

Fashion Passports & the Advantages in a Circular Economy

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Abstract

To take the fashion industry by a metaphorical green storm, the materials passport, which was theorised, planned and executed to make the construction field more circular in nature, is also being adopted into other product industries, including textiles and apparel. Revolutionising the industry, a fashion passport is a ground-breaking move to improve circularity by shifting perspectives from creating and sustaining linear business models to circular business models. This paper discusses how a fashion passport works, which segments of the industries are already using it, and the long-term broader benefits of incorporating fashion passports into the fashion supply chain.

Keywords: Circular Fashion, Fashion Passport, Material Passport, NFT Technology, Reverse Logistics

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1. Introduction to Circular Economy

In 1992, when the United Nations started working on the Sustainable Development Goals, the world's collective mindset and vision for the future shifted to a more harmonious one. This included the universal agreement that the current operations of industries worldwide had to be more inclusive, humane, environment-friendly and sustainable so that our current civilisation could prosper long-term. This is more or less how Circular Economy works, but to understand that model, it is vital for this review paper that we first define a few key terms.

1.1. What is an economy?

Cambridge dictionary [1] defines an economy as “the system of trade and industry by which the wealth of a country is made and used.” Merriam-Webster's dictionary [2] would include the concept of economy as a “system... where money replaced (the) barter” system as the means of “exchanging goods.” Furthermore, according to The Balance website, this exchange can occur locally, nationally or globally between parties categorised as buyers and sellers of any goods or services. The economy is deemed robust when most people are not concerned about money [3]. Collins Dictionary [4] would further define that in an economy where “money, time and other resources” are used optimally without any “wastage.”

However, among the types of economic models, industries functions the following the linear economy model have much wastage, and resultantly, the environment is the one that suffers the most.

1.2 What is Linear Economy?

According to the book chapter, Operationalization of Circular Economy: A Conceptual Model in the book Handbook of Research on Entrepreneurship Development and Opportunities in Circular Economy, the linear economy typically follows an unsustainable step-by-step "take (raw materials)-make (product)-use(consume)-dispose (of non-recyclable waste)" pattern. This means that raw materials are gathered and then turned into goods consumed before being dumped as garbage. This economic system produces value by manufacturing and selling as many items as possible. It is a classical economic model that includes the extraction of raw materials, their transformation, production and consumption of commodities and services while discarding waste and also ignoring the principles of reuse and/or recycling [5]. To summarise, as the Kenniskaarten - het Groene Brein website does, the linear economy is the product of corporate practices that presume a continual supply of natural

resources, leading to the take-make-dispose attitude with multiple negative environmental and economic ramifications [6].

1.3. What Is Circular Economy And How Is It Different From A Linear Economy?

According to the website of the world-renowned circular economy movement charity, Ellen MacArthur Foundation, the notion of the circular economy cannot be attributed to a specific period or source. The practical applicability to current economic systems and industrial operations has gained traction since the later part of the 1970s, thanks to the efforts of numerous scholars, public intellectuals, and corporations [7]. The website further details that a circular economy is a holistic way to economic progress that benefits enterprises, humanity, and the ecosystem simultaneously. It is designed to be restorative, eventually decoupling development from using limited resources [8].

Being recuperative and renewable, it works on three principles. First, it omits any adverse effects of economic operations, such as greenhouse gases and hazardous substances emissions. Secondly, it promotes activities that allow circulation and longevity of durable resources like energy, labour, and materials. Finally, it not only safeguards but assertively enhances the ecosystem by replenishing nutrients in the soil [8]. Therefore, all materials retain as much of their original value as possible, as shown briefly in Figure 1. [9].

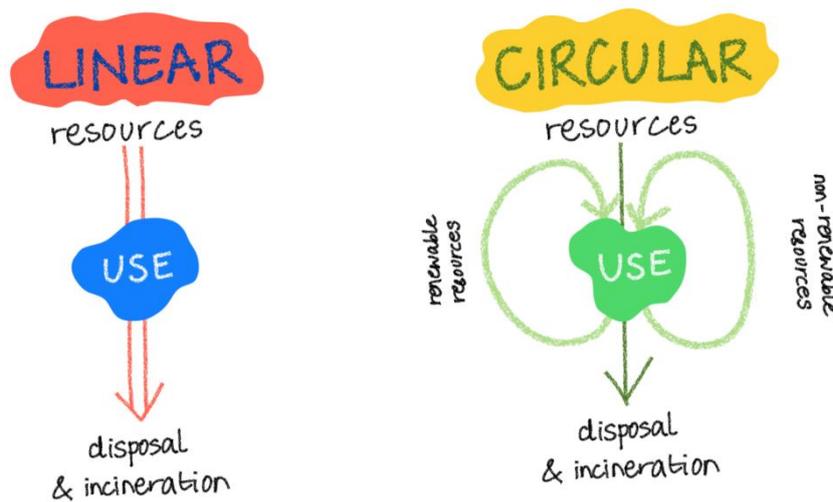


Figure 1: A brief comparison between Linear and Circular Economy

The fundamental differences are in between the linear economy model and the circular economy model [10] has been discussed in the table below in Table 1:

Points of Difference	Linear Economy	Circular Economy
Raw Material Usage	Products created from these materials are thrown away after their usage.	Products are fed back into a loop and have an extended life span
Value	Value is made by creation and sale of maximum number of products.	Value preservation occurs here by utilization of products with a high number of people (eg. shared cars)
Model	This model follows the take-make-dispose plan.	This model focusses on reduce-reuse-recycle.
Focus	The emphasis lies on eco-efficiency: reducing the environmental repercussions while producing an identical amount of output.	The emphasis is on eco-effectivity: a holistic improvement of ecological and socioeconomic systems.
System Boundaries	System boundaries are short-term from purchase to sales.	System boundaries are long-term involving multiple life cycles.
Reuse	Reuse is in the form of downcycling.	Upcycling and high-grade recycling occur.
Business Model	The business model focuses on products.	The business model focuses on services.

Table 1: Table differentiating Linear and Circular Economy

1.4. Materials Passport vs. Fashion Passport

According to the Construcía website, "material passport is the identity document of materials." It is the first step in the circular construction decision-making process in the construction industry, as with the help of a materials passport, one can find, measure, and locate materials and goods in the building area for proper reuse after their life cycle [11].

With the circular construction model, it encourages the continuous flow of components in the cycle.

It is assumed that the components that compose a structure will be reused endlessly, having served their role in the building. It records the required qualities and information about the materials used in the structure and assesses their influence on the four circular architectural values: health, cyclability, residual value, and efficiency. To understand this easier, buildings are viewed as quarries and raw materials are seen as micronutrients that can be reused in their next life cycle. So by knowing a product's material composition, we may assess the reusability potential and identify it as a natural or technological nutrient. Therefore, materials used become reusable assets [11].

Material passports also facilitate material traceability and the optimal method of extraction as it features a guidebook of component breakdown, detailing the cyclability routes accessible to enable raw material recovery. It also calculates the economic worth of each component based on the anticipated restoration pathways and evaluates the available alternatives. As a result, one can make judgments on the choice of materials and the degree of circularity of the structures [11].

The same concepts can be applied when creating a fashion passport that could trace the materials used in making the fashion product, which would set up the restoration pathways when the product would need to be recycled. Investing in fashion passports is crucial to anticipate the needs of the upcoming generations who are more environmentally conscious.

The State of Fashion 2022 report (p. 89) published by Business of Fashion and McKinsey & Company states that displaying advancement in sustainability is especially vital in garnering the trust of younger fashion customers, as 43 per cent of Gen-Zers actively seek out brands with a strong sustainability profile [12].

Fashion companies have recently invested in digital technologies that enable the addition of unique IDs and other metadata to merchandise, improving authenticity, accountability, sustainability, and anti-counterfeit safeguards. These are product passports, fashion passports or even digital product passports.

To get the most from digital 'product passports', businesses must coalesce around common standards and engage with large-scale pilot projects. Product passports link data (helpful to clients and stakeholders) to specific items by employing blockchain-based technology enabled by a radiofrequency identification (RFID), QR codes, and near-field communication (NFC). The website, Euromoney, describes blockchain as "a system of recording information in a way that makes it difficult or impossible to change, hack, or cheat the system" [13].

Product passports could include meticulous and lasting data on the product's components (compared to conventional stitched tags), point of origin, manufacturing processes, and labour practices at the factory (p. 89). Businesses ensure that the data they receive from vendors is correct. As a result, they are raising the bar for fashion supply chain transparency and traceability. Product passports also aid in circular activities such as resale and garment-to-garment recycling. They promote more specific collecting and classifying of clothing for bulk recycling by giving specific information on components (p. 90) [12].

Consumers frequently discard tags detailing the legally necessary fibre content from clothing, according to AAFA president and CEO Steve Lamar's 2020 statement advocating digitised labelling. With product passports, data would not be disconnected from the goods, and users would have continual access to the information throughout the lifespan of the apparel without sacrificing the garment's comfort (p. 90) [12].

In 2022, many fashion businesses plan to accelerate the creation of product passports for different B2B, B2C, and C2C use cases. Although the cost of various product passport technologies has historically been a barrier to scalability, prices are decreasing, as the value of an RFID tag has dropped by 80% in the last decade (p. 91) [12].

DATA COLLECTION IN THE FASHION PATHWAY

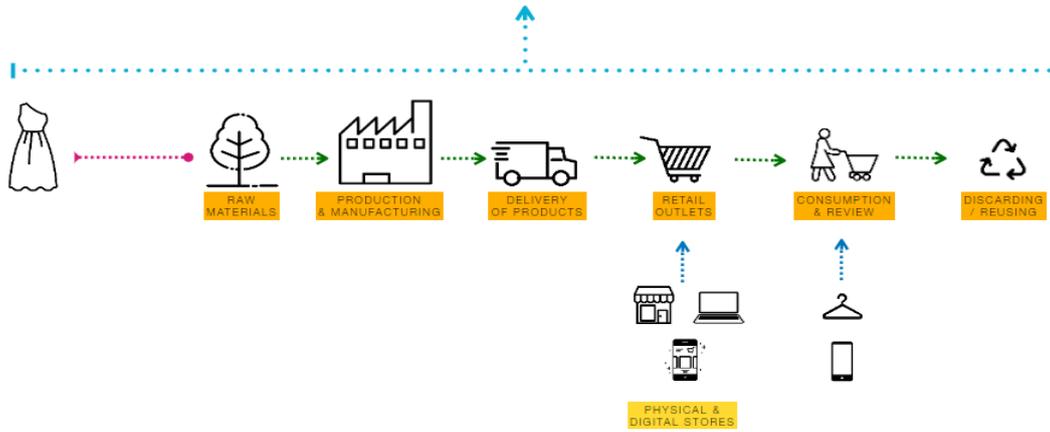


Figure 2: Data Collection in the fashion pathway to construct the digital ID

2. Benefits of Creating Fashion Passports

Construcia, the “pioneers in circular construction,” listed a few benefits of having a materials passport in the construction field on their website. Applying the same principles, the benefits of having a fashion passport are very similar [11].

1. A fashion product is “converted” into an ingredient of materials’ list “that can be re-used indefinitely, with the maximum quality possible.”
2. Waste is prevented.
3. The extraction of raw materials is reduced.
4. Problems associated with the toxicity of materials and changes in future regulations are prevented.
5. It maintains the value of materials, products and components over time.
6. It incentivises the supply chain to produce sustainable and circular construction materials and products.
7. It facilitates developers and directors in selecting sustainable and circular fashion materials.
8. It promotes inverse logistics and the recovery of products, materials and components.

3. The Path to Building Fashion Passports - CASE STUDIES

3.1. Application of Technologies

According to The Council of Logistics Management, reverse logistics “is the process of implementing, controlling and planning the cost-effective flow of finished goods, raw materials, and in-process inventory. The flow is from the point of consumption (i.e. the customer) to the point of origin (i.e. the manufacturer), to properly dispose of these or to recapture value” as stated on the C3Controls website. Therefore, it is the area of supply chains that manages materials coming back into the system or moving “backward” through the system. This can include a variety of things, including product returns, the reprocessing or appropriate disposal of packaging materials used internally, and components from prior retail items [14].

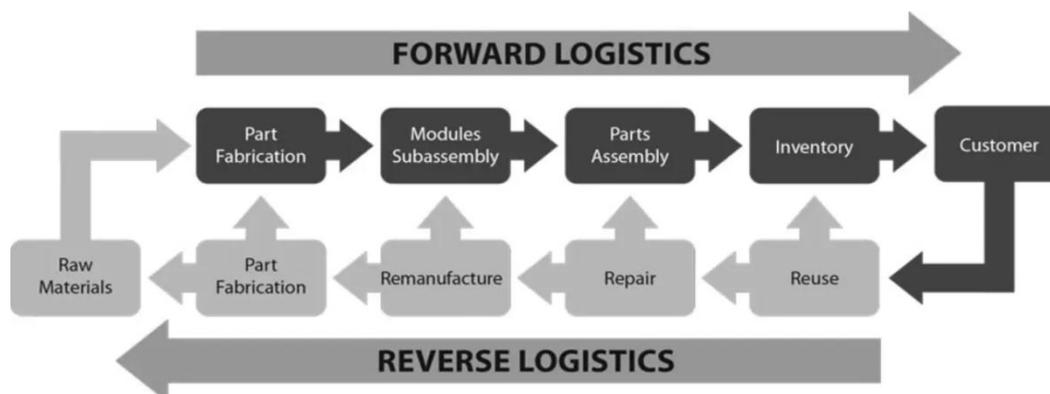


Figure 3: Cycle of Reverse Logistics

Source: C3Controls Website

Reverse logistics are needed for procedures like returns or recycling after a customer receives a product. Therefore, reverse logistics begins at the final customer and proceeds to the supplier or producer through the supply chain. They can also be the customer's responsibility for end-use processes like recycling, refurbishing or resale [15].

Product passport initiatives are growing in both private and open-source communities. The Aura Blockchain Consortium, a shared private network created in Spring 2021 by corporations like LVMH and Prada, uses specific codes to give validated commodity data, including possession history, item legitimacy information, and component origins. The user gets an encoded document that includes details about the manufacturing method. Meanwhile, in the open-source area, IBM and luxury and fashion non-fungible token (NFT) platform Arianee are collaborating to test digital product passports for companies like Swiss watchmakers Breitling and Vacheron Constantin (p. 91) [12].

Many businesses employ these product innovations to increase brand engagement, commitment, and repurchasing, enabling authenticity and transparency. Prada is deploying NFC technology to provide clients with personalised insights and shopping recommendations when they scan NFC tags incorporated in items with their smartphones. Meanwhile, Paco Rabanne has released its first NFC-enabled perfume, allowing clients to view online media such as interactive games and informational characteristics by linking their devices to an NFC chip, and Breitling is using digital passports to disclose promotional offers to clients and prove integrity (p. 91) [12].

EON Group is narrowing the gap in the fashion sector to bring the circular economy to scale by integrating one crucial element: connection. EON group has developed a connection between product information and the entire supply network by utilising Digital Identity and the Internet of Things (IoT), making product information available in the cloud [16].

EON defines Digital Identity as "a digital twin or a virtual replica of a physical product - allowing information of the product digitally to be stored and accessed over the internet. A physical identifier is a key component that saves product information and connects it to the cloud." Circular ID is a digital technology that generates a digital profile (Digital Twin) that enables people to access the ingredients of objects [16].

EON's innovation has three aspects:

1. Digital Birth Certificate that saves a product's fundamental qualities to make them available to all players in the value stream. It contains information like materials used to make a product, size, colour, etc. It includes the product's digital profile and information offered by manufacturers.
2. Digital Passport lets them track all physical contacts the commodity has had with value chain partners. It can tell you where the merchandise came from: reseller, retailer store, nation, working conditions of the workers, and so on.
3. Physical Identifier, which is attached to the physical asset to support the data (e.g. microchip, QR code). EON's physical identifier is the first RFID (Radio Frequency Identifier) tag that is embeddable in clothing that is washable and hydrophobic.

EON Group uses Azure software by Microsoft to store all the data and brands on cloud [16].

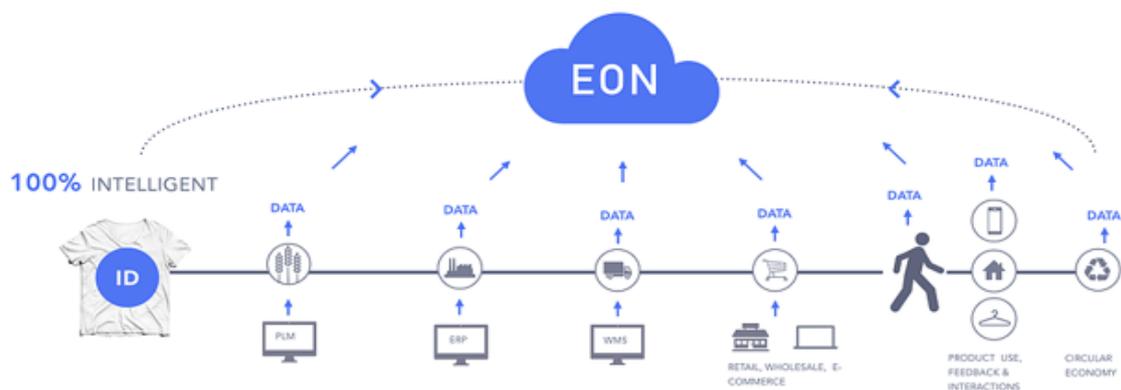


Figure 4: Data Collection in the fashion pathway to construct the digital ID by EON Group

EON's business model aims to create a lot of benefits in the following ways: [16]

1. **Society** (through making a beneficial contribution to community development, NGOs and governments dealing with concerns such as inequality, dangerous working conditions, and social equity may also benefit from digital data)
2. **Environment** (by lowering raw material and natural resource use and enabling economic reintegration for many lifespans as it addresses numerous environmental problems such as climate change, water, and power consumption)
3. **Economy** (by providing key corporate advantages, such as logistics and distribution savings, inventory management, and so on),
4. **Supply chain** (by incorporating RFID into items to correlate information and monitor multiple stages such as supply chain inventory, retail innovation, and product authentication),
5. **Luxury retailers** (through better connecting with consumers, giving transparency on product quality, creating more customised experiences with clients, and offering product authenticity),
6. **Resellers** (since they have access to digital records of the products and understand the exact constituents, they make procedures easier, quicker, and affordable. This facilitates product recycling at the end of its lifespan. Clients can learn more about the item thanks to enhanced openness, location and identity of the manufacturer and facility. Fashion brands are being held more accountable. A digital ID makes it easy to record the economic worth of a product and provide proof of the commodity it purchased throughout its transference or resale. It is advantageous to get a certificate of worth and the actual cost of the goods before reselling.)

Companies like Pangaia and Yoox Net-a-Porter are already using EON's Connected Product Platform to generate "digital twins" for their items (p. 89) [12].

Reformation is collaborating with blockchain technology FibreTrace to provide clients with QR-code availability to data about the lifespans of their denim clothes. TS Designs certifies clothing created in the United States using QR-enabled passports (p. 89) [12].

One component of EON's digital passport is the ability to advise a price for an article of clothing dependent on its history, which includes who wore and owned the goods, maintenance history and promotional suggestions. Undoubtedly, the digital authenticity provided by product passports will enhance confidence in second-hand luxury items and limited editions, supporting resale sites like Vestiaire Collective and The RealReal (p. 90) [12].

Another use for product passports is in anti-counterfeiting efforts, contributing to more than 60% of the \$500 billion in the fashion and luxury goods industry annually (p. 90) [12].

3.2. Steps by Governments From Around the World

3.2.1. China & The USA

The China Certification and Inspection Group are one of the institutions using product passport technology to combat piracy. Consumers may scan a code and get a quick certification of a product's legitimacy thanks to its "one item, one code" mechanism (p. 91) [12].

In July 2021, China also released a five-year strategy to build its circular economy by boosting recycling, remanufacturing, and renewable resources. In the United States, the National Institute of Standards and Technology is making strides toward its goal of facilitating a circular economy for textiles (p. 74) [12].

3.2.2. The European Union.

The EU's Circular Economy Action Plan, set to be implemented in the third quarter of 2021, aims to ensure that circular economy concepts are implemented in garment production, goods, usage, and waste disposal (p. 73) [12].

Also, the EU's Waste Directive Framework mandates nations to segregate all textile waste by 2025, and some European countries have established extended producer responsibility systems, which hold retailers and brands accountable for post-consumer pollution and demand monetary assistance from manufacturers for product collection, recycling, and repurposing (p. 73) [12].

3.3. Application in Textiles

Closed-loop recycling is crucial leverage that the fashion industry can use to lessen its ecological footprint as it is viewed as a crucial possibility to minimise the invasive manufacturing of virgin raw materials while limiting textile waste. Closed-loop systems continually reuse resources and, in theory, keep them in perpetual flow. Currently, recycled materials account for less than 1/10th of the worldwide textile business (p. 73) [12].

Currently, less than 10 per cent of the global textile market is composed of recycled materials. For instance, PET (polyethylene terephthalate) bottle waste has been incorporated into the fashion industry. But this decision has been chastised for disrupting the well-established closed-loop process of recycling plastic bottles into other plastic bottles (p. 73) [12].

Cotton recycling through mechanical means, in which cotton is shredded into reusable filaments, has been around for a long time. The Circular Fashion Partnership's large-scale experiment in Bangladesh, led by the Global Fashion Agenda, seeks to attain and divert post-production trash back into the manufacture of new textiles and discover remedies for deadstock (p. 74) [12].

Mechanical cotton recycling has long proven particularly challenging to adopt for pre-worn clothes, owing to collecting and classification issues. In 2020, fewer than 1% of the cotton was reprocessed (p. 74) [12].

3.3.1. Ecoalf.

This Spanish outdoor and streetwear label turns ocean trash into raw material treasures. Through its Upcycling the Oceans project, launched in 2015, the brand works with professional fishermen to collect waste from the ocean floors, turning them into high-quality threads. Starting from just three fishermen to over 3,000, Ecoalf's efforts now retrieve 4,000 tonnes of waste annually. The brand has recycled over 200 million plastic bottles to produce the garments! The label repurposes waste such as fishing nets, old tires, and even coffee grounds into high-quality materials. It produces excellent clothes and undertakes research and education to push sustainable practices and innovations in recycling materials in the fashion industry [17].

3.3.2. Naz

Naz is a Portuguese fashion brand that aims to make fashion look good, not only on you but on the planet too. It uses a high proportion of eco-friendly materials, including recycled cotton, wool and polyester, as well as deadstock fabrics, and traces most of its supply chain [17].

3.3.3. Novetex Textiles

Hong Kong-based yarn spinner Novetex Textiles has developed The Billie System for reprocessing cotton blends in partnership with the Hong Kong Research Institute of Textiles and Apparel (HKRITA). The method uses zero water and generates no contaminants, and it can already handle up to three tonnes of fabric a day (p. 74) [12].

3.3.4. Renewcell and Eastman

Renewcell has collaborated with companies such as H&M and Levi's and has a deal with Beyond Retro's parent firm, Bank & Vogue, to provide post-consumer garbage to them (p. 74) [12]. They are constructing a new factory capable of recycling 60,000 tonnes of textiles annually by 2022. Meanwhile, Eastman, a US materials manufacturer, is looking at utilizing polyester in its new \$250 million recycling factory (p. 74) [12].

3.3.5. Lenzing X Sodra, Isko

The industry's technological problem is the large fraction of clothing created from fibre blends (cotton and polyester), which are difficult to separate. This field is attaining sophistication and size after years of R&D and experimental projects. In Europe, viscose maker Lenzing and the recycling business Sodra are collaborating to boost the yearly output of Sodra's blended fibre technology. By 2025, they want to have processed 25,000 tonnes of textile waste (p. 74) [12]. Isko, a Turkish denim business, has inked a licencing deal for HKRITA's "green machine" tech, which recycles cotton and polyester blends (p. 74) [12]. The technology is also being scaled with partners in Indonesia (p. 74) [12].

3.3.6. BlockTexx, Sysav and Valvan Baling Systems

BlockTexx from Australia is constructing a textile recycling factory for polyester-cotton blends, intending to recycle 10,000 tonnes per year by the end of 2022 (p. 74) [12]. In 2020, Sysav, waste treatment and recycling firm, will build the world's first industrial-scale, completely automated textile separating facility to sort 24,000

tonnes of textile waste per year (p. 75) [12]. The same year, Valvan Baling Systems from Belgium introduced Fibersort, automatic classifying equipment capable of separating around 900 kg of post-consumer textiles per hour (p. 75) [12].

According to experts, closed-loop recycling will not function effectively unless items are developed to promote better material segregation via design. Claire Bergkamp, COO of Textile Exchange, a charity dedicated to advancing the environmental standards of raw material manufacturing, believes that this entails including the purpose of recycling into design curricula and industry-wide organizational thinking. While many closed-loop technologies are expected to hit industrial scale by 2022, fashion leaders also need to confront the conundrum comprehensively, combining circular textile alternatives into a larger attempt to destroy hazardous materials, decarbonize the production process, and cut pollution if the industry is to drastically minimize its degree of environmental abuse (p. 75-76) [12].

3.4. Application in Apparel & Accessories

3.4.1. A.BCH

A.BCH is a Melbourne-based, Australian-made fashion label for individuals who care about garment provenance. It utilises renewable, organic, and recycled materials. Its whole ethos is led by circularity, driven by a mission “to transform the way people buy, wear, and discard clothing.” The brand focuses on eliminating material and energy waste through pre-user, user, and post-user phases whilst creating beautiful, design-led clothing for its customers to love and enjoy. And when the garments reach the end of their life, send them back to A.BCH for effective recycling [17].

3.4.2. OhSevenDays

OhSevenDays offers feminine, minimalist pieces for capsule wardrobes, including satin dresses, tailored suits, and chic blouses. Founded in the streets of Istanbul, this slow fashion label uses leftover fabric from fast fashion manufacturers to produce its pieces. It uses eco-friendly materials, including cotton, linen, viscose, and Tencel runoffs. By using a limited production run and recyclable materials, the label limits the number of chemicals, water, and waste used in production. OhSevenDays’ garments are available in sizes XS-XL [17].

3.4.3. Chanel

Chanel is introducing a digital passport to supplant conventional legitimacy credentials in its handbags, which will be accessed via a machine-readable metal plate in the merchandise. This would allow the company and customers to instantly identify authentic items and guarantee that after-sales support, such as maintenance, is only offered for legitimate handbags (p. 90) [12].

3.4.3. BEEN London

BEEN London creates minimal and elegant bags designed out of waste materials, including recycled leather and polyester. These bags are made in London out of sustainable materials to last you throughout the years and seasons. The leather industry creates a huge waste; approximately 40% of every hide is discarded at tanneries. The brand uses these off-cut leather pieces that would otherwise end up in landfills from the pre-chemical treatment stage and uses fabric made out of recycled bottles to line its bags. With the origins of its materials mapped out, BEEN London is making great strides in the circularity of fashion [17].

4. Conclusion

Although the inclusion of Fashion Passports could be expensive and still widely at a primitive stage, it’s beneficial to the second highest polluting industry in the world. The capacity of the industry to develop standardisation will most likely be a significant driver for the mass adoption of product passports. Some digital passports presently exclusively work on restricted platforms, whereas others are accessible and work with various apps. Operationally, product passports will benefit businesses that can spread their capabilities beyond usage the most (p. 91) [12]. Furthermore, the industry would have to act immediately at the brand level to have a positive environmental footprint. One problem for the sector is obtaining adequate scale in closed-loop operations. On the other hand, recent developments are beginning to mature, progressing from pilots to proofs of concept at the industrial level (p. 74) [12]. Regulatory boards will also have an important role to play. "Regulators should keep on putting that pressure on markets," as said by Patrik Lundstrom, chief executive of Swedish textile recycling company Renewcell. "Every country is needed to take responsibility and create that circularity" (p. 74) [12].

References

Online Dictionary / Definition Entries:

- [1] Economy. (2022). *Cambridge Dictionary*. Retrieved from <https://dictionary.cambridge.org/dictionary/english/economy>
- [2] Economy. (2022). *Merriam-Webster*. Retrieved from <https://www.merriam-webster.com/dictionary/economy>
- [3] DUPAIX, M. (2022). How To Explain the Economy to Your Kids. Retrieved 7 July 2022, from <https://www.thebalance.com/economy-definition-2085358>
- [4] Economy. (2022). *Collin's Dictionary*. Retrieved from <https://www.collinsdictionary.com/dictionary/english/economy>

Content References:

- [5] Dieguez, T., (2022). Operationalization of Circular Economy: A Conceptual Model. In: *Handbook of Research on Entrepreneurship Development and Opportunities in Circular Economy*, 1st ed. IGI Global, (p. 38-60)
- [6] *What are the disadvantages of the current linear economy?* Kenniskaarten - het Groene Brein. (2022). Retrieved 7 July 2022, from <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/ce-disadvantages-linear-economy/>
- [7] *Circular economy introduction*. Ellenmacarthurfoundation.org (2022). Retrieved 7 July 2022, from <https://www.ellenmacarthurfoundation.org/circular-economy/concept/schools-of-thought>
- [8] *The Circular Economy In Detail*. Ellenmacarthurfoundation.org. (2022). Retrieved 9 June 2022, from <https://www.ellenmacarthurfoundation.org/explore/the-circular-economy-in-detail>.
- [9] *Circular economy: a definition and most important aspects*. Kenniskaarten - het Groene Brein. (2022). Retrieved 9 June 2022, from <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/what-is-the-definition-a-circular-economy/>
- [10] *A circular economy differs from a linear economy, but how?*. Kenniskaarten - het Groene Brein. (2022). Retrieved 9 June 2022, from <https://kenniskaarten.hetgroenebrein.nl/en/knowledge-map-circular-economy/how-is-a-circular-economy-different-from-a-linear-economy/>
- [11] *Material Passport - Circular construction | Construcía*. (2022). Retrieved 7 July 2022, from <https://www.construcia.com/en/material-passport/>
- [12] Business of Fashion and McKinsey & Company. (2022). *The State of Fashion 2022*. Business of Fashion
- [13] *Blockchain Explained: What is blockchain? | Euromoney Learning*. Euromoney.com. (2022). Retrieved 9 June 2022, from <https://www.euromoney.com/learning/blockchain-explained/what-is-blockchain>.
- [14] *What is Reverse Logistics?*. (2022). Retrieved 7 July 2022, from <https://www.c3controls.com/white-paper/what-is-reverse-logistics/>
- [15] *A Guide to Reverse Logistics*. (2021). Retrieved 7 July 2022, from <https://www.netsuite.com/portal/resource/articles/inventory-management/reverse-logistics.shtml>
- [16] Franck, N. (2019). EON Group has Created Your Clothes' Passport. Retrieved 7 July 2022, from <https://aim2flourish.com/innovations/eon-group-has-created-your-clothes-passport>
- [17] Pereira, J. (2020). Top 17 Sustainable Fashion Brands Leading the Circular Economy. Retrieved 7 July 2022, from <https://goodonyou.eco/circular-fashion-brands/>