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Zara business proposal for sustainability Pop-up retail and new immersive platform

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To my parents, my girlfriend, and my friends for supporting my dream and my academic life, and helping me becoming the person who I am today.

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Abstract

The aim of this essay is to create a sustainable collection and a Pop-up for Zara, in order to reinforce the environmental and social commitment of the company. My recent internship in Glencare, one of Zara's plants in charge of the production planning, has given me the chance not only to understand the company's sustainability strategy, but also to detect opportunities of improving the mentioned strategy. Firstly, all Zara's strengths and weaknesses in terms of sustainability implementation and diffusion to the public, have been identified, in order to determine any aspects that have room for improvement. This part of the thesis has been conducted, by examining Inditex commitments, life and ecosystems policies, and product standards and their sustainability reports. Moreover, a survey was delivered, in order to recognize how the public sees Zara's sustainable initiatives. Once the characteristics that make Zara a strong or weak brand were determined, market research has been conducted regarding the innovative solutions provided by avant-garde technology in fabrics, processes and tailoring towards sustainability. In this way, hopefully the sustainability of the company's supply chain would be improved in order to speed up the achievement of becoming net zero.

All this information will serve as a starting point for a business proposal consisting of Pop Ups introducing a new collection of circular fashion for Zara, inspired by the essence of the Sustainability Innovation Hub (SIH), and the most Avant-Gard technologies and innovations in the sustainable textile creation field. The aim of this project is to communicate to and educate the customer regarding the initiatives and technology advances in the fashion industry towards sustainability, from the heart of Zara.

This collection will be developed by partnering with new innovative textile start-ups and by continuing partnership with SIH associates that have already collaborated with Zara. The items from this collection will be done using sustainable innovative techniques in terms of sourcing, manufacturing, process innovation, water reduction, recycling, and extension of the garment lifecycle.

Furthermore, these Pop Ups will include an educational side, implementing workshops and visual content, in order to provide information about clothing repair, amplification of the life cycle of garments and communication of the Join Life and Zara standards and proposals towards sustainability.

The communication strategy for this new Zara section will be based on the implementation of the Metaverse, which introduces the possibility for the customer of interacting with the company's products, by dressing up their own avatars with the owned pieces from the collection. Furthermore, while creating a seamless experience for the customer, the company will be enhancing the social and environmental knowledge of the users, by showcasing relevant information about the technology used for garment creation and the positive effects it has on the planet.

Zara has committed to be 100% carbon neutral in 2040, so this Pop-up collection would serve as a pilot experiment, in order to test the social, environmental, and commercial viability of the project. If it becomes successful, it can be implemented on a larger scale, to the whole supply chain by the aforementioned year.

Key words: Sustainable fashion, circular fashion, SDGs, eco-efficiency, net zero, textile recycling, upcycling, ZDHC, MRSL.

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1. Introduction

This essay has the aim of making a relevant contribution to Zara's sustainability strategy by complementing existing strategies and capitalising on all possible opportunities for improvement, in terms of product development, process innovation, communication reinforcement, customer experience, environmental and social divulgation, and brand image. Nowadays, the fashion industry, public institutions, and society are pushing towards a radical change in terms of social and environmental change. This means that most of the companies that do not consider this reality as a major concern are destined to fail in their long-term performance. For this reason, Zara has already considered sustainability as a main strategic objective since 2001, and it is one of the few companies that has committed to be net zero by 2040.

Additionally, I have been working in Zara as an intern, in the manufacturing planning area for the last 3 months. This experience not only has given me the relevant information, to identify the different business opportunities for the company, in terms of sustainability initiatives, but also, the motivation to make a relevant contribution for the company in return of the excellent treat and support for my educational experience.

After executing market research, we can develop the specific objectives. In this case we have considered that it's important to determine the product development direction, the marketing plan, the Pop-Up organization and schedule, and a monitoring strategy using Benchmarking and KPIs. Therefore, an online survey will be conducted to reach the customers' opinions, to determine which aspects from Zara's sustainability communication strategy, have to be shifted or improved. Moreover, a benchmarking of the different competitors' sustainability Pop-up stores would be executed, in order to set the creative direction and the marketing strategy of the Zara's Pop-up store. Finally, another benchmarking would be implemented, related to the price strategy analysis of the sustainable products from the main competitors in this market.

The main objective of this business proposal is to create a new net 0 Pop-Up store by offering a circular collection based on Avant Garde technology in the supply chain area from the current Zara's partners, and other innovative start-ups, following the vision of Zara's [Sustainability Innovation Hub \(SIH\)](#). Therefore, in the following paragraphs the innovative start-ups that Zara is already working with, would be analysed from a business point of view, along with the understanding and explanation of their technology. Furthermore, the same methodology will be applied for the new proposed start-ups, in order to determine which of these companies have the best performance in the following fields, fabric innovation, manufacturing process innovation, repairing innovation and upcycling innovation.

This collection would represent a major advance towards Zara's 2040 objective of becoming net zero. In order to achieve this general objective, we need to understand Zara's initiatives, the fashion industry trends, new technology opportunities and consumer behaviour. Furthermore, this collection will have a studio capsule of upcycled garments. These pieces will be unique, and the customer will only have access to these items through ownership of points. These points will be given to each customer that donates their old clothes to the company through their Caritas network. Each type of garment will be worth a specific amount of points based on the fibre count of the piece. The objective behind this

capsule is to motivate the customer to donate clothes so that those garments can be turned into new unique pieces, with almost zero carbon footprint.

Additionally, the Pop-up store will present a textile repairing section, where an expert in the field will show the consumers how to repair their clothes to extend the lifecycle of the garment. Moreover, a basic repair kit will be available to buy, so the customer can start repairing their clothes easily without involving any equipment research before the process.

Furthermore, to increase the consumer engagement towards sustainability, the company will create a metaverse platform to showcase the products from the net 0 collection. In this way, the company will be offering a seamless integrated shopping experience, through the virtual and augmented reality, by dressing up personalized avatars, with the collection items bought by the customers. On this platform, the customer will also have the opportunity to delve into all the different start-ups, along with the technology used by each company to develop the different products from the collection.

Moreover, it's also important to create a marketing strategy for the Pop-up store, and the collection. Once the market research has been done, it would be possible to understand the different strategies that the rest of the companies are implementing, to determine the actual position, the priorities, and the direction of the organization. By this way, a general marketing plan would be proposed for the Pop-store and the collection, consisting of the 5Ps of the marketing mix to effectively market the project, a customer journey map to find the motivations, worries and the critical points for the customer, and finally the implementation of key performance indicators to monitor how effectively is the project being managed.

2. State of the art: sustainability innovation in fashion

2.1. Basic concepts

2.1.1 Sustainable fashion

This terminology is used for the clothes that are developed and consumed in a sustainable way, while protecting both the social aspects, such as the fair wages and safe working conditions of the people behind the creation of the garment, and the environment, in terms of reducing the exploitation of resources, CO₂ emissions, water and energy usage, the pollution and waste generated, and the biodiversity support (Chan, 2021).

In order to move towards a more sustainable fashion shopping, the Vogue has created a guide with 15 steps that the customer can follow when buying fashion products. These recommendations are the following: “buy less and buy better”, “invest in sustainable fashion brands”, “shop second-hand and vintage”, “try renting”, “avoid greenwashing”, “know your materials”, in terms of understanding the impact of the materials composing a garment, “ask who made your clothes”, “look for scientific targets”, “support brands who have a positive impact”, “watch out for harmful chemicals”, “reduce your water footprint”, “be conscious about vegan fashion”, “take care of your clothes”, in terms of extending the lifecycle of the fashion items, “avoid microplastic pollution”, “ensure your clothes have a second life”, by donating, reselling or organizing a clothes swap (Chan, 2021).

2.1.2 SDGs

In 2015 the United Nations Member States created and adopted the 2030 Agenda for Sustainable Development, which has been conceived to provide a shared blueprint to be implemented now and in the future in order to achieve peace and prosperity for both people and the planet. Therefore, they developed 17 Sustainable Development Goals (SDGs) to successfully implement the mentioned agenda (United Nations, 2015).

Those SDGs are “no poverty”, “zero hunger”, “good health and well-being”, “quality education”, “gender equality”, “clean water and sanitation”, “affordable and clean energy”, “decent work and economic growth”, “industry, innovation, and infrastructure”, “reduced inequalities”, “sustainable cities and communities”, “responsible consumption and production”, “climate action”, “life below water”, “life on land”, “peace, justice, and strong institutions”, and “partnership for the goals” (United Nations, 2015).

2.1.3 Eco-efficiency

This term refers to a management strategy, where doing more using less is the core of the approach. This concept is based on creating more outputs, in terms of products for consumption and services, by implementing less inputs, as natural resources, and generating less waste and pollution. This approach is measured by implementing environmental, social, and economic performances. Although there is not a collective agreement on the official definition of these concepts, the most relevant definition has been developed by Koskela and Vehmas in 2021, defining this concept as, “the ratio between environmental impact and economic performance”, and “the ratio between economic performance and environmental impact (Klemeš, 2015).

2.1.4 Net zero

This concept emerged in the late 2000s, as a major concern for the CO₂ emissions causing an increase in the average surface temperature around the world. The net zero term refers to the amount of greenhouse gas (GHG) in the atmosphere, the balance between the CO₂ emissions generated, and the amount of greenhouse gas that is removed from the atmosphere. In the current situation, the CO₂ induced surface warming is predicted to remain elevated for the next decades or even centuries, unless the net CO₂ emissions decrease below zero. This is the reason why, nowadays, many countries, sub-national entities and companies are increasingly considering this objective as a major concern that must be handled (Fankhauser, 2021).

2.1.5 Recycling processes in textiles

Global fibre production has been increasing in the past few decades, exceeding 64 million tons in 2004. This situation is a result of the global population growth and the improvement of the overall living standards, resulting in an increase of the demand and consumption of textile products. The function of fibres belongs to three major categories, which are the apparel or fashion industry, home furnishing, and industrial use. However, most of the fibres are produced for a short- or medium-term use, lasting up to a few years. In 2003, the United States Environmental Protection Agency reported that about 10 million tons of textile waste was generated, becoming 4,5% of the total municipal solid waste of the country from a total of 236 million tons per year. The same data source indicated that 55% of the mentioned waste ended up in landfills, 14% was incinerated and the other 31% was recovered (Agency, 2003) (Wang, 2006).

Textile fibres are mostly composed by natural and synthetic materials; for instance, cotton, polyester, nylon, and polypropylene are examples of the most used materials in the textile industry. Besides the natural fibres, these synthetic materials are polymers derived from petroleum. Moreover, the production of both natural and synthetic fibres requires mechanical and chemical processes that use non-renewable resources (Wang, 2006).

Recycling is a process which can implement either mechanical or chemical procedures, or a combination of the two, in order to convert waste into new materials and products. The ability to reacquire the properties of the object or material in its original form determines the capacity to be recycled. This system avoids wasting potential materials for recycling, helps lower the greenhouse gas emissions, avoids air pollution from incineration and water pollution from depositing waste in landfills, and reduces the energy implemented to produce new products from raw materials and the consumption of those materials (Wang, 2006).

The process of recycling a fibre starts by collecting textile waste in order to convert this waste into new products. The recycling process can be divided into primary, secondary, tertiary, and quaternary approaches. The primary approaches are the ones that involve recycling the product into its original form; the secondary approach is based on the melting process of a plastic product in order to transform them into a new product with lower physical level, and mechanical or chemical properties; tertiary recycling englobes process such as the hydrolysis and pyrolysis, in order to convert the plastic products into chemicals or fuels. And finally, the quaternary approach, it is based on the utilization of the heat generated by the burning of the solid waste (Wang, 2006).

2.1.6 Upcycling

“Upcycling refers to a product produced using recycled material in such a way that the new item commands a higher value or quality than the original product” (Sandin & Peters, 2018).

The upcycling process is based on creating new textile products from cutting and stitching discarded garments and other fibres or materials. Through the implementation of this process, a second lifecycle for a specific garment is created by increasing the durability of the piece. The main difference between upcycling and recycling is that this process does not involve any mechanical or chemical process as the recycling method does (Behera, 2021).

Although there are some new sustainable alternatives in terms of fibres, like hemp, which has been proven to be a strong alternative to cotton, the consumption of virgin materials is still not the best choice considering its environmental impact. However, nowadays the biggest problem for the fashion industry is the waste that ends up in landfills. It has been reported that the CO₂ emissions generated from the accumulation of textile waste in landfills is still many times higher than the CO₂ emission per kilogram of virgin fibre production. Therefore, the main concern around sustainability in the fashion industry would be the textile waste management, to avoid the amassing of these products in landfills (Behera, 2021).

This is the reason why the process of upcycling textile scraps is one of the most circular systems to leverage the waste generated by the textile industry; moreover, this system adds value for the consumer by incorporating the corporate, social responsibility aspect in companies, while fostering a responsible and ethical model of consumption for the public (Behera, 2021).

2.1.7 ZDHC Manufacturing Restricted Substances List

The fashion industry is moving towards sustainability by way of companies adopting transparency in their procedures and reducing their carbon footprint. However, it is also important to manage the use of chemicals in these products, as these impact not only the environment but also the health of the employees and the consumers (Textile learner, 2022).

It has been reported that more than 8000 synthetic chemicals are still being used in the textile manufacturing process. Therefore, the consumers can be exposed to hazardous chemicals when buying new garments through skin contact and inhalation or the ingestion of dust released from these fibres (Textile learner, 2022).

The Zero Discharge of Hazardous Chemicals (ZDHC) Manufacturing List of Restricted Substances List (MRSL) is a list that contains the banned chemical substances from the use in the textile, apparel, and footwear industry processes, such as the processing of textile materials, leather, adhesives, rubber, and trims used. While the Restricted Substance List (RSL) only considers the chemical substances used for the finishing processes, this list has been created to ensure the consumers' safety, but also to protect employees, local communities, and the environment from the impact of hazardous chemicals. The purpose behind this standard is to provide a common list for both companies and suppliers in order to avoid the intentional use of those restricted hazardous chemical substances in their manufacturing process and other processes related to their supply chains. [Link to the MRSL](#) (ZDHC, 2023).

2.2. The Join Life label at Inditex

Inditex was born with the vision of creating quality garments with a fashionable style and at an affordable price, which would improve people's lives. Consequently, given that all the social, environmental, and economic challenges are urgent, the company is committed to following the innovation and the improvement of their efficiency, under the main objective of implementing a positive influence on both the people and planet. This is the reason why in 2001, Inditex was one of the companies involved in the United Nations Global Compact, reinforcing their dedication to the people and the planet. Moreover, in order to achieve the objective of becoming environmental and social sustainable, Zara created Join Life, where they shared their commitments and milestones to the public (Inditex, 2023).

2.2.1 Commitments

2023

- More sustainable 100% artificial cellulosic fibres and cotton
- 100% redesigned packaging to facilitate its reuse and recycling
- 100% elimination of single-use plastics for customers
- 100% of waste from own facilities is collected and processed for reuse or recycling

2025

- More sustainable 100% linen and more sustainable or recycled polyester
- 25% reduction of water impact in our supply chain
- 50% reduction of virgin plastic in own facilities as per our commitment with the Ellen Macarthur foundation

2040

- Zero net emissions

2.2.2 Milestones

2022

- Zara Pre-Owned
- 50% Join Life collection
- 100% renewable electrical energy in our own operations

2021

- International accord
- Leaf coalition
- Terra carta

2020

- 100% in-store clothing collection programme
- 100% eco-efficient stores
- Canopy style commitment to protect forests
- Zero discharge of hazardous chemicals (ZDHC)
- 100% training in circular design, global fashion agenda

-
- Euratex recycling ReHubs

2016-2019

- Strategic environmental sustainability plan 2016-2020
- Recycled boxes from zara.com
- Fashion pact

2010-2015

- Sustainable Inditex 2011-2015
- Sustainable development goals
- Fur free retailer
- Join life labelling
- Clothing collection programme
- Launched the green to pack programme

2001-2009

- United nations global compact
- First code of conduct for suppliers and manufacturers
- Initial strategic environmental plan 2002-2005
- Strategic environmental plan 2006-2010
- Agreement with industriALL
- First eco-efficient store
- Incorporation into the Dow Jones Sustainability Index (DJSI)

(Zara, 2023).

2.3. Zara's Sustainability Innovation Hub (SIH): partners and technology

Circ

This company has developed a technology which is able to produce new materials from textile waste. They can separate the raw materials composing a garment in order to recycle almost the whole piece without discarding any fibre. Their objective is to reduce the consumption of virgin raw materials (CIRC, 2023).

This technology uses Hydrothermal processing, and by using this method they can break down and clean the textile fibres, separating the cotton from the polyester, which is the most common composition of a garment in the fashion industry. When they break down the polyester into its monomers, they produce high quality cotton, which can replace tree pulp, needed to produce cellulosic fibres like lyocell, viscose or modal. They have achieved a 90% recovery of the original fibres. In order to recycle both components, they use a responsible chemistry process to build new fibres (Apurvanidhi, 2021).

Infinited Fiber

This Finnish company has developed a new innovative solution for the textile waste. Their technology is able take piles of worn-out textile and transform them into a brand-new durable fibre similar to cotton. They can use cellulose rich materials like cotton, but also paper, cardboard or even crop residues like rice or wheat straw (Infinited Fiber , 2023).

The process is composed of 7 stages. The first stage includes collecting and sorting by type of material, focusing on high cotton content. Then they mechanically disintegrate the textile into fine shreds, after removing the non-fibrous materials like zippers or buttons. The third stage is the fibre separation, in which they capture the cellulose, separating this component from the non-cellulosic particles like polyester and dyes. Once they have collected all the cellulose, the carbamation starts: this process consists of the activation of the cellulose using urea, and results in a stable and dissolvable cellulose carbamate powder. At this point the different feedstock types can be mixed, regardless of the materials they were obtained from—cotton, paper, or others. The fifth stage is the dissolving and wet spinning, where they remove the cellulose impurities by way of filtering; and when the cellulose crystallizes in the spinning process, they create new fibre filaments. The next stage is where the Infinna is born: the fibre is cut, washed, and dried, so that the regenerated cellulose carbamate fibre (known as Infinna) is ready to enter in the manufacturing supply chain. Finally, the Infinna fibre is delivered to yarn spinners or nonwovens manufacturers in order to create new textile fabrics. Furthermore, they use responsible chemistry in their whole process according to the ZDHC and manufacturing restricted substances list (Infinited Fiber , 2023).

Renewcell

This Swedish company has developed a technology which can also create new fibres from textile waste with high cellulosic content like cotton or viscose. The process consists of separating the non-fibrous materials like buttons or zippers from the garment, shredding the fibrous material that is left, then de-colouring it and turning it into a slurry, also separating the non-cellulosic components and contaminants from the slurry. Once they have a clean slurry, they dry it and create Circulose®, which is a branded dissolving pulp, that the company has created from 100% textile waste composed of fibres from high cellulose items like old jeans or cotton production scraps, for example. Finally, the Circulose® sheets are packed, and ready to ship to the manufacturing process. This material is a biobased, and it has been proven that can replace virgin materials like cotton, oil, or wood, all while maintaining the same level of quality (Renewcell, 2023).

Evrnu

Evrnu is a North American textile innovation company that has developed a company called Nucycl. The products and materials made with this technology can disassemble at the molecular level and can be regenerated into new clothing items multiple times, with extraordinary performance and environmental advantages. This technology is based on the repolymerization, so they can convert the 100% post-consumer textile waste, transforming the material molecules into new high quality and renewable fibres (Evrnu, 2023).

First, they classify and separate the materials in order to obtain cotton-based fibres. Then they triturate, liquefy, purify and depolymerize them. Once they have concluded this stage, they align the molecules and repolymerize them, building a new R-Lyocell fibre (Evrnu, 2023).

Furthermore, as an engineered fibre, the characteristics of the material can be customized, so they can fit and adjust to the desired material. This process can significantly reduce the quantity of textile waste, the carbon footprint and it can also reduce the use of water. They also provide a list of conducts for the customer in order to keep textiles out of the landfill,

which include the following: do not throw old clothes away, donate them or consign it for someone else, repair garments to extend their lifespan and finally, help create demand for garment-to-garment recycling (Evrnu, 2023).

Ananas Anam

This Spanish company has developed a new technology named Piñatex, which can manipulate the fibre of pineapple plant leaves and create new textile fibres. These leaves are considered waste, because although this plant's primary function is within the alimentary industry, only the fruit is consumed, while the rest of it ends up in trash containers (Ananas Anam, 2023).

The process behind the creation of this fibre starts when the leaves of the pineapple are mixed with polylactic acid and oil-based resin. This new material has been conceived as a substitute for animal leather. They have been able to create a material with the same performance characteristics as its animal-based counterpart: it dries like leather, and it has overcome the ISO normative for the abrasion, puncture, traction, and breakage resistance of fibres (Wikipedia, 2023).

Lanzatech

Lanzatech is a Chicago based company which has developed a technology that can recycle carbon emissions into products like clothes, perfumes, and aviation fuel. Furthermore, they are using their technology to develop new materials, polymers, monomers, fragrances, solvents, protein, chemicals, and fuels. By implementing this process, they can produce almost 1 billion tons/year of carbon smart products from waste feedstock, and they are able to remove 2 tons of CO₂ for every ton of carbon smart produced (Lanzatech, 2023) (Schenker, 2022).

This technology is based on a fermentation process using rabbit-gut bacteria to ferment gas pollution, which has been captured from factories and municipal solid waste. This bacterium transforms the waste into their patented ethanol, Lanzaol. Then the converted gas proceeds to be stored, until it is needed to make raw materials (Schenker, 2022).

Since 2021, when they created and implemented this technology, they have produced 30 million gallons of ethanol which is equivalent to avoiding 150.000 metric tons of CO₂ out of the air. Their main objective is to generate 100 million gallons by the end of 2023, which would be equivalent to 500.000 metric tons of CO₂. They already have 2 commercial plants operating, 7 plants under construction and they are planning to build another 7 more engineering plants (Schenker, 2022).

Nilit x BASF

On one hand, Nilit is an Israelite manufacturer of polyamide fibres specialized in the polymerization, spinning and texturing of nylon 6.6 yarns for the textile industry (Wikipedia, 2023). On the other hand, BASF is a German chemical company which is dedicated to the production of dyes. These two companies have teamed up to create a nylon 6.6 partially obtained from renewable resources (Wikipedia, 2023).

This nylon has been patented as SENSIL®, the first premium nylon 6.6 made with bio-based feedstock, helping to reduce the amount of fossil feedstock used in the manufacturing

process. This polyamide saves 900 kg of CO₂ per ton, compared to a normal nylon 6.6, and it is made from reclaimed organic waste (Nilit, 2023).

2.4. New avant-garde technology from other innovative start-ups

2.4.1. Fabric innovation: Leather

Mylo

Mylo is a textile innovation company which has developed a new sustainable leather made from mycelium, something similar to mushroom roots. However, not only is it sustainable, but also it is more efficient than the conventional leather, as this type of leather requires less resources. Additionally, Mylo is grown in less than two weeks in their farming facilities, while the cow needs years and years to raise (Mylo, 2023).

The process behind the creation of this material, begins with growing the mycelium cells on a bed of renewable, and organic substrate inside their vertical farming facility, which is powered by 100% renewable energy. Then billions of hyphae or cells, form a network of soft foam, which is harvested to create Mylo. Then they process the Mylo into sheets of biomaterial using chemicals under the Green Chemistry principles. In order to transform these sheets into leather, the Leather Working Group applies the last finishes and creates the surface texture, which looks like traditional leather. The company's aim is to reach a mass scale adoption in their supply chain, thanks to close manufacturing partnerships, achieving a low impact material, which can produce high quality items. Furthermore, the Mylo leather has up to 80% bio content, without any synthetic scrim or backing, it is 100% animal free, and the look and feeling is indistinguishable compared to the conventional leather (Mylo, 2023).

Apple Leather

Apple leather is a Turkish company based in Istanbul that has created a new bio-based material, made by using the leftover pomace and peel from the apple juice and compute industry. This material is an eco-friendly substitute to traditional leather. The process of sourcing is significantly more efficient compared to conventional leather; not only do they avoid harvesting apples for the unique purpose of producing this material, but also they provide a new opportunity for agricultures to create another source of income (Apple Leather, 2023).

Once they have collected the waste from the apples, the drying process starts. The dried product is mixed with polyurethane, then they create sheets on recycled cotton and polyester fabric. The production of this material could vary, depending on the density and thickness of the final product. Furthermore, they can produce different structures, colours, shapes, and can even recreate other types of animal skin-looking leathers such as snake and crocodile (Apple Leather, 2023).

In terms of technical conditions, the company warns the client of some differences in the final product before they purchase this leather. These characteristics are relative to the difference of colour or tone in the batches, as well as small defects in the surface. All of these conditions are inherent to the natural origin of this material, as the waste used to produce the leather is formed by the skin, stem, and fibres of the apple (Apple Leather, 2023).

Leaf Leather

The company Tree Tribe has developed a new innovative way of producing vegan leather using the leaves of trees. The company assures that this leather satisfies all the conditions of the conventional leather such as strength and durability, which also suggests that it may be more sustainable, as the final product would have a long life-cycle (Joe, 2020).

The production process starts with the harvesting of trees, and the collection of its leaves. The company also ensures that these trees have grown using sustainable techniques. Once they have collected all the leaves, they clean them using water, they prepare them for dyeing, and arrange them together. The next step would be drying them out, in order to create sheets. The leaf layer is combined with cotton fabric to provide a softer interior feel. Finally, they apply a thin translucent outer layer which is made from a nontoxic polymer BOPP film to seal the leaf layer and protect them, while maintaining the texture and feel of the leaves. Furthermore, this layer also provides properties like durability and water resistance. The process of crafting the Teak leaf is a traditional handmade art from Thailand. Every piece is unique as the leaves are disposed in an irregular way making different shapes, representing the variance essence and uniqueness of the nature (Joe, 2020).

Desserto

The company Desserto is the first business to develop a totally organic and sustainable material made from the Nopal cactus plant. This manufacturer can produce this leather in a large variety of colours, thickness, and textures. Furthermore, Desserto has already partnership with other fashion brands like H&M, Givenchy, Adidas, and Karl Lagerfeld, proving that they can satisfy the demand of an evolving industry. They also offer different applications of its products such as handbags, apparel, and footwear (Desserto, 2023).

The production process starts in their ranch located in Zacatecas, Mexico. They harvest the cactus and cut only the mature leaves, so they do not damage the plant itself. Every 6-8 months they have a new harvest to collect. Furthermore, they have not implemented an irrigation system to provide water for the plant, as the cactus grows with the rainwater and the earth minerals of the region, which are ideal for this type of plant. Additionally, these cactuses are very strong, and they can endure low temperatures in the winter season (Desserto, 2023).

When the Nopal cactus are planted, they last 8 years, as the cactus plantation is perineal, unlike other C3 plantations like corn, where the cultivation is annually harvested and then cultivated again. The fact that this cactus species only needs perineal planting result in a lower water consumption compared to the C3 plants: while the C3 plantation needs an average of 1.000 liters to produce 1kg of dry material, the Nopal cactus only needs 200 liters to produce the same quantity (Desserto, 2023).

This company pays special attention to the biodiversity and the environmental effect of their cultivation. Their plantation is fully organic, and they have not cut any trees to create their plantation. This type of cactus is native of the region, so they do not interfere with the biodiversity of its ecosystem, furthermore they have implemented natural techniques to stimulate the micro-flora and micro-fauna in the ground, so the wild fauna can find a great environment with aliment abundance. Additionally, the ranch is fully organic, so they do not use any pesticides or herbicides (Desserto, 2023).

They have implemented a natural drying process without using any type of energy. The process is simple; after cutting the leaves, they dry out under the sun for 3 days, until they get the exact amount of humidity required. In terms of production, they can create one linear meter of Desserto only using 3 cactus leaves. Moreover, the cactus is a natural carbon sink, which mean that they can absorb a large amount of CO2. In their farm they only generate 15,30 tons of CO2 annually and the cactus is able to absorb 8.100 tons of CO2/year (Desserto, 2023).

2.4.2. Fabric innovation: Denim

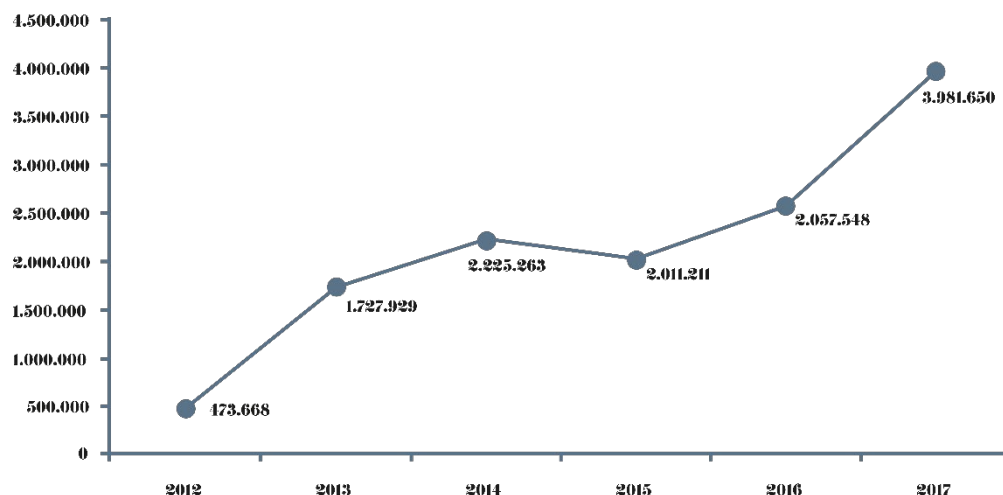
Dry Indigo

Tejidos Royo is a Spanish company that has made a crucial innovation in the sector of Denim. Their technology is based on using less water to produce denim products. The production process starts with the selection of natural or recycled fibres in order to create sustainable products from the very start. Then they dye the yarns using the Indigo colorant combined with the Eco-Alquimia 360° dyeing process, with the objective of avoiding the use of water, chemicals, and other non-sustainable components (Tejidos Royo, 2023).

They have achieved an efficient dyeing process, which at the same time reduces and optimises the energy consumption in the whole supply chain processes. Additionally, this technology has proven to reduce the amount of toxic vapor and gases emissions when creating the denim fabric (Tejidos Royo, 2023).

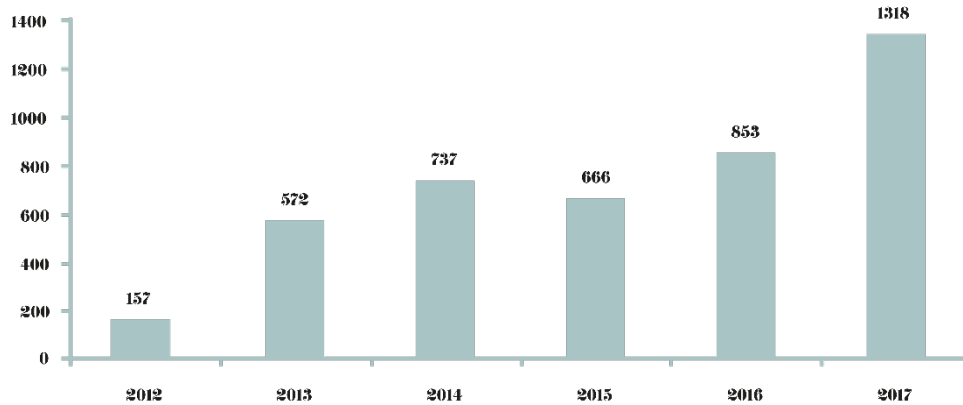
In the same way, their sustainability report shows that after implementing their cogeneration engine in their plant, they have been able to reduce the use of energy and the amount of CO2 emissions, saving up 13.000.000 kWh and 4.303 T/CO2 in 5 years (Figure 1 and Figure 2) (Tejidos Royo, 2023).

Figure 1 Electric saving from the use of the cogeneration engine in Tejidos Royo, 2012-2017 (KWh)



Source: (Tejidos Royo, 2023).

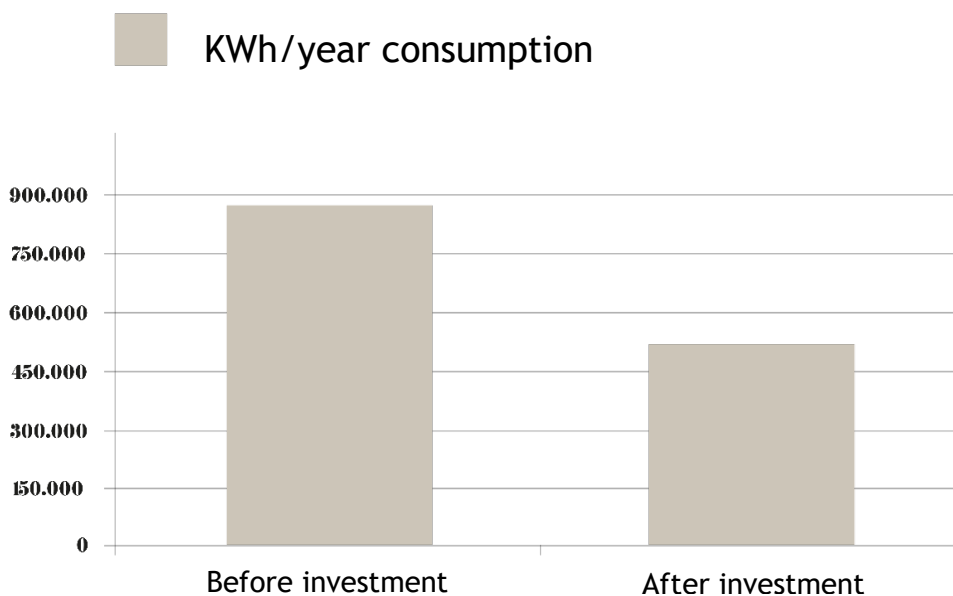
Figure 2 CO2 emissions reduction from the use of the cogeneration engine in Tejidos Royo, 2012-2017 (T/CO2eq)



Source: (Tejidos Royo, 2023).

They have also reduced the electric energy consumption by 42,7% in the weaving area since 2017 by using air compressors. The consumption before implementing the air compressors was 889.216 KWh and the estimated consumption after the implementation was about 508.723 KWh (Figure 3) (Tejidos Royo, 2023).

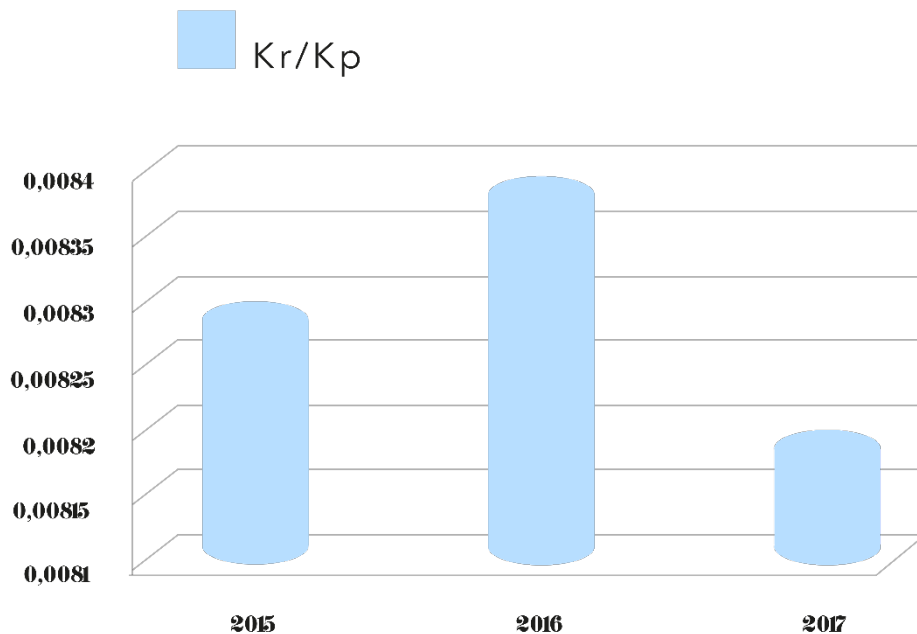
Figure 3 Electric consumption saving due to the improvement of the air compressors in weaving, 2017-2018 (KWh)



Source: (Tejidos Royo, 2023).

Furthermore, they reduced the amount of packaging waste generated by carrying out their Packaging Prevention Business Plan, which comprehends the implementation of better strategies and ecologic design criteria, in terms of raw material, reducing 25.000 kg of CO2 emissions (Figure 4) (Tejidos Royo, 2023).

Figure 4 Reduction in the packaging waste generation due to the Business Plan of Packaging Prevention, 2015-2017 (Kr/Kp)



Source: (Tejidos Royo, 2023).

2.4.3. Fabric innovation: Polymers

Genomatica

Genomatica is a biotechnological company based in San Diego, which is continuously innovating in the production of chemicals and polymers. Their most recent and attractive innovation, in collaboration with Lululemon, is the creation of a new plant-based Nylon which is aiming to change the whole market, particularly in the fashion industry (Genomatica, 2023).

Their technology can transform renewable carbon obtained from sugar made from plants, into the mentioned nylon, resulting in a 100% renewable carbon-based nylon 6. Specifically, this technology has been developed to produce the precursor to plant-based nylon 6 or caprolactam and plant-based nylon 6,6 or HMD (Genomatica, 2023).

The process behind this technology starts with the cultivation of plant sugars. When the plant has successfully grown, they collect the sugars, then they start the fermentation process to produce the plant-based nylon intermediate. Afterwards, this component is converted into the planted-based nylon. Finally, once they have the raw material they turn them into plant-based nylon fibres, ready to be used in the manufacturing of any garment (Genomatica, 2023).

This plant-based nylon is a high-performance material, offering the same look and feel of the traditional nylon, but with an eco-friendly purpose behind. Geno is trying to replace the conventional source of petroleum, with a renewable source based on plants sugar. To conclude, this nylon is the perfect sustainable alternative to the traditional nylon (Genomatica, 2023).

AIMPLAS x Threading CO2

The technological and plastic institute of AIMPLAS, based in Valencia, Spain, is developing a new technology which can create sustainable PET textiles from CO2 waste streams. This technology is still in TRL 7, which means that the system or prototype has been demonstrated to work in a real situation or environment (AIMPLAS, 2023).

The objective behind this innovation is to significantly reduce the amount of CO2 emissions produced by the textile industry by developing and bringing to the market high quality and circular polyester from the management of CO2 waste streams (AIMPLAS, 2023).

Econyl

Econyl is a new innovative regenerated nylon, made from nylon waste and developed by the Italian Aquafil group. The process starts with the collection of different nylon waste from four different sources. The first source is old carpets destined to go to landfills. Then the next source is the fishing nets from aquaculture and fish industry and ghost nets, which are very harmful for the environment due to the significant presence in the oceans, causing the death of many marine creatures. Another source is the material at end of use discarded by the consumers when they do not want them anymore. Finally, the pre-consumer waste from industrial origin is the fourth source of waste. After collecting the various types of waste, they clean and classify them to collect the maximum quantity of relevant nylon. Through a regeneration and purification process, the nylon comes back to its initial stage. Once they have the regenerated nylon, they transform them into yarns to create fibre (Econyl, 2023).

The most attractive aspect from these materials is its circularity: once the products made of Econyl are not usable by the consumer, this nylon can be recycled infinite times, becoming one of the most sustainable materials because of the ease required with which to close the lifecycle loop and create new products (Ecverde, 2022).

The disadvantages of the Econyl are the low durability of the material, the incapacity to absorb humidity, and its flammability; the material melts when burned, and it can even melt when washed at high temperatures (Ecverde, 2022).

In regard to sustainability their production process has also been designed to be sustainable, for each metric ton of caprolactam, which is the material used to produce the Econyl, they are saving 4500 KWh and 7 petroleum barrels, while avoiding 1,1 metric tons of waste and 4,1 metric tons of CO2 emissions, in comparison with the traditional production process. Furthermore, the Econyl waste can be recycled infinite times without losing the final quality of the product, reducing the amount of waste generated by the material (Ecverde, 2022).

Econyl is a viable substitute for conventional nylon, as the chemical composition is identical to nylon 6, and it has almost the same characteristics of the traditional nylon. However, the production cost of the Econyl is slightly higher than the virgin nylon, from 15% to 20% higher per meter (Ecverde, 2022).

2.4.4. Fabric innovation: Cellulose

Tencel

The company Lenzing is one of the most popular sustainable innovators in the textile industry. They are offering three different types of Tencel: Lyocell, Modal and Lyocell filament (Tencel, 2023).

The company Lenzing is one of the most popular sustainable innovators in the textile industry. They are offering three different types of Tencel: Lyocell, Modal, and Lyocell filament (Tencel, 2023).

The Tencel Lyocell fibres are made from the extraction of sustainably grown wood; they have also implemented a close loop process to recover the solvents used in order to minimize the manufacturing environment impact. This material has some unique properties such as high resistance, it can withstand moisture, and it is pleasant to the touch. For this fibre, they have developed a new technology named Refibratm, which implements a new innovative way of closing the loop to increase the level of environmental protection of the material. The process starts with the collection of cotton textiles and wood from sustainably managed forests, then they transform the cotton garments into scraps and the wood pieces into wood chips. Once they have both inputs ready, they turn them into cellulose pulp and combine them, making a fibre that is in turn used to create yarns. At this level, the Lyocell made with Refibratm is ready to use for the textile industry. Furthermore, this fibre is available for a general use, and is ideal for denim, home, and interiors, activewear, and innerwear (Tencel, 2023).

Nowadays, this company is also offering the option of producing Tencel Lyocell filaments yarn. These filaments are extremely fine, which makes this fibre a go-to when manufacturing silky-smooth luxury fabrics, with special properties such as a flowing, liquid-like drape effect, as well as colour vibrancy (Tencel, 2023).

On the other side, the Tencel Modal fibre comes from a naturally grown beech wood. This material is obtained using a sustainable integrated pulp-to-fibre process, which recovers material from component parts of the wood and implements a self-sufficient energy system. The Tencel Modal is fully biodegradable and compostable under any conditions. This fibre has different special characteristics such as a soft texture twice as soft as cotton and a long-lasting quality. Additionally, this material can be used for a general purpose, denim, innerwear, home, and interiors, and activewear. Moreover, due to its sustainable commitment to produce fibres with an environmental protective process, the Tencel fibres have been certified as carbon neutral materials (Tencel, 2023).

Orange Fiber

In 2014 the company Orange Fiber developed the first sustainable fibre created with waste from citrus juice production around the world. They started a partnership with the Tencel brand from the Lenzing group to develop this new fibre using their technology. Their proposition of using the waste generated by the orange industry is a big change, not only for the textile industry, but also for the food industry, as oranges are a product in high demand (which is almost only used to make juice). With this innovation, they are able to utilize 100% of the orange by using the scraps from the juice production (Orange Fiber, 2023).

The process behind this innovative technology starts with cultivation of orange groves, then they obtain the citrus juice leftovers from the food industry. Once they have the raw material, they transform it into a cellulose extract, then they create the fibre from the cellulose pulp and spin them to produce yarns. When they have the yarns ready, they start to weave them into fabric, so the fibre is ready for manufacturing any textile product (Orange Fiber, 2023).

Spinnova

Spinnova is a Finnish company which is competing in the market as sustainable textile innovator, focusing on recycling fibres. They have developed a technology which can transform waste and wood into a new material, saving more CO2 emissions than emitting, becoming a climate-positive textile fibre (Spinnova, 2023).

The process behind this innovative technology starts with the mechanical refinement of their pulp—raw material from wood and waste. Once they have a cellulosic pulp, they transform it into spinning ready fibre suspension, without using any harmful chemistry in the process. Then they apply pressure to turn it into a natural textile fibre. Finally, this fibre is dried and collected, becoming a fibre ready to spin into yarns. This technology can use almost any cellulosic biomass; while they are focusing on wood as on their principal feedstocks, they are also improving and extending their technology by using other type of waste, focused on leather, agriculture, cotton waste and scraps from the textile manufacturing process (Spinnova, 2023).

The most striking feature of this technology is that the material can be upcycled various times in their process without losing its properties. They can also save water by dyeing the fibre before the spinning process, so they are avoiding the amount of water and chemicals used traditionally (Spinnova, 2023).

In summary, the key features of this fibre are the following: it is 100% natural fibre, 100% biodegradable, it contains 0% microplastics and 0% harmful chemicals, 100% recycled fibre, they use 99% less water compared to the traditional way, and they are significantly avoiding the amount of CO2 emissions (Spinnova, 2023).

Bananatex

This company has created the first durable and technical fabric entirely made from natural grown Abacá banana plants. They cultivate the plant in a natural ecosystem, in the Philippines, where they implemented a mixed agriculture and forestry system. They avoid the use of pesticides, fertilizers, or extra water, as the conditions make the plant self-sufficient. They also have contributed to the reforestation of areas where the monocultural palm plantations eroded the area, by this way they are not only enhancing the biodiversity of this ecosystem, but also ensuring the economic prosperity of its farmers (Bananatex, 2023).

The Bananatex is a true alternative to the synthetic fibres used in the fashion industry. Besides, the lifecycle of this fibre is totally circular. Once they harvested the plant, they cut the stalks, and proceed to the fibre extraction; once they have extracted the raw material, they start making the cellulose paper. After creating the paper sheets, they enter a process that allow the materials to be spun into yarns and weave it applying beeswax coating to reinforce the material. The final step is the assembly to create the final fabric ready to manufacture. When the final product made from this fabric is ready to be discarded, the material can go back to the initial stage of its creation, as it is a fully biodegradable fabric. In this way, Bananatex a totally circular material (Bananatex, 2023).

2.5. Manufacturing process innovation

Chalmers

The researchers of Chalmers have developed a new technology to purify the contaminated water from the textile dyeing. The technology works with a new biobased material made of cellulose nanocrystals that can purify water from pollutants. The process focuses on the filter made from cellulose nanocrystals; when the water passes through this filter, the pollutants are absorbed, then they are easily broken when the sunlight enters in the treatment system. They researchers are investigating how to improve the level of purification. However, in this moment they have achieved a level of 80% purification, and they see potential for improving it (Ernström, 2023).

This innovation would have an enormous impact on countries with poor water treatment technologies, besides from combating the widespread of the toxic dye discharge in the fashion industry. One of the countries with poor water treatment is India. That is why the company has decided to test this technology in this country. The CEO said that he expects that this technology based on cellulose filters could even be effective against other water pollutants in addition to dyes (Ernström, 2023).

Wake

Tonello is an Italian company, dedicated especially to the textile dyeing industry, that has developed a new innovative technology named Wake. This technology is the first natural dyeing system destined to the mass market production, which only uses plants and vegetable waste without using any additive chemicals (Tonello, 2023).

They offer a sustainable and circular process, using solely 100% organic raw materials and safe and healthy processes and colorants, while reducing considerably the CO2 emissions. They also ensure a short period process, generating only solid biodegradable waste. Furthermore, this technology can be incorporated in every Tonello dyeing and washing machine and can be combined with other technologies from this company (Tonello, 2023).

2.6. Repairing Innovations

The textile industry generates approximately 500.000 tons of microplastics each year, which are destined to end in the oceans. In 2015, 11,1 million tons of clothing have been deposited in landfills in the U.S. Although there is an extended belief that donated clothes are resold in second hand stores, reused by charity programs where they provide clothes to people under poor conditions, or exported to developing countries in Africa, most of these clothes end up in landfills. Researchers ensure that the fast fashion consumption have increased in the last two decades, followed by an increase in the clothing disposal. This situation is the consequence of more and more people who do not value, nor give any emotional connection to fashion items, which provokes a tendency in the customer to consider these products as disposable items. Furthermore, the fashion industry has adverse effects on the earth's environment because of the high use of water, hazardous chemicals, and the capacity to absorb greenhouse emissions (Yan, 2019).

Only about 20% of the total textile waste is reused or recycled, which means that the other 80% end up in landfills or is burned. 35 pounds of new textile items were bought by the North American customer in 2014, which is equivalent to 64 t-shirts or 16 pair of jeans (Yan, 2019).

The fashion industry is moving from a linear economy of “take-make-use-dispose” to a circular economy model. Most of the companies have already committed to reduce their carbon footprint, implementing sustainable initiatives to their supply chains and logistic systems, reusing post-consumer waste to create new textiles, and designing their products to extend their lifecycle compared to the traditional economy models. However, most of these companies still must engage customers to contribute to the new circular economy, as most of these consumers do not value sustainability as one of the essential aspects of a product. Instead, there are some companies that are trying to educate costumers in a product repairing-reuse philosophy, by offering repair services in their stores, or even offering the option of buying repair kits to fix clothes at home. The perfect example of this business model is the company The Renewal Workshop, who works with unsold inventory, damaged garments, or customer returns from other companies. Once they have repaired these items, they are ready to be sold through their platform, providing a second life to these products (Yan, 2019).

The repairing and extension of the lifecycle of the garments have a major impact toward sustainability in the fashion industry. The Ellen McArthur foundation published a report on the circular economy in the textiles and clothing industry, recognizing the clothing repair and mending as one of the most important elements to extend the product lifecycle. The researchers certify that the carbon footprint, water used, and waste generated by the fashion industry can be reduced by 20-30%, by extending the average lifecycle of clothes by nine months (Yan, 2019).

2.7. Upcycling for mass production

Upmade

Upmade is a company from Estonia, dedicated to deal and give solutions for the pre-consumer textile waste, in order to implement circular economies for the companies. They have developed a new technology that, by design, can produce garments using textile leftovers (Upmade, 2023).

Using a traditional manufacturing process usually generates about 18% of leftovers, where most of the companies consider as useless waste, or in the best cases they would recycle this waste and turn them into new textile products. Although the second option seems to be sustainable, it involves more dedicated production process, which generate CO₂ emissions, use energy, water, and other raw materials, which counteract sustainability. However, this company can implement a process applying upcycling on an industrially large scale in order to capitalize in a more sustainable way these leftovers, turning 18% of production scraps from cost to value (Upmade, 2023).

This company offers the service for brands, manufacturers, and consumers, although our interest is focused on the first two options. On one hand, to implement this process for brands, they provide a software to plan the manufacturing process. Using production, fabric and design information from the brand’s original order, this software analyses the waste and the environmental basis. Then the software develops an assessment of the full process, according to environmental criteria such as CO₂ emissions, amount of waste avoided, and water and energy usage to ensure the sustainable production of upcycled garments. Once they approve the production, the software allows the company to order upcycled garments from suppliers, without modifying the design and materials parameters set before. The

company also provides an UPMADÉ® certificate to ensure the products have been made under these conditions and standard practices. On the other hand, for the manufacturers, they start with the provision of pre-consumer waste, then they analyse the production using the UPMADÉ® software. The company visits the manufacturers' plant before the production starts so they can implement all the relevant process changes. In order to get the UPMADÉ® certificate, an independent auditor must visit the plant and verify that all the criteria registered by the company have been met. Once the certification procedure is finished, the manufacturer is ready to use the software to produce and source the brand, with the mentioned upcycled garments. The manufacturers certification is valid for 3 years, and during this period, an independent auditor will conduct an inspection to ensure all the commitments are being met (Upmade, 2023).

To conclude, the benefits generated by using this service are those of reducing waste, saving energy, water, and other resources, as it will not lead to the production of new materials. Additionally, it increases transparency, ensuring the compliance of the highest labor and chemical standards.

The company can team up with other brands that make upcycling clothing to learn and establish a section where these partners help Zara to create new pieces from old clothing without using any chemical or mechanical techniques of recycling. Therefore, the partners to learn upcycling techniques and systems would be the following: [4KINSHIP](#) and [RE/DONE](#).

2.8. Durability for fashion sustainability

The product obsolescence has increased through the years, becoming a general practice by almost every industry. During years of war, people valued more textile items, because of the scarcity of materials due to clothes rationing, especially in the United Kingdom, where the "make do and mend" idea was extended by the government to support the confection and reparation of clothes by people. However, once the war period finished, the materials supply grew rapidly. Since 1960, the concept of obsolescence started influencing the supply and demand of products, by creating a system of items with a short lifecycle. This conception provoked a change in the consumer behaviour, from the perception of durable goods with a high consideration for the material value, to a non-durable mindset with novelty and brand value perception, originating from a concept of psychological obsolescence, where the consumer thinks the products becomes useless, because of the influence of major fashion trends (Fletcher, 2012).

There are four obsolescence attributes related to products: aesthetic, where any changes in the appearance lead to obsolescence; social, because of the changes in societal preferences and rules which lead to the fallback; economic, where the cost structures tend to be replaced instead of being maintained; and finally, the technological factor, where the technological advances cancel the functionality of an existing product, leading into its obsolescence. In the fashion industry, the main attribute causing product obsolescence is the aesthetic aspect, although cultural and social factors are also important, resulting in product retirement. Therefore, the fashion industry rarely makes an important advance developing a new physical feature to protect our bodies or to increase functionality; instead, they incorporate some new appearance aspects or branding values, which enhance the personal identity of the customer (Fletcher, 2012).

Through the years, the concept of durability has been changing. For many years, it was an essential feature of the design process; however, the entrance of the fast fashion has been pushing back on this concept. However, in the last twenty years, durability has increasingly become a main requirement to develop sustainable products. Furthermore, the concept of durability is not only based on the quality of the material, but also on the whole piece, where the manufacturing plays an important role, considering elements such as the longevity of the seam, fastening, facing, and fabric. All these elements are important to establish a consistent product strategy, where the combination of all of them ensure the durability of the final piece (Fletcher, 2012).

Another key aspect to increase the lifecycle of the garment and the value for the customer is the emotional connection with the product. Various authors have developed different approaches to explain this relationship between the lifecycle of a garment and the emotional connection of the user with the item (Fletcher, 2012).

Jonathan Chapman proposes this idea in his book *Emotionally Durable Design* (2005), where he promotes the emotional durability of the products, justifying that customers discard their clothes when they lose meaning for them. So, in order to extend the lifecycle of the product, it is essential to promote the emotional and experiential connection between the consumer and the garment, thus avoiding the tendency to consume new goods. In his book, Chapman developed six different elements to initiate emotional connection with the product: the narrative element, where the customer shares a special story with the garment, the detachment, when the customer feels no emotional connection, but has low confidence and because of this, the product becomes attractive for him as it will not be as popular, resulting in a unique piece for him. Then there is the surface element; the product can last in great conditions; thus, its durability creates tangible character over time. The next is the attachment element, when the individual feels a strong emotional connection with the garment, followed by the enchantment element, when the consumer is amazed by a product and enjoys every discovery, he makes about the garment itself. Finally, there is the consciousness element, where the garment has a complex meaning and background and it requires the acquisition of skills in order to understand and interact fully with it (Fletcher, 2012) (Chapman, 2015).

Another approach has been elaborated by Batterbee Mattelmäki, classifying the products in three categories with meaningful associations: meaningful tool, when the functionality of the garment enables the realization of an activity, meaningful association, as the item acts as an element with a significant connection with individual or cultural meaning, and finally, the living object, as the item encourage an emotional linkage with the use (Fletcher, 2012).

Finally, Alistair Fuad-Luke proposes different approaches to lengthen the consumer usage of the product. The quality of the product to become durable, through a good design, upgradable and maintainable products. The possibility of sharing the product or incorporating the consumer in the design process to introduce personal features that can establish a unique connection between the user and the product. Moreover, introducing the possibility of personalizing the product though its lifecycle, in order to extend the aesthetic and narrative appeal. Proposing social connection between the product and the society, or increasing the sensorial variety (Fletcher, 2012).

2.9. Metaverse

In 1992, Neal Stephenson created the term metaverse, defining it as “A massive virtual environment parallel to the physical world, in which users interact through digital avatars” (Giovanni, 2023).

The term metaverse is used to refer to the integration of virtual reality, augmented reality, and mixed reality into the real world, through the use of digital avatars. This new platform can benefit the business model of the companies, from the integration of new technologies such as NFTs, cryptocurrencies, blockchain, the internet of things (IoT), artificial intelligence and machine learning (Periyasamy, 2022).

The main objective of the metaverse in terms of a business model is to increase the communication between the business and the people. This platform offers the customer the opportunity to build avatars with personal features, which can trigger the immersion of the user in order to feel they are participating in the event, while becoming more personally connected to the brand. This new platform also provides a new opportunity for the business in terms of marketing, as they can replace the traditional marketing tools to implement a direct communication through the avatar and the platform itself (Periyasamy, 2022).

There are four different pipelines in today's business structure. The first one is referred to as the business model pipeline, a traditional value chain where raw materials or feedstock enter in the system as inputs, and they transform them and add value to the final product through a linear process. Then, the product platform is a collection of products that share common features or designs, that are implemented in the business to produce specific products. The companies operate with a suppliers' network in order to create these products and deliver value to the customer. The next pipeline would be the Multi-side platform, where a service or a product connect two or more participants, playing an intermediary role; the connection itself is what generates the value for the customer, as without this intermediary, this connection wouldn't have happened, or it would have been difficult to accomplish by a customer alone. Finally, the last pipeline is the Multitude Platform, using blockchain to connect different parts of the sector and creating shared value for the customers, businesses, and society in general. Furthermore, the metaverse is able to merge all these platforms using blockchain to create a multiple interaction business model, providing different layers that can be easily managed by the company, as the product layer, the platform layer or the financial layer (Periyasamy, 2022).

Now it is time to analyze the most relevant opportunities and risks of the metaverse from a triple bottom line perspective: economic, environmental, and social performance. On one hand, in terms of economic performance, there are several opportunities, such as the creation of a new market for digital products; the improvement of the brand engagement, awareness and enhancement; an efficiency increases in terms of resources savings, production optimization and operational tasks in general; and the removal of fake goods or counterfeiting. On the other hand, it can also generate several risks in an economic perspective, such as the cannibalization of physical goods and traditional services; the reduction of patience to deliver and design goods; the definition of new strategies for old customers and markets; the 24/7/365 connection and service providing; and the educational need to understand the culture of the NFTs use and exchange (Periyasamy, 2022).

Apart from this, we also must consider the environmental perspective, as it is the main aspect of this report. In terms of environmental protection, there are several opportunities for growth. For instance, using the metaverse could reduce space usage and generation of waste, as, given that it is a virtual platform, people would travel less, reducing CO2 emissions; a lower exploitation of natural resources; and finally, less energy and resources consumptions, as the people will increase the number of home activities. While the metaverse provides new sustainable advantages, we cannot avoid the environmental risk that it can generate, such as, more energy consumption to maintain the 24/7/365 connection of the metaverse; new infrastructure necessity consuming more land; and the usage of more resources to provide the essential devices to use the metaverse, for example VR devices (Periyasamy, 2022).

Finally, it is also important to consider the social impact of this new platform, which can provide numerous opportunities in customer engagement and brand image. One example is the creation of new competences and therefore, new jobs. The emergence of immersive shopping experiences by way of interacting with metaverse may create new needs to provide quicker responses and solutions to customer inquiries and complaints. While these opportunities seem attractive for social development, we cannot ignore the risks that they represent, such as the reduction of real social interactions; the shortage of avatars to represent the personal aspects of each customer; limited infrastructure and capacity to access technology; and increase in the mental diseases; the need of creating standards, rules and regulation activities to avoid any criminal or illegal activity; and a decrease in the outdoor physical activities (Periyasamy, 2022).

Another important element to analyze is the business strategies of using the metaverse through the different areas of the company. In this report its essential to consider the different areas of the company in an environmental and social perspective. The first area would be the production section, where the principal environmental advantages of incorporating the metaverse would be the emissions reduction and a lower resources usage and waste generation, while the social benefits would be diversifying the goods offered to the customers. However, there are also some disadvantages, such as possible delays because of the complexity of the production system or the need of repurposing some production facilities (Periyasamy, 2022).

In terms of procurement, on one hand, the main environmental advantage would be the reduction of defected goods and waste generation by the suppliers, due to the smart contracts according to their real performance. On the other hand, from a social perspective, the result of the transparency diffusion would decrease the presence of fake goods and frauds. However, the suppliers could feel under pressure because of a constant monitoring due to the metaverse control (Periyasamy, 2022).

From a logistic perspective, with less waste produced, the environmental impact would be reduced as there would be a decrease in the quantities transported through the supply chain, resulting in lower emissions, accidents, and congestions. Moreover, from a social view, the people would have more product availability due to the logistics efficiency. However, the major disadvantage from a logistic perspective would be a decrease on the demand for job positions (Periyasamy, 2022).

Furthermore, in terms of quality management, due to the blockchain management efficiency, the supply chain would not imply a large material disposal, resulting in a decrease of wasted resources. Additionally, from a social perspective, the constant monitoring would ensure transparency, traceability, honesty, visibility, and originality. Nevertheless, most people would not be able to afford the more complex virtual reality tools required for some services (Periyasamy, 2022).

In terms of inventory management, the metaverse could increase the inventory efficiency from an environmental perspective, reducing the waste generated because of the inventory optimization. Moreover, people could have a general view of where the inventory is located to order wherever they want. However, all these advantages imply an increase of the energy usage because of the creation of virtual inventory and goods (Periyasamy, 2022).

Despite the increase in energy use, the stores and the physical distribution could also benefit from the implementation of the metaverse. On one hand, from an environmental perspective, the CO₂ emissions generated by the customer would be significantly reduced because these consumers will travel less to visit stores. Moreover, the virtual store display of virtual goods, would also reduce the resources used to display the different goods in a physical store. On the other hand, people would also have a better visibility of the goods located in each store, while verifying if those goods are real before purchasing them physically. However, the main disadvantage would be a major reduction in the job's positions required for a physical store (Periyasamy, 2022).

3. Methodology

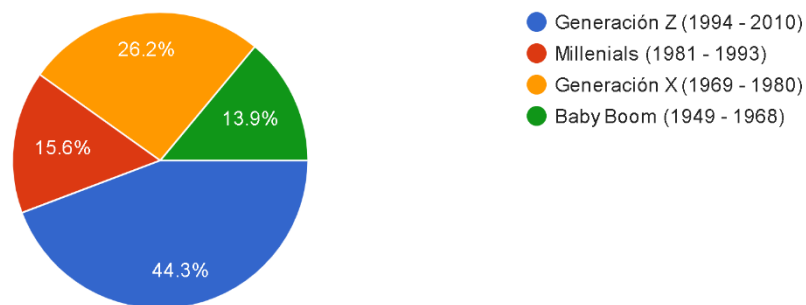
The methodology implemented in this essay was composed by two tools. Firstly, market research was undertaken, in order to acquire direct information from the customer on how the company's performance is regarding sustainability communication strategy compared to their main competitors, considering the main attributes of a product that the customer identifies as sustainable, and the most valued aspect of a fashion item.

To that end, an online survey was circulated on the 3rd of May in 2023, through the student network of the university, WhatsApp and Instagram. This survey was done by convenience sampling, with 122 participants. First of all, the sample of the survey was distributed in the following percentages: 13,9% Baby Boomers (1949-1968), 15,6% Millennials (1981-1993), 26,2% Generation X (1969-1980), and 44,3% Generation Z (1994-2010) (Figure 5).

Figure 5 Generation of the participants

¿A qué generación perteneces?

122 respuestas

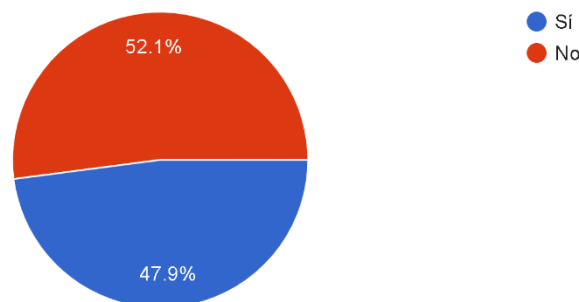


Source: Zara Sustainability Diffusion online survey.

Figure 6 Consumer loyalty

¿Compras habitualmente en Zara?

121 respuestas



Source: Zara Sustainability Diffusion online survey.

From these different generations, 47,9% usually buys at Zara, while the rest of them do not. 29,4% of the Baby Boomers, 42,1% Millennials, 37,5% of the Generation X, and 61,1% of the Generation Z usually buy at Zara, demonstrating Generation Z as the largest generational representative of Zara's customer. The second largest customer group is from Generation X, the third are the Millennials, and the last ones the Baby boomers (Figure 6).

In order to conduct this analysis, we must first consider the different variables related to a sustainable strategy, elaborating a survey to collect all the relevant information directly from the customer. It is important to consider the different aspects that the consumer identifies as sustainable when buying a textile product and trying to rank these attributes in order to disseminate the information.

Secondly, it was also essential to effectuate a benchmarking of the fashion brands that are focusing on sustainability as a main objective of their strategic management: Pangaia, Ecoalf, Patagonia, Adidas and H & M. The goal of the benchmarking consisted of discovering which Pop-up strategies they were implementing, in terms of brand awareness, architecture design, customer interaction, product display, visual merchandising and store location. Finally, the price decision for the products was also important, so market research of the competitors was done, considering the price according to the product categories, features, and sustainable initiatives.

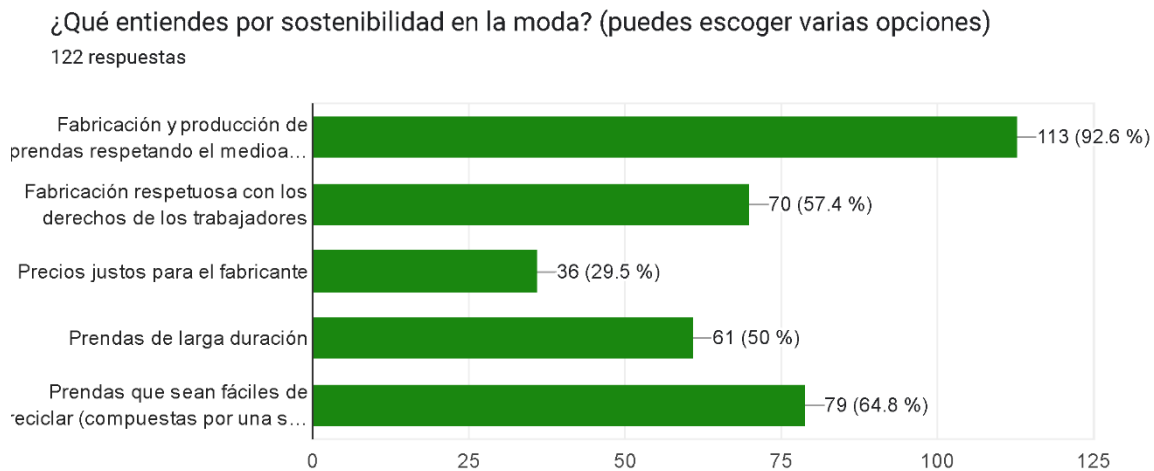
3.1. Market research: Zara sustainability diffusion

This section is dedicated to analyze which attributes of the product are valued by the customer before buying, as well as how the customer perceives the different sustainable attributes of a fashion product. The result of this survey is aimed at determining the effectiveness of the communication strategy of Zara's sustainable initiatives while trying to improve any area subjected to be upgraded.

The product characteristics considered in this survey were: the sourcing and manufacturing of garments regarding an environmental consideration, a fair production taking into account the different employees' rights, fair prices for the manufacturers, the durability of the products, and the ease with which different fibres of a textile product can be recycled (for example, single-fibre garments are easier to recycle).

From a customer point of view, 92,6% of the participants believe that the sourcing and manufacturing of garments in an environmentally friendly way is the most valued aspect when determining if a product is sustainable or not, then 64,8% consider the ease with which fibres of a textile product can be recycled as the second most valued attribute of a sustainable garment. Next, 57,4% believe that the third most important aspect to consider as a sustainable characteristic is the fair production taking into account the employees' rights; 50% expect that a sustainable product must be durable, and the less valued sustainable attribute of a product, with a 29,5% of participation, would be the fair prices for the manufacturers. So, we can conclude that the majority of costumers with a sustainable mindset value the environmental consciousness of the sourcing and manufacturing as the most determinant attribute when buying a sustainable product. The rest of them value the easiness to recycle fibres, the fair production considering the employees' rights, and the durability of the product as incentive to execute a purchase, while the majority of the customers do not consider the fair prices for the manufacturers as a relevant aspect to buy a sustainable fashion product (Figure 7).

Figure 7 Fashion sustainability approaches of the participants



Source: Zara Sustainability Diffusion online survey.

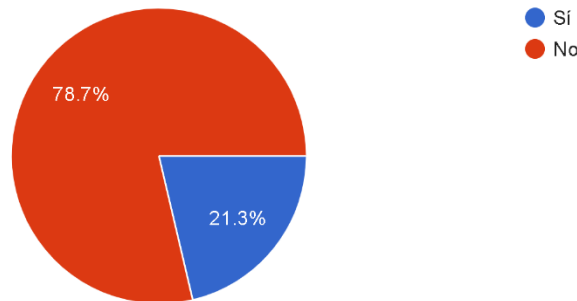
In order to determine if Zara's communication strategy of their sustainable initiatives is reaching the customer, we have to recognize the succession rate, considering the proportion of customers that have noticed any sustainable initiative from Zara. After obtaining the results from the survey, we can determine that only 21,3% of the participants have heard about a sustainable proposition from Zara, while the other 78,7% have never heard of any sustainable initiative from the company. However, it is also important to consider the fact that approximately only 65% of the fashion customers care about the environment, although only some of these customers regularly consider sustainability when purchasing (Claudia D'Arpizio, 2022). In order to conclude, the evidence shows that Zara's communication strategy of their sustainable initiatives is not as effective as it should be; while 65% of the general customers are environmentally conscious, only 21,3% have noticed any of these initiatives. A great engagement rate would be near 65%, but an acceptable rate would be 50%, as we must consider that not all of the 65% of these customers regularly consider the sustainability as a main attribute to make the purchase.

The 21,3% of the participants that noticed any sustainable initiative were asked to specify the sustainable propositions which they heard about. The majority of these individuals were aware of the use of recycled materials to manufacture textile products, and the instore pickup of used garments to recycle them into different textile products. Another large portion of the participants knew about the Join Life label, although not all of them recognized the name. The rest of the participants noticed other initiatives such as the use of recycled bags, the reduction of the plastic packages, the use of organic cotton, and the decrease of water usage in the production processes, sourcing, stores, and headquarters (Figure 8).

Figure 8 Zara's sustainable initiatives participants awareness

¿Has leído o escuchado recientemente alguna iniciativa sostenible por parte de Zara

122 respuestas

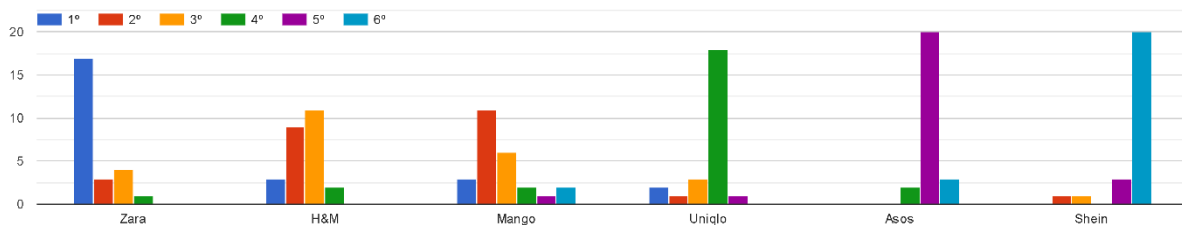


Source: Zara Sustainability Diffusion online survey.

The survey also presented a section to compare the sustainable strategy of Zara with their competitors. In order to determine rivals of Zara, the main fashion mass market multinationals were selected: H&M, Mango, Uniqlo, Asos and Shein. Once the results were obtained, we can conclude that Zara is perceived as the most sustainable company by the customer, followed by Mango, H&M, Uniqlo, Asos and Shein in this order (Figure 9).

Figure 9 Companies' sustainability commitment perception of the participants

Ordena estas compañías según su nivel de sostenibilidad



Source: Zara Sustainability Diffusion online survey.

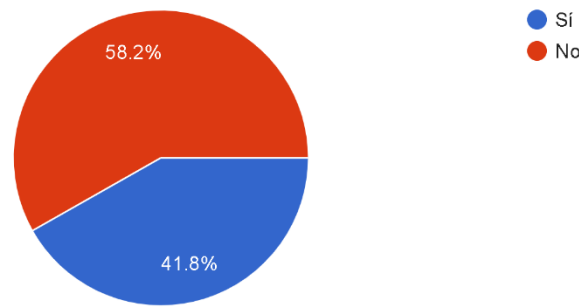
Moreover, the survey also presented a section asking if the customer knew about the Join Life existence. In this category, the results obtained showed that 41,8% of the participants knew about the existence of Join Life, while the rest of them did not. Apart from this, in order to complement the information acquired, these participants were also asked about their knowledge of any of the Join Life standards. In fact, only 9,8% of the participants knew about any of these standards, which is 4 times less compared to the people who recognize Join Life. Moreover, of these 9,8% of individuals that affirmed that they knew any standard from the Join Life commitments, only 46% gave correct answers when asked to specify what the standards were, such as Green to Pack, Zara pre-owned, net zero emissions in 2040 and

more ecologic cotton. In conclusion, the communication strategy of the Join Life is not as effective as it could be, as only 6% of the participants recognize a real standard from the Join Life commitments (Figure 10 and Figure 11).

Figure 10 Join Life participants awareness

¿Alguna vez has oído hablar del Join Life?

122 respuestas

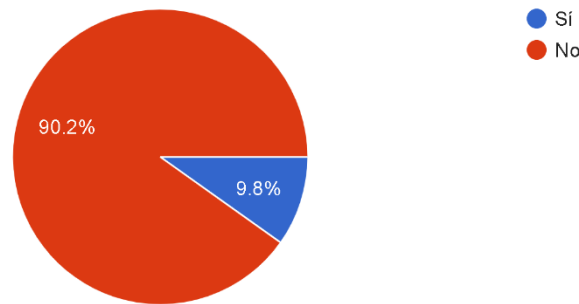


Source: Zara Sustainability Diffusion online survey.

Figure 11 Join Life standards participants awareness

¿Conoces alguno de los estándares de Join Life?

122 respuestas



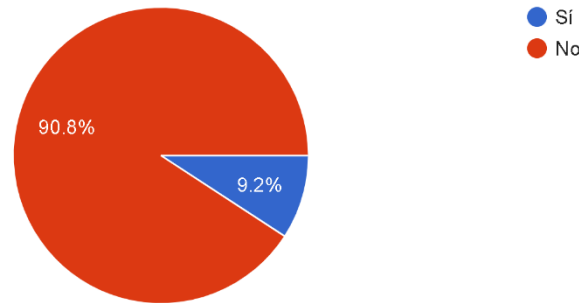
Source: Zara Sustainability Diffusion online survey.

The next question was also related to the Join Life section, but the intention was more specific, directed to know how many people know about the Sustainable Innovation Hub. The results show us that only 9,2% of the participants have recognize the existence of the SIH (Sustainable Innovation Hub), which is evident considering that only the 9,8% knew about the Join Life commitments (Figure 12).

Figure 12 SIH participants awareness

¿Conoces el SIH (Sustainability and Innovation Hub)?

120 respuestas

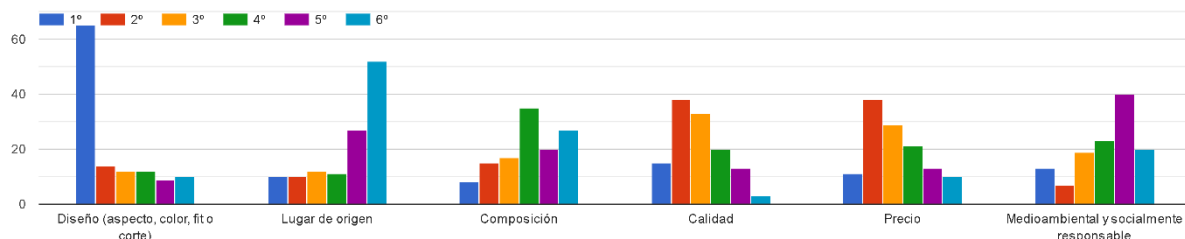


Source: Zara Sustainability Diffusion online survey.

Finally, the last question was intended to find out which attributes of the product are the most valuable for the customer when shopping for fashion items. The attributes displayed were the design, specifically the color, fit, appearance and shape, country of origin, composition, quality, price, and environmental and social consciousness. These product characteristics were selected considering the different customer behaviors when shopping. After getting the results, we can conclude that the majority of the participants consider the design as the determining factor when buying fashion items, with 53,3% of participation. In the second place there is a tie between the quality and the price, as 31,1% voted for both of them. The third characteristic considered by the participants as one of the most valuable aspects of a fashion item is the quality, with 27% of participation. Then, 28,6% of the people selected the composition as the fourth characteristic to consider when buying a textile product. In the fifth place, with 32,7% of the participation, the people have selected the environmental and social consciousness. Finally, the majority of the people consider the country of origin as the less important characteristic of a fashion item, becoming the second most voted element after the design, with a 42,6% of participation (Figure 13).

Figure 13 Importance of the product aspects from the participants point of view

¿Cómo valorarías por orden de importancia los distintos aspectos de una prenda en el momento de compra?



Source: Zara Sustainability Diffusion online survey.

As a general conclusion, we can state that, even though Zara's sustainable strategy and Join Life commitments are solid and consistent, the communication strategy for this area is still

in need of improvement, in terms of diffusion of information and customer engagement. However, the strategy should not be considered as a general marketing strategy to stimulate the consumption of the customer, because the company could be related to “green washing,” as it happened with H&M because of the ambiguous sustainable labels. Instead, it should be approached from a pedagogical point of view to educate the consumer, while creating a distinctive value compared to the competitors, which in the long term could be capitalized on to encourage the consumption of sustainable products through brand awareness. However, Zara is considered as the most sustainable brand in the fashion mass market compared to their main competitors, which results in a competitive advantage to develop this strategy.

Moreover, if the company wants to market sustainable products, it is important to understand the customer behavior, considering the environmental commitment in the manufacturing and sourcing processes as the most valuable attribute of sustainable products. While it is important to consider all the mentioned aspects of a sustainable product, they should also focus on the easiness to recycle fibres, the fair production considering the employees’ rights, and the durability of the product, as these aspects can become decisive to secure the sales of sustainable items.

Additionally, it is not coherent to focus on sustainable aspects while neglecting the main product characteristics. It is also relevant to focus on the design, as for the customer, this is the most valuable characteristic of the fashion products. However, it is also important to consider the quality, price and composition as valuable characteristics from a customer point of view, because the sustainability is still not a major factor to consider when the average consumer makes a purchase. Likewise, the country of origin has been declared by the customer as a characteristic that is not considered by the general consumer as a must to purchase a textile product.

3.2. Benchmarking of sustainable brands’ pop ups

3.2.1. Pangaia

Pangaia opened two Pop-up stores in 2022, one in Los Angeles, and the other one in Milan. These two stores were designed with a sustainable mindset; for instance, the materials used to build the exterior of the store in L.A. were reused and repurposed, creating a carbon neutral space. Moreover, the Milan brick-and-mortar pop-up store in La Rinascente has also been designed considering the foundational pillars of the brand which are carbon neutrality, circularity, and purpose (McQuarrie, 2022).

With every purchase made in both stores, Pangaia committed to donate a portion of the revenue to the Tomorrow Tree Fund NGO, which is dedicated to planting, protecting, and restoring trees, following their objective of giving back to the earth more than what they take from it. Furthermore, the customer was also able to interact with a digital screen in order to plant a tree by themselves (McQuarrie, 2022).

Additionally, both of the stores were equipped with screen showcasing pedagogical information about how to protect the Earth and brand approaches toward sustainability, but also 3D soundscape that imitate natural environments for example the coniferous woodlands of Northern California. The smell of the store was also planned according to their vision, a combination of greenery, wet soil, and moss, bringing the customer into a natural

experience reminding of the presence in a forest. Furthermore, the exterior part made in a bright green color was also thought to reinforce the brand's scene to fight the climate change (Blomquist, 2022).

The Pangaia pop up architecture looks minimalistic with a combination of eco brutalism, with natural elements such as plants or moss. The textile products were displayed by colors using racks, tables, and walls designated to create garment combinations. Moreover, the store was intended to help people discover innovations from the brand like Panhemp or Pprmint.

3.2.2. Ecoalf

Ecoalf opened a Pop-up store in the Diagonal Mar mall in a space called The Cube, intended to embrace other innovative brands whose purpose is the dissemination and awareness of the all the problems related to the ocean's conservation. The company explained that the space was not only a selling point, but also a place to communicate and display the brand objectives towards sustainability (Modaes, 2018).

The company decided to bring this Pop-up store to this mall in Barcelona, as the brand scene is based on the production of garments from waste found in the ocean. Furthermore, they want to showcase the solutions that they are providing to solve the oceans problematic in order to educate the customer (Morales, 2018).

The architecture is based on the shape of a transparent cube, the space is small, making it seem like there is no space to walk around, although the product display is really precise, considering the space organization. All over the windows of the store you can find text with pedagogical information about the ocean problems and the brand commitments. The central space is destined for the cashier designed following the cube style.

3.2.3. Patagonia

Patagonia also opened its first Worn Wear shop in Boulder, Colorado. The location was set in an old store from the company at 1212 Pearl Street. The Pop-up store only sells secondhand clothes that have been repaired, as the company is continuously reinforcing the idea of fixing textile products to extend the lifecycle of them. They have also organized repair and upcycling workshops, giving masterclasses such as Sashiko mending class, a traditional Japanese technique to mend clothes and extend the life of the Kimonos, teaching stitching techniques not only functional but also decorative, to enhance the emotional connection between the customer and the product (Larsen, 2019).

They started the Worn Wear online shop in 2017 as an improvement of Patagonia's traveling repair workshop. This program allows customers to trade secondhand clothes, or even sell them directly to the company, after they pass an inspection, so they can resell them through their platform. This platform has result profitable for the brand, and now it has become a differential element for the company compared to their competitors (Larsen, 2019).

In this Pop-up store they have also offered their ReCrafted collection made from old Patagonia's garments which have been deconstructed in scraps, rethought, and upcycled to create new products; some of these products even have parts from six different garments. This collection of 10.000 units has been the biggest upcycling project ever within the fashion industry (Larsen, 2019).

The company is trying to be earth positive, or at least carbon neutral by 2025. It is true that these upcycled products have an environmental impact in the processing, cleaning, manufacturing, and shipping processes. Nevertheless, they have a smaller impact than the products made from virgin materials, or even the ones that have been recycled, due to the mechanical and chemical processes that they need to execute in order to create new fibres from old materials (Larsen, 2019).

3.2.4. Adidas

In 2021, Adidas inaugurated a Pop-up store in the SoHo streets of New York; they brought together a bunch of vendors offering Adidas exclusive thrift and upcycled products, promoting customers to donate their old clothes to threadUP. This store was planned under the “Choose to Give Back” initiative towards one of their main missions as a brand—to end plastic waste. The customer could get pieces from Ji Won Choi, Beepy Bella, Tyranny & Mutation Theophilio, while Basketcase Gallery was offering live screen printing for the customer, and Eva Joan teaching and repairing old, damaged clothes (Rosenberg, 2021).

The most interesting thing about this Pop-up store, is that no money transaction was involved between the customers and the company in the shopping experience. Each of the pieces in the store had an assigned value in points, these points could be earned by customer, by donating clothes to threadUP. Furthermore, any point that was not used+ by the customer to get a product could be exchanged via the Creator’s Club app, to shop in the Adidas’ 5th Avenue flagship location. This experience was focused on swapping old and upcycled clothes, not on selling new garments, in order to avoid the production of waste, and reduce the use of water and energy. This initiative is part of their commitment of becoming carbon neutral by 2030 (Rosenberg, 2021).

The store was meant not only to be an exchange of clothes, but also to create interactions between the designer, thrift vendors, and customers to enhance the customer experience and create emotional connections with the pieces. This program was so innovative because of how the company created value for the customer without using marketing strategies to boost the sales (Rosenberg, 2021).

3.2.5. H&M

The Swedish company has made a step up towards circularity, by opening a Pop-up store of vintage pieces from old stock. These pieces are from the more fashion-forward collection, H&M studio, rather than their fast fashion collections. This collection is the most innovative section from the company, creating Avant Gard and complicated designs, not made for the usual customer, so a large part of the collection was not sold completely. This is the reason why they have decided to create two Pop-up stores, in Stockholm, Sweden and Berlin, Germany, to sell these old garments. However, they have also partnered with a vintage brand named Selpy, to sell past H&M studio pieces in four other stores (Maisey, 2021).

In 2020, the company developed an innovative technology named Loop, which allows the customer to bring their old clothes, throw them into the machine, and watch how these clothes get cleaned, cut into small pieces of fabric, spun into new thread, and woven to create new textile pieces (Maisey, 2021).

The brand is trying to get rid of the accusations from the media, of promoting and encouraging a culture of buying and throwing away, by betting for the recycling and





reutilization of clothes. Furthermore, they have also been innovating and searching for methods to reduce the production of waste and the use of water and chemicals in order to reinforce their reputation (Maisey, 2021).

3.3. Benchmarking of sustainable brands' prices

Once the market research of the other brands' Pop-up stores has been done, the companies selected to do the price strategy market research have been determined by their sustainability compromise, price criteria, the customer base, and the similarities in terms of the type of product offer with Zara: COS, Arket, Pangaia, and Patagonia.

3.3.1. COS:

Table 1 COS benchmarking





Type of product	Composition	Country of origin	Price	Item
Sweatshirt	100% organic cotton	Turkey	69€	
Hoodie	58% ECOVERO™ Viscose, 29% recycled polyester, 13% recycled nylon	China	89€	
Denim jacket	100% recycled cotton	Turkey	115€	
Jeans	100% recycled cotton	Turkey	69€	





T-shirt	100% organic cotton	China	59€	
Puffer vest	100% recycled nylon and recycled down	China	125€	
Polar fleece jacket	100% recycled polyester	China	99€	
Puffer jacket	100% recycled polyester, and duck down	China	195€	
Tailored blazer	100% recycled wool and lining 100% recycled polyester	Italy	190€	
Mini bag	100% recycled polyester and lining 100% cotton	China	45€	





Source: [COS webpage](#)

3.3.2. Pangaia:

Table 2 Pangaia benchmarking

Type of product	Composition	Country of origin	Price	Item
Sweatshirt	100% organic cotton and treated with peppermint oil (PPRMINT™)	Portugal	140€	
Hoodie	100% organic cotton and treated with peppermint oil (PPRMINT™)	Portugal	155€	
Hoodie	cotton grown using regenerative farming practices that aim to restore nature, rehabilitate soil health and support farmer livelihoods	Portugal	185€	
Hoodie	recycled and organic cotton mix	Portugal	210€	





Hoodie	100% organic cotton and dyed with food waste ingredients	Portugal	280€	
T-shirt	recycled cotton and organic cotton mix	Portugal	80€	
T-shirt	100% regenerated fibres created from post-consumer textile waste, partnering with Infinited Fiber	Portugal	80€	
Jeans	regenerative wild Himalayan nettle and organic cotton	Turkey	240€	






Denim jacket	regenerative wild Himalayan nettle and organic cotton	Turkey	290€	
Vest jacket	FLWRDWN™, an innovative breakthrough down material created from wildflowers, biobased fibres and 100% recycled nylon shell	Portugal	260€	
Puffer jacket	FLWRDWN™, a biobased animal-free alternative to duck and goose down, created with wildflowers and a biopolymer, and a recycled nylon shell	Portugal	565€	
Blazer	100% organic cotton with a soft peached finish. It is lined with cupro, a naturally sourced regenerated cellulose fibre made from cotton waste	Portugal	310€	


Source: [Pangaia webpage](#)

3.3.3. Arket:

Table 3 Arket benchmarking

Type of product	Composition	Country of origin	Price	Item
Puffer jacket	shell made from 100% recycled polyamide, padding made from 100% recycled down and feathers and lining made 100% polyester	China	229€	
Hoodie	74% organic cotton and 25% recycled cotton	China	79€	
Puffer vest	shell made from 100% recycled polyamide, padding made from 100% recycled down and feathers, and lining made from 100% polyester	China	129€	
T-shirt	50% recycled cotton and 50% recycled polyester	Bangladesh	39€	

Sweatshirt	90% organic cotton and 8% recycled cotton	Turkey	79€	
Duffle bag	from 100% recycled nylon, padding made from 100% polyethylene, lining made from 100% polyester, details made from 100% polyester, and strap made from 100% recycled nylon	China	159€	
Tote Bag	100% recycled nylon, padding made from 100% polyethylene, lining made from 100% polyester, shell made from 100% recycled nylon, and lining made from 100% recycled polyester	China	79€	
Denim jacket	95% recycled cotton and 4% organic cotton	Turkey	99€	
Denim jeans	shell made from 80% organic cotton and 20% recycled cotton, and lining made from 100% organic cotton	Turkey	89€	




Packable tote bag	shell and lining made from 100% recycled PET bottles to obtain polyester, and strap made from 100% nylon	China	39€	
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Source: [Arket webpage](#)

3.3.4. Patagonia:

All the following items are made under the Fair Trade Certified™ sewn:

Table 4 Patagonia benchmarking

Type of product	Composition	Country of origin	Price	Item
Hoodie	100% recycled fibres from recycled plastic bottles and fabric scraps	Mexico	90€	
T-shirt	50-100% recycled polyester with HeiQ® Pure odor control	Mexico	50€	
Sweatshirt	100% Regenerative Organic Certified™ cotton from farms working toward the highest organic standard	Mexico	100€	

Polar fleece	100% recycled polyester	Thailand	120€	
Duffle bag	from 100% postconsumer recycled polyester ripstop, and lining made from 100% recycled polyester with poly-coating	Vietnam	150€	

Source: [Patagonia webpage](#)

4. A proposal of Pop-up retail and new immersive platform for Zara

4.1. Name

The collection has been given the name Statera, which means equilibrium in Latin. The products created by the multiple industries are necessary for society; however, we must minimize the impact of these activities in order to become carbon neutral for the planet, so we can continue to grow without becoming harmful to the environment, achieving a situation of equilibrium between the people and the environment. Furthermore, the name has a Latin origin because Zara has grown in Spain, a country with a culture based on our Latin ancestors.

4.2. Pop-up store

The Pop-up store will be located in the flagship stores of the company, for instance, taking the A Coruña flagship as reference, the Pop-up store would be located at the top floor, reserved for special events. Moreover, this Pop-up store will have three different sections, the collection side, with all the pieces created in collaboration with the mentioned start-ups; the repairing section, purposed to show and teach the customer how to repair and mend their clothes by themselves in order to extend the product lifecycle, and the metaverse space. This section would be directed to show how the customer can interact with the Zara metaverse.

4.2.1. SIH collection

The collection section is going to be the biggest space of the store, composed by the pieces from the collection and screens displaying content about sustainability. The garments would be displayed using tables, racks, and walls organised in groups depending on the start-up behind the creation of the fibre, with information about the partner company of each article. Therefore, the clients will have the option to buy the product not only because of the design, quality, or price, but also because of the background information of the item itself, such as the technology behind the creation of the fibre, the vision and mission of the different start-ups, or even the environmental effect behind it.

The collection will be divided in two different capsules. The first one must be designed to offer unisex premium pieces considering the materials quality, comfort, durability, and functionality. The design needs to be timeless and season-neutral, in terms of colours, shape, and graphics in order to avoid the culture of buying and throwing away. The pieces also need to establish an emotional connection with customers by using customization and digital interactions to enlarge the lifecycle of the products.

The materials used for the collection would originate from the Zara SIH partners, as well as from the new proposed partnerships. These fibres have a sustainable feature, due to the recycling processes behind and the innovative technology used to create environmental conscious products.

Additionally, another product line will be offered, following the studio collections that Zara has been developing recently. This capsule will be based on a high fashion style combined with upcycling techniques to create unique pieces that the customer can value as something exclusive, in order to create emotional value for the user. Therefore, this proposition will be based on the Adidas Pop-up store case analysed before, where the customers could only

access the products by getting points in the store. The customers will be rewarded with points as they donate their old clothes to the brand, and the points given to the users will depend on the type of garment. The strategy for the points given by each garment will be developed in [this paragraph](#).

The screens will display pedagogical information using the Pangaia Pop-up stores as a reference, showcasing infographics about how the composition of the pieces have been developed and manufactured, according to the sustainable innovations from the partnership start-ups. Furthermore, the information shown would make references on how much energy and water has been reduced, and how many CO2 emissions have been avoided using this technology. However, this information must be tangible for the customer, avoiding using statistics or figures that the general customer cannot understand. Instead, the information display will make useful references such as: using the traditional production methods, with this amount of nylon, only 1 jacket could have been produced; however, by using this new technology, this material can be recycled an infinite amount of times, creating jackets over time with the same amount of fibre.

4.2.2. Repairing workshop

The repairing section will be composed of one expert in fixing and mending textile products, with all the essential equipment, such as a sewing machine, sewing shears, tape measures, bodkins, seam rippers, sewing needles and a rotary cutter. Furthermore, there will also be an embroidery machine that the customer can use to personalize the garment by embroidering their names, others' name, or any meaningful messages; in doing so, they will create an emotional connection with the garment. This workshop would be inspired by the Worn Wear Pop-up stores from Patagonia, where the customers can attend in order to learn about how extend their textile products lifecycle though repairing. Moreover, the store will offer the customers the option to buy a set of essential equipment for sewing, containing the elements mentioned before, except the sewing machine due to the high cost of acquisition which would make the repair kit inaccessible for many people.

4.2.3. Metaverse space

Finally, the metaverse space will be focused on displaying the collection in 3D avatars wearing the pieces, showing the customer how the metaverse can be integrated with the physical item. Furthermore, these avatars will be shown on the screens, but the customer will also have the option of integrating the virtual reality in their shopping experience by using the app to see their avatars trough their smartphone cameras. These avatars will have some level of appearance customization available in order to make the customer feel more connected with their character.

Additionally, this space will also show the different elements from the digital world, that the customer will be able to interact with through the app. By scanning a QR code on the garment's label, they would be available to use their own devices in order to access the option of interacting with the same garment they have purchased, but in a digital way. As the Stone Island brand does, via their authenticity check, using the Certilogo® technology the company is able to ensure that their customer are not getting fake products from external retailers (Stone Island, 2023) (Page, 2023). Once they have the virtual product, they will be able to dress up their avatars as they want, with the purchased items. The items available for scan would only be the items from the sustainable collection. Moreover, once

they have the virtual garment in their profiles, they will be able to find information about the sourcing and manufacturing of the textile product, how the fibre was created using innovative technology, which start-up is behind the creation, how the product is contributing to sustainability by showing tangible results like the ones mentioned before on the screens.

The sustainable products are more expensive, due to the high-cost process that the companies need to execute to fulfil all the relevant specifications. That is why the final price is higher compared to the average product from the company. Sustainability must be a goal for all the companies, and a requirement for every customer; however, the companies cannot persuade the audience to buy higher cost products without adding any direct value in terms of need satisfaction for the customer. Instead, by way of the unique experience in this pop-up store, Zara would be able to sell sustainable products which the customer will value not only for being sustainable, but also because they can interact with them and create emotional connections with the item. As a result, this will extend the lifecycle of the product, as it will be more difficult for users to get rid of items that they have a stronger connection with. Therefore, not only would the company be responsible for offering sustainable products, but also the customers would need to participate in this process, by supporting a change in the way we consume articles after we have acquired them.

4.3. Marketing Plan

4.3.1. Product

The main product line will be based on unisex, essential, and comfy items which can be worn day to day. These products will go from flat knit to circular knitwear, denim, outerwear, even woven garments like shirts and blazers. The collection has been planned as a spring-summer collection for 2024. These items will be designed considering Zara's brand identity, focusing on products that have been already done by the company, in order to implement the distinctive tailoring and stitching techniques and processes from the company, combining them with the innovative technologies from the start-ups in terms of fibre creation and spinning. The source for this collection will be the second-hand clothes recovered through the Caritas network, plus the damaged garments coming from their own manufacturing process.

Once the direction has been set, it is time to describe which product and style will be offered in the collection. The items should be related to the streetwear style, with a boxy fit following the oversize trend, heavyweight and using trendy and neutral colours. Considering that the collection is spring-summer, the product mix will be 15% circular knit t-shirts, 10% circular knit hoodies, 10% circular knit joggers, 5% circular knit sweatshirts, 15% denim, 15% woven dresses, 10% woven tops, 10% woven bottoms, 5% flat knit, 5% outerwear. Furthermore, it is also important to plan the size breakdown, given that it will be a genderless collection. The garments will cover a range of 2 sizes, for instance, 33% XS-S, 52% M-L and 15% XL-XXL, as can be observed, the size curve is accented in the M-L size, as it will be the most demanded size. The colours have been planned according to the WGSN and Coloro key colours for 2024 report, which are the fondant pink 147-70-20, cyber lime 051-76-36, nutshell 024-37-20, elemental blue 117-47-13 and radiant red 011-50-32 (Brahma, 2023).

Furthermore, the second line is aimed at a high fashion style, following the studio collections that the brand has been making recently. This collection will be based on the upcycling techniques in collaboration with the Upmade company, using its software in order to create distinctive pieces from old or damaged clothes. However, the upcycling strategy will be developed [in this paragraph](#).

4.3.2. Price

The collection is based on affordable premium items, so the final price of the product will have to be competitive compared to other brands offering similar products. However, there is no information about the cost of producing items with this technology, so the prices proposed will only be indicative, although the final prices will have to consider a minimum of 175% of profitability.

After the price market research, we can calculate the price for each product category in order to provide an indicative figure to take into consideration when planning the price strategy for the collection.

The T-shirt's average price, considering the four different selected competitors, is 61,6€; the sweatshirt's average price would be 97€, then for the hoodies, it is important to calculate the average of the Pangaia hoodies before doing the total average, as this company offers different hoodie models with a high price difference between them, consequently causing a significant deviation. Considering this, the Pangaia hoodie average price goes for 207,7€, making the proposed hoodie's average price 116,4€. The average price of the polar fleece would be 109,5€; however, only Cos and Patagonia offer this product with sustainable production. Denim jeans' price average would be 132,6€, and the in the denim jackets would be 168€. Furthermore, the vest price average goes for 171,3€, while the puffer jacket goes for 264,6€. Moreover, considering that only Pangaia and Cos offer sustainable blazers, the price average would be 250€. In the same way, COS and Arket are the only ones offering mini bags, and in this case, the average price would be 42€, while with Patagonia and Arket in the duffle bag section, the average price would be 154,5€.

It is important to know that that Pangaia's price strategy, as well as Patagonia's, on occasion, is determined by their almost high fashion essence, based on their environmental dedication. While it is important to include them as one of the competitors in the sustainability market, it must be recognized that the price strategy of Zara would never be the same. Therefore, when making the averages, the prices tend to be higher, causing a big deviation. This is the reason why we have decided to implement another average considering only the main Zara competitors in the sustainability market, which would be COS and Arket. Consequently, the actual average prices are as follows: Sweatshirts 74€, hoodies 84€, t-shirt 49€, denim jeans 79€, denim jackets 107€, vest 127€, puffer jacket 214€, mini bag 42€. However, we cannot use any average for the blazer and duffle bag, as they are offered by only one of them.

4.3.3. Place

The survey implemented for this essay show us that the main customers demanding sustainability are from Generation Z and some Millennials, which is why the strategy will be focusing on targeting these two segments.

As we have seen before, the Pop-up store will take place at the flagship stores from the company; nevertheless, the collections developed for these stores will also be available through the e-commerce platform of the company. Considering that the collection has been designed as a spring-summer collection for 2024, it will be available at stores in February.

It is also important to identify the customer touchpoints in the store, which would be the circular collection composed by the SIH that will be displayed in groups depending on the start-up behind each product, the upcycling collection, the repairing workshop, the metaverse space composed by the augmented reality features, and the educational visual content combined with Join Life initiatives.

4.3.4. Promotion

Zara's communication strategy is known to be subtle, without annoying the customer with too many advertisings and promotions. The company uses seven channels to communicate with their customers: their own online platform, email newsletter, Instagram, Facebook, Pinterest, Twitter, and YouTube. Considering this strategy, the Pop-up store will be promoted using these seven channels. Furthermore, the collection will also be promoted by the influencers network that the company is already using. Finally, in the e-commerce platform, in order to get more visibility, another section in the menu will be created for the Pop-store collection and metaverse space, as the SPRLS or Zara beauty section.

4.3.5. People

Nowadays, the customers are increasingly trying to feel more connection with brands, demanding more value in an environmental and social way. Therefore, it is also important to consider the post-sales service in order to create value for the users.

Nowadays, Zara's post sales service is composed by a product return policy of 30 days, a product exchange, or a money return in case the product is damaged unexpectedly, an order status, the option of changing or cancelling an online order, and their second-hand recovery system with Caritas. However, as this collection has been designed to be sustainable, it is important to consider the lifecycle of the items. Therefore, the company will implement a service of product exchange between the customers. This platform will be based on the Zara's preowned platform; however, it will be rethought for implementing only the products offered in the Statera collections, as the second-hand products will be recovered through the Caritas network in order to create sustainable products. In this way, the company will be extending the lifecycle of sustainable products while at the same time recovering old garments that were produced with no environmental or social consciousness to turn them into sustainable products. This service will be a step forward for the company's objective to become carbon neutral by 2040.

4.3.6. Customer Journey Map

In order to understand the different motivations, critic points and touchpoints for the customer, it's important to develop a customer journey map, which would be helpful to interpret the pathway which the customer will follow when entering both in store and website. Therefore, the customer journey map will be divided in 5 main sections: the awareness, motivation, consideration, decision, and loyalty phase.

- Physical store
 - Awareness phase:

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- See the advertisement in the facade of the store
 - Motivation phase:
 - Motivated by the involvement in a special event
 - Motivated by the acquisition of sustainable or innovative products
 - Consideration phase
 - Entrance to the store in the last floor
 - Interaction with the different touchpoints:
 - Circular capsule
 - Repairing Workshop
 - Metaverse space
 - Educational visual content + Join Life
 - Check product details and start ups' information
 - Decision phase
 - Donates clothes to acquire points so they can access the upcycling collection
 - Creation of an avatar in the Metaverse platform
 - Buying collection
 - Loyalty phase:
 - Asks for upcoming events
 - Provides feedback to the employees
 - Web
 - Awareness phase:
 - See the advertisement in the header of the web or app
 - Motivation phase:
 - Motivated by the acquisition of sustainable or innovative products
 - Motivated by the involvement in an immersive shopping experience through the Metaverse
 - Consideration phase:
 - Entrance to the collection section
 - Interaction with the different touchpoints:
 - Circular capsule
 - Metaverse platform
 - Educational visual content + Join Life
 - Check product details and start ups' information
 - Decision phase
 - Buying collection
 - Creation of an avatar in the Metaverse platform
 - Loyalty phase
 - Subscribe to the newsletter
 - Provides feedback in the social media platforms

4.3.7. Upcycling studio collection strategy

This product line following the studio collections will be based on upcycled garments, with a high fashion essence due to the high tailoring techniques, and the innovative idea of recycling garments without implementing any mechanical or chemical process, which are not totally carbon neutral.

The production of these upcycling pieces could be located in the own manufacturing facilities of the company, or even outsourced. Each piece will be unique because of the garments used; however, the designs will be standardized by using the same sewing patterns for garments, regardless of the material of those garments. It is important to create simple designs which the company already know how to develop, as the upcycling processes are already complex enough. Therefore, the product offer will be based on blazers and matching suit bottoms, if it's possible to manufacture the pants with the same garments used for the blazer; hoodies, as the pattern and tailor techniques are simple; denim total looks, composed by jackets and trousers; woven shirts, woven trench coats, and woven dresses. Furthermore, if the company feels comfortable executing this process, the idea of developing accessories could also be considered in the future.

In order to execute the design and pattern making process, Zara will be partnering with the mentioned upcycling company, Upmade. This company will provide software and support to develop the product design and the pattern making depending on the type of garments used.

The company will use three different sources for this upcycling pieces. The first source will be the Caritas network in order to obtain second hand garments that can be decomposed in scraps to create new pieces. The second source will be the damaged clothes that the company receives from the manufacturers, after the production process have been executed. Not only will this strategy reduce the company losses, but also it will reduce the environmental impact of manufacturing garment that are not ready to be sold to the public. Finally, the last source will be the deadstock trimmings and fabrics located in the Laracha warehouse, which were not able to be used to produce items that were already approved to me manufactured, as a result the production stopped because of poor sales performance. Therefore, these materials could be used to create other products.

Table 5 Number of equivalent points for cloth donation

Type of product	Number of equivalent points
T-shirts and tops	1
Scarfs	1
Suit vests	1
Hoodies and sweatshirts	2
Suit trousers	2
Shirts	2
Denim jacket and trousers	3
Jackets	3
Small bag	3
Flat knit sweater	3
Blazer	3
Outerwear jackets	4
Overall	4
Big bag	4
Trench coats	4

Source: own elaboration.

This upcycling capsule will only be accessible though the possession of Statera points. These points will be given to the customer once they have donated any garment to the company,

by using the Caritas container in the flagship store. In order to track which customers are donating and what type of garments, the employees will be provided with specific guidelines for the Pop-up store, with all the relevant information about the different tasks for the different sections. This point strategy will be available during the Pop-up, but after the closure, the people will have the opportunity of donating textile products in the same way as in the past, but without any point exchange.

The point repartition will be hierarchical distributed depending on the product type, because of the fibre amount in each garment. The point classification depending on the product can be seen in Table 5.

Once they have the points enough to access this collection, they will be able to buy the mentioned products. The company can choose between two different strategies in terms of production. On one hand, they could offer the products physically or through their e-commerce platform, once they have been produced, following the same production strategy of the company. On the other hand, they could opt for an on-demand manufacturing, offering the customers a 3D render of the final product before buying them, and once they have decided the total amount of units that the customer has ordered, they will start the manufacturing process. This last method has some advantages and disadvantages. The company could promote the idea of creating products that will not become waste, as the total amount of items produced will be sold, furthermore, they would be able to sell all the stock without any loss. On the other side, the main disadvantage will be that the customer will have to wait longer than usual to get their piece.

4.3.8. KPIS and monitoring

The KPIs are variables, factors, and measurement units, which are essential to monitor the effectiveness and productivity of the activities according to the sustainability and the efficiency of the supply chain, the marketing plan implementation, the communication strategy, and the sales succession. Therefore, after researching through several sources these are the most used by the companies (Saura, 2017), (Tomoki Oshika, 2017), (Vladimir Jovan, 2006), (Eckerson, Creating Effective KPIs, 2006):

Sustainability KPIs

- Supply chain waste
- Recycling rates
- Greenhouse gas emissions/Carbon footprint
- Energy consumption
- Load density: to maximize transportation
- Water use
- Ecological system impact
- Saving levels and improvements: to track improvements from year to year

Product KPIs

- Manufacture performance KPIs
 - Defeat rate: number of faulty or damaged products
 - Lead times: the time between when the supplier receives the order and when it is sent out
 - Contract compliance

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- Return on the investment
 - Product conditions KPIs
 - After worn conditions
 - Defective garment
 - Non sold stock

Marketing KPIs

- Sales growth: measuring the growth in sales revenue and how much of your total revenue is being influenced by the marketing strategies
- Cost of customer acquisition
- Website traffic to website lead ratio: how much of the web visitors are converted into lead
- Social media reach and engagement: using the social media KPIs of each platform

Sales KPIs

- Conversion rate: the percentage of users that take a desired action
- Customer lifetime value: how much a company expects to earn over the entire time it interacts with a customer
- Retention rate: the percentage of customers who stay or make another purchase of products or service from the company

Customer satisfaction KPIs

- Net promoter score: it measures the customer satisfaction, based on the likelihood the customer will recommend your business to other people
- Customer efforts score measures the efforts done by a customer to put in contact with the products, services, or the company itself
- Customer reviews: online feedback from customers
- Customer churn rate: the percentage of customers that stop doing business with company
- Abandonment rate: the percentage of users that end the interaction with the company before doing the desired action

5. Conclusions

To conclude, the main objectives of the thesis were to analyse Zara's sustainability strategy in order to spot business opportunities, the development of a viable proposal for a sustainable Pop-up store, the establishment of a repairing section inside the Pop-up store, the creation of a Metaverse platform, and the planning of a circular collection.

The fashion industry management bachelor studies from the University of A Coruña has given me the opportunity to develop a complete thesis from the business side of the project, in accordance with the supply chain comprehension of a multinational company, the most relevant marketing and communication tools, the process behind the fibre creation, and strategic management competences.

Once we have analysed both Zara's current start-ups, and the new proposed innovative companies, we can conclude which of these new start-ups can be beneficial to be integrated among the current Zara's partners. By this way, the most interesting start-ups will be selected from each field. From the fabric innovation in the leather field, Desserto has become the most attractive start-up to team up, as they have already collaborated with various prestigious fashion brands such as Adidas, Givenchy, H&M and Karl Lagerfeld, while they have also worked with other companies such as Mercedes-Benz or BMW. In the denim fabric innovation field, Tejidos Royo have demonstrated to be capable of creating an innovative way of reducing the environmental impact of the denim production, through their Dry Indigo technology, saving energy, water and reducing their CO2 emissions. Furthermore, in the polymers section, we will differentiate between polyester and nylon production. On one hand, in the polyester development field, the most attractive partner would be the Technological Institute of Plastic (AIMPLAS), in collaboration with the European project of Threading CO2, which have discovered a way of creating PET textiles from the CO2 waste streams. On the other hand, the most interesting nylon producer would be the Econyl company, as they are not only able to create a regenerated polyamide from nylon waste, but they can also recycle the Econyl products infinite times, becoming one of the most circular products in the textile industry. Moving on to the cellulose production, Orange Fiber and Spinnova are the best option, due to their capacity of recycling waste, save water and energy and reduce their CO2 emissions. In the manufacturing process innovation both Chalmers and Tonello are promising start-ups. Chalmers because of their capacity to purify the water used to dye fibres, and Tonello because of the utilization of organic products to dye. Finally, in the Upcycling innovation processes, Upmade is the only company offering a software to apply the upcycling techniques to the mass production of textiles.

After executing market research of the sustainability strategy of Zara's competitors, in terms of fibre innovation, marketing strategy, sustainability initiatives and corporate social responsibility, we can conclude that most companies are taking efforts to increase their environmental and social commitment. Therefore, the development of the different proposals for the company have been inspired in those initiatives from the other companies, such as the Pangaia case, where they share environmental information to raise the ecological awareness of the customers. Or even the punctuation system provided by Adidas, in order to swap clothes between the customers and the company.

Zara has a strong sustainability strategy, as the customer have manifested in the "Zara Sustainability Diffusion" online survey, where they considered Zara as the most sustainable

company, compared to their competitors. However, some aspects in terms of communication can be improved. As the online survey show us, most part of the customer are not aware of Zara's sustainable initiatives, although these customers have shown interest in sustainable products. As a consequence, Zara is losing potential customer in the sustainability field, because of the current sustainability communication strategy. Therefore, this essay shows the procedures and methods to create the Pop-up store of a net zero collection. This initiative will increase the customer perception towards sustainability, by showcasing environmental and social concrete information, in order to educate the customer. Moreover, this idea could never have come to fruition without my tutor Meritxell Vilalta's proposition of developing a Pop-up store to showcase the circular collection, or the advice of my other tutor Marta Rey, to focus on the marketing side of the project.

Furthermore, a seamlessly integrated digital experience has been proposed to increase customer engagement by rewarding the user with special content and features, through the use of the Metaverse platform. This platform can play an important role when educating the customer, and differentiating from the rest of the companies, so the customer loyalty could be raised through this unique shopping experience.

Moreover, the repairing section has been developed to reinforce that mindset and encourage the customer to take actions towards sustainability. The evidence shown in the repairing and upcycling workshop done in the Patagonia Pop-up store, have legitimized that this initiative can represent a major change for the business strategy, but also a grand opportunity to stand out amidst their competitors.

The collection has been planned from the sourcing of materials, and the manufacturing process, to the marketing plan and the creative direction. Both the SIH collection and the studio upcycling capsule have potential to differentiate Zara from the rest of the competitors, as none of these companies have ever offered a similar product. Moreover, in this way, Zara could be entering in the sustainable premium fashion market in order to increase its market share. However, the products designed for both collections, need to have the different characteristics that the customer value as sustainable, prioritizing the following order of importance: the fibre production and the garment manufacturing processes considering the environmental impact, developing textile products which can be easily recycled, manufacturing and production process considering the rights of the workers, creating durable garments, and finally offering fair prices for the manufacturers. Furthermore, it's also important to consider the different product aspects that the customer value the most when acquiring shopping fashion products, in the following order of importance: the design (in terms of appearance, colour, shape and fit), quality, price, composition, the social and environmental consciousness, and finally the country of origin.

Furthermore, other areas of the Pop-up store have potential to be explored; for instance, the architecture of the store could be designed to be sustainable. Additionally, other digital tools could be included in the store to offer a full, integrated shopping experience for the customer, such as smart mirrors in the fitting rooms that provide relevant information about the garment. Finally, it would be ambitious to introduce upcycling workshops, so the customer can directly participate in the creation of the garment, so they can build a strong emotional connection, not only with the item, but also with brand.

Although this project has been developed for the Zara brand of Inditex company, it can be adjusted for other fashion companies with similar business capacities, as the main motivation behind the thesis is to make a relevant contribution for the people and the planet.

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