer aspects. The analysis will help us understand the scope for improvement across the various brands. This will be an indicator to other brands who have not adopted certification as part of their value chain as the end goal is 'cause-driven consumerism'.

Results and Discussions

Traceability

The concept of traceability in the context of fashion industry is a step-by-step approach towards sustainable transformation. Every step goes a little deeper into the supply chain right from the raw materials, logistics, finished products, packaging and finally arriving at the end consumer. Traditionally, the process of traceability is conducted through manual process. An agency or authority assigned for this purpose tracks the entire process and collates data in a manual format through Excel or spreadsheets. Here the challenge is that the supplier could be from Tier I or Tier II segment. As the businesses grow and become scalable, there are challenges in manual collection of data from multiple stakeholders. There is a need to move towards digital mode of data collection as the process can be automated. Data generation, storage and retrieval could be simpler and transparent. A digital traceability system could also ensure tracking of expiry data of the certifications as alerts can be set as per the need. Having overcome the issue of time consumption, the digital traceability ensures granular level data collection as per the requirement. The process also ensures real time collaboration leading to transparency and better visibility.

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Certifications

As per the US Federal Trade Commission (FTC) in a garment label, four pieces of information must be included. These include a registered number, fibre content percentages, care instructions and country of origin. As these parameters are vague without involving the entire production cycle, labels serve the purpose of traceability only to a certain extent. Brands have moved to 'Designed in' instead of 'Made in' labels to show that they are developing portions of products in countries with better track records on human and labour rights. This can also be misleading as the design team can only be a few sets of people while the entire production could encompass hundreds of workers. There is a need to move towards certifications by authorized agencies.

Certifications are a way to authenticate the quality, transactions and invoices in the traceability process. Once these certificates are in the central repository, every stakeholder in the process can view them in a transparent manner. Certifications have become a guide and motivation in the purchasing decisions of consumers. Certifying body could be an independent authority who can issue certificates for material specific or social cause specific processes while acting as a third party.

Some of the popular certifying agencies are Bluesign, Ecocert, Canopy, Textile Exchange and Leather Working Group. A data driven approach is needed to identify stepwise problems due to which one must rely on a stable tech platform to trace the data flow. Fashion industry is filled with such platforms like TextileGenesis, Sourcemap and Supplyshift. If this data is stored in a centralized fashion, the access would be restricted to a privileged set of people. Now with the fashion products being moved across various distributors, retailers across supply chains a distributed way of storing the data related to certification is quite valid. Unlike a traditional supply chain, where data is centrally stored, a decentralized way of storage establishes ownership of data to that specific step.

Circular fashion and decentralized data storage

With zero-waste design on the rise, circular fashion is a big challenge in the fashion industry. In order to achieve success in circularity, decentralization of data storage is pertinent. Because it accounts for the fact that more than the product owner the product and its data has longer life time. If the data is stored in a decentralized fashion, this will support the recyclability and the resale markets. Even if the product is sold in various markets, data authentication is still possible as the data is not stored in a central repository. Blockchain being one of the popular technologies which supports decentralized storage, is appropriate to trace a series of activities which takes place before the finished fashion is out in the market. Due to the democratization of the data using decentralization, traceability becomes a smooth activity. With the help of certification this is seamlessly achieved in the best manner.

Figure 1. Fashion Apparel

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Finished product of a specific brand owns the data about how the apparel was made, the source of raw materials and the way the transportation took place etc. However, once the product moves to the shelf for customers to purchase, the ownership of the data gets transferred to the retailer. This could be with respect to the batch size and the origin of the product.

Figure 2: Fashion Apparel with the retailer

In order to achieve a circular fashion, the product needs to find its way to the recycling facility. As the data is not available with the brand, it becomes a challenge. However, with the decentralized data storage and the associated certifications, the entire fashion eco system can

Figure 3: Fashion recycling

be traced for its social and environmental impact. The data which is available throughout the system would be evidence based and authentic. Due to the availability of data, businesses can respond faster to changes in demand, and minimize the impact of internal and external shocks. Scenario planning, predictions, resource management are better achieved with digital traceability of data which is available in a decentralized way.

Certifications at various levels in fashion industry

The journey of traceability would be unique for each fashion business. Benchmarking of traceability is adopted from The TrusTrace Levels of Traceability which recommends three levels by going deeper into the supply chain of products.

Level 1: Raw Material

Fashion houses are tracking the origin of the raw material, fibres used and reviewing the established farming methods to grow the required crops. High water consumption, especially in the case of cotton farming, can be devastating towards the environment. Consumption and usage in the apparel markets are dominated by two commodities: cotton and polyester. Polyester is known to be one of the most energy consuming fibres, leading to innovations in textile engineering; with the introduction of recyclable

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polyester and organic cotton – which consume relatively less water and energy in the manufacturing process.

Level 2: Manufacturer

The manufacturer is responsible for labelling the product accurately, along with the co-ordinates and required information to be disclosed about the product. Yet, there have been incidents of misleading labelling. For instance, 90% of the cotton marked as Egyptian cotton has not been produced in Egypt, while a major percentage of the trade in cotton crop happens in regions where there is blatant exploitation of human capital and disregard for human rights. Tracking the manufacturer using a circular ecosystem can benefit all related stakeholders in the value chain, starting from the fashion brand.

Level 3: Retailer

Companies can follow products and items as they move up the value chain thanks to traceability, which also enables them to collect precise data on the origin of inputs, supplier sourcing methods, and conversion procedures. Companies can create forecasts, test scenarios, and dynamically optimise processes using this data. Leadership teams can provide better customer service, spot wasteful resource use, react quicker to changes in demand, and efficiently complete orders. Additionally, they can innovate more quickly, lessen the effects of internal and external disruptions, and certify sustainable processes and goods. Retailers are tracked on the basis of their inventory status in real-time, optimising their warehouses based on seasonal collections and new launches by fashion houses. This ensures that Economic Order Quantity (EOQ) is maintained at all times to reduce the wastage of time and space in the value chain.

Level 4: Customer

Consumer activism in the fashion space has gained momentum, with customers demanding that fashion houses create products which are environmentally friendly. Customers expect transparency throughout the fashion value chain in order to understand the origin of a certain product, keeping in mind ESG goals and influencing corresponding peer groups to do the same. Companies are changing their 'only-for-profit' capitalistic approach to a more holistic and broader path towards ensuring profit which is earned responsibly.

Considering the four levels of certifications which are available in the fashion industry currently, ten fashion brands are taken into account for grouping them into the level of certifications currently offered. As it is observed from Table 1, the brands need to work on the levels in order to give the best products to the customers which are traceable with transparent processes. And in turn, businesses can charge a premium pricing to the customers due to the aspect of certification (Karamally, 2020).

Index:

Level 1: Raw Material

Level 2: Manufacturer

Level 3: Retailer

Level 4: Customer

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Table 1: Level of Traceability across brands

S No	Company Name	Level of traceability of apparel up to
1	Retraced	Level 2
2	Adidas	Level 3
3	I:CO	Level 3
4	Gucci	Level 4
5	Nike	Level 3
6	Tommy Hilfiger	Level 3
7	Calvin Klein	Level 3
8	Filipa K	Level 2
9	Diesel	Level 3
10	Decathlon	Level 4

It is observed that out of ten brands only two of them have reached up to Level 4 that is the customer level certification. Most of them are in Level 3 and two of them in Level 2. We can understand that though brands have become conscious about certifications to improve traceability, they have a long way to go to achieve this in total.

Business and Societal Implications

Fashion industry operates with multiple sustainability standards offered by voluntary organizations. These standards are set by the agencies across farms, factories and logistic supply chains. Due to the lack of regulatory authority in managing the certifying agencies, it is possible that the agencies could support the fashion brands rather than the workers who are part of the industry. Based on the rating provided by the agencies, the brands need to work on improving their processes as each certification must have a value created by itself.

Traceability and transparency go hand-in-hand. Some of the possibilities to bring more transparency are to automate the 'Bill of Materials' process. This process automation leads to consistency and better quality. It is not a good idea to conduct this with MS-Excel sheets. A decentralized system with the data available across the process stream makes an efficient output. Mapping the supply chain with the data availability will help one achieve this objective in a seamless fashion.

It is high time the fashion industry comes together and create a single eco system based on the various levels of impact. The data interaction and availability seamlessly across brands will bring more transparency and authenticity in the final product. Considering the fact that an ideal fashion ecosystem could be that a single raw material could be used by multiple brands, the future would be the unification of the certification process in the entire chain bringing the right value of 'cause-driven consumerism'.

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