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Product Management in the Fast and Slow Fashion
Industry

Master's Thesis

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Product Management in the Fast and Slow Fashion Industry.

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Abstract

Abstract: The success of Zara is examined through the lens of its innovative strategies, including the fast fashion approach, vertical integration and an adaptive supply chain that positions Zara as a pioneer in the fast fashion industry. In this study we are going to explore the successful business model developed at Zara, weighing the potential benefits and challenges that comes with it. Furthermore, this study contributes to a deeper understanding of the dynamics shaping the global fashion industry, offering insights into the strategies that made Zara a benchmark for success.

Keywords: Key words: Fast Fashion, Slow Fashion, Product Management, Inditex-Zara, Sustainability, Business Model.

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1. Introduction

In the ever-evolving landscape of the Fashion Industry, the dynamics between fast and slow fashion have become crucial, shaping the way apparel companies navigate product management and consumer preferences. This research embarks on a comprehensive exploration with the primary objective of unraveling the complexity of Zara's business model and product management deciphering its success, along with understanding the profound impact the brand has in the Retail Industry. Fast and Slow fashion represent two contrasting paradigms that dominate the contemporary fashion landscape, as per Fast fashion characterized by its production cycles and trend-driven approach, Zara stands against the deliberate and sustainable approach of slow fashion. Being the pioneer brand under the Inditex group umbrella, Zara has been a net worthy proponent of fast fashion, redefining product management and business model in the industry. This paper explores the connection between fast fashion - clothes that are "here today, gone tomorrow," and the product management of one of the most successful fast fashions nowadays. The question this paper attempts to answer is, **why is Zara's business model so successful? If other companies apply it, will it be as successful as Zara?**

More in detail, I begin this thesis with an in-depth look at the existing literature related to Slow and Fast Fashion, Product Management and the Industrial Revolution in the Fashion Industry and how Lean Manufacturing played a special part in companies' behavior. We will then examine companies that adopt Slow Fashion and what their values are. In Chapter 3 we will deep dive into Zara's Business Model, analyzing why they are so successful and what are their core values when it comes to selling; Talking about selling, we will have a look into Zara's Revenue and Inditex Revenue.

More in detail, this thesis initiates with a comprehensive review of existing literature related to Slow and Fast Fashion, Product Management, and the influence of the Industrial Revolution on the Fashion Industry, with a particular focus on the role of Lean Manufacturing in shaping company behavior. Subsequently, we delve into an examination of companies embracing Slow Fashion, delving into their respective values and commitments. We move forward in chapter 3 delving deeply into Zara's

Business Model, seeking to understand the factors contributing to its remarkable success and elucidating its core values of sales. Additionally, the chapter includes an exploration of Zara and Inditex's revenues, providing insights into their financial landscapes.

As the high point of this research, the thesis concludes by synthesizing the insights obtained from the exploration of Slow and Fast Fashion, the Industrial Revolution's impact into their Product Management, and Zara's Business Model. This conclusion chapter aims to refine the essence of my thesis, offering a comprehensive understanding of the intricate interplay between business models, product management strategies, and the broader industry landscape.

2.THEORETICAL FRAMEWORK

2.1 The Fast Fashion Industry - A History

The history of fast fashion is a narrative that weaves through the fabric of time, reflecting the dynamic between fashion, technology, and societal shifts. An industry that has deeply transformed how we perceive and consume clothing, from the roots of "ready to wear" in the late 19th century to the digital age of the 21st century, the fast fashion concept has not only shaped our wardrobes but has become an important part of our cultural and economic landscape.

Before the 1800s, fashion was slow, you had to source your own materials like wool or leather, prepare them, weave them and then make the clothes. This is a labor intensive and time-consuming process (Rauturier, 2023). In that same century, fashion occupied a very precise position inside the society, the clothes were designed exclusively for a wealthier group of people, while the majority possessed only a scarce wardrobe, preserving the clothes they had until they wore out. If an individual outgrew a particular clothing item, it was either passed down to another family member or repurposed with the fabric.

The concept of waste was virtually nonexistent, as clothing held significant value as a precious and scarce commodity for the majority. Within the industrial revolution came the sewing machine and clothes became easier, quicker and cheaper to be made. The introduction of the invention led to a rapid decline in cost of clothing which in turn boosted its production.

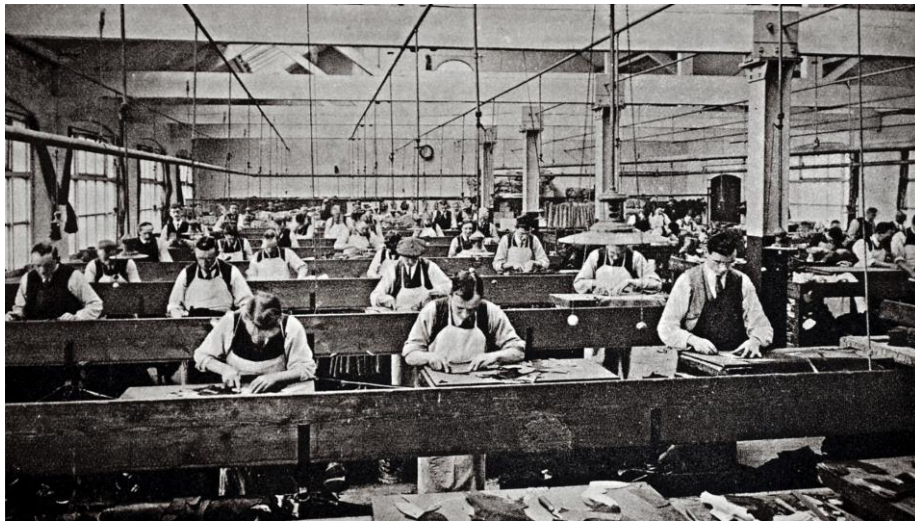


Figure 1: The coming of mass manufacturing (Google Images, 2024)

The landscape of the fashion industry underwent notable transformations as the 19th century gave way to the 20th century. The expansion of textile and clothing factories marked a shift towards more mechanized and large-scale production. This transition, however, did not overshadow the enduring existence of smaller workshops, which retained a significant role in the creation of garments. As society underwent socio-economic changes, the way people interacted with fashion also evolved. Wealthy women, seeking exclusivity, frequented elite couturiers who tailored clothes to their individual tastes. These couturiers became synonymous with luxury and craftsmanship, creating a distinct market for high-end, personalized fashion.

Simultaneously, the growing middle class found their fashion needs met by the emergence of dressmaking establishments. These shops offered a bridge between the exclusivity of couturiers and the do-it-yourself approach of those who sewed their own clothes. Dressmakers catered to a growing clientele who aspired to stay in tune with the latest trends without the price tags associated with couture. While the wealthy could afford the luxury of professionally designed and crafted clothes, individuals with fewer means continued the tradition of sewing their own clothes. This self-sufficiency was not just a matter of economic necessity; it reflected a time when clothing was viewed as a precious and valuable asset. Garments were meticulously cared for, repaired, and repurposed, emphasizing a mindset that contrasted sharply with the disposable fashion culture that would later emerge. As we navigate through this transitional period, it becomes evident that the 19th to 20th-century shift in the fashion landscape laid the groundwork for future developments. The coexistence of elite couturiers, dressmaking establishments, and individual craftsmanship set the stage for the subsequent waves of change that would shape the trajectory of the fashion

industry, eventually leading to the advent of fast fashion in the latter part of the 20th century.

It was not before the 1990's and 2000s that low-cost fashion reached the peak, online shopping started to take off and fast retailers like H&M, Zara and Topshop took over the high street. Back in the 2000s, these brands took the looks and design elements from the top brands, and they started to reproduce them quickly and cheaply.

2.1.2 Fast Fashion

According to Katherine Saxon, 2021, fast fashion is a business model based on replicating high-end catwalk designs and celebrity looks by mass producing them in a cheap and fast way, to take advantage of the latest fashion trends. The clothes designed in a fast fashion mood can be perceived with a low quality and a short lifespan and a high turnover. Other popular fast fashion definitions can describe the concept within a different vision.

"Fast fashion is inexpensive clothing produced rapidly by mass-market retailers in response to the latest trends" - Oxford Languages.

"Fast fashion is a design, manufacturing and marketing method focused on rapidly producing high volumes of clothing. Garment production utilizes trend replication and low-quality materials to bring inexpensive styles to the public" - The Good Trade.

Fast fashion has been a phenomenon that became popular in the late 1990s and early 2000s, as players like Zara and H&M took over the fashion industry by leveraging on shorter and shorter design -manufacturing -distribution cycles. Reducing these cycles from months to a few weeks. With just-in-time logistics and flagship stores in iconic places in the largest cities in the world, these brands offered cheap, fashionable clothes and a wide variety of designs. (Gennaro Cuofano, 2018)

It is situated between the luxury market and the mass market and offers products with a short life cycle. It aims to reach an insatiable, informed public that needs novelty and variety. They are usually chains that have several brands and stores worldwide, which industrialized part of their products in their own units and another part is produced in underdeveloped countries. They have an efficient production and distribution system and quickly spray new products all over the world, giving the impression that there is a

small supply of products per model. Furthermore, the clothes are made at low production costs, without prioritizing aspects of quality of raw materials and finishing, manufacturing conditions and the distance that the product travels throughout this cycle. The concept of fast manners is comparable to that of FMCG (Fast-moving Consumer Goods). Fast fashion is typically employed to appeal to a young adult and middle-aged demographic. This type of clothing does not go out of style; rather, it runs out of stock.

During this research we are going to explore the business model of one of the most successful Fast Fashion Brands in the World: Zara, which is part of the Spanish group *Inditex* (Industria de Diseño Textil). Inditex, due to the business system adopted, the speed of international expansion and, of course, the financial results, is one of the most expressive examples of the practice of fast fashion principles. Headquartered in Galicia and with manufacturing and commercial units in several countries, it owns several brands including *Zara*, *Pull and Bear*, *Bershka*, *H&M* and others.

As is evident, customers have their own set of needs, they want to stock up their wardrobes with the latest pieces showcased at Fashion Shows by top brands, all at an affordable price. Fast Fashion caters to this demand by enabling frequent and affordable clothing purchases. However, challenging this prevailing trend is the emergence of a contrasting movement: Slow Fashion.

Inditex, renowned for its exceptional business model, has played a significant role in the Fast Fashion landscape. Despite the success of Fast Fashion, the rise of Slow Fashion suggests a growing awareness among consumers about the environmental impact and ethical considerations associated with the fashion industry. As a result, individuals are increasingly seeking alternatives that align with their values, contributing to the momentum of the Slow Fashion movement.

2.2 Slow Fashion

Slow fashion represents a vision of sustainability in the fashion sector based on different values and goals to the present day. It requires a changed infrastructure and a reduced throughput of goods. Categorically, slow fashion is not business-as-usual but just involving design classics. Nor is it production-as-usual but with long lead times, it represents a blatant discontinuity with the practices of today's sector; a break from the values and goals of fast (growth-based) fashion. It is a vision of the fashion sector built from a different starting point. (Fletcher, 2008)

Slow fashion prioritizes fair wages, safe working conditions, and ethical treatment of

workers, encouraging consumers to invest in high-quality, durable garments that last longer. This movement promotes a minimalist fashion philosophy, emphasizing the significance of versatility and timeless designs instead of transient trends. Pieces that are made from this concept also carry a concept of the new luxury, as access to them is often more restricted and they end up fulfilling desires for personalization. Within this concept, the raw materials must be environmentally friendly and suitable for many years of use. The production process involves highly skilled and highly valued professionals; therefore, costs are much higher than in the case of fast fashion. Brands like Patagonia and Eileen Fisher are known for their commitment to slow fashion principles, including sustainability and ethical production. – Some consumers practice slow fashion by thrifting, swapping, or buying second-hand clothing to reduce their impact on the environment. (Gennaro Cuofano, 2018)

The so-called Generation Y and Z are the seekers of Slow fashion clothes, and that's because this generation is often looking for mature and timeless clothing, especially for females. For the younger generation, the appeal of Slow Fashion is linked with the value of well-crafted, handmade clothes, enduring garments but also environmental considerations linked with the fashion industry. The desire for timeless pieces reflects a departure of the culture often associated with fast fashion, where trends come and go, contributing to excessive waste.

The so mature and timeless clothing for females in the *Gen Z* means a departure from the hyper-fleeting nature of contemporary fashion trends, this shift of fast fashion to slow fashion indicates a more thoughtful and deliberate approach to a personal style, emphasizing investment pieces over impulse purchases.

As the fashion industry evolves towards a more sustainable approach, the consumer preferences change within it, a more enduring appreciation for the artistry and craftsmanship inherent in clothing continues to grow, making the fashion industry response playing a crucial role in shaping the future landscape of the apparel market.

2.3 Sustainability in the Fashion Industry

As stated by (Vanyushyn, 2020), sustainable fashion can be defined as “fashion products with a conscience to care about labor conditions and environmental responsibility.”

The term "sustainability" is very broad and different meanings can be found. As the term grows so is the amount of fashion brands which are adopting sustainable measures when producing their clothes. When we relate sustainability with the fashion industry, it implies that their products are produced with a sustainability-oriented view.

Despite being initially driven by environmental concerns, the term sustainable development and sustainability has, since then, taken in a variety of expectations for desirable progress: “the concrete challenges of sustainable development are at least as heterogeneous and complex as the diversity of human societies and natural ecosystems around the world”. (Pereira, 2021)

In 2002, after the world summit, the triple bottom line concept—also known as the three pillars of sustainability, encompassing people, profit, and planet—came out as being the balanced integration of economic, environmental (or ecological) and social performance. This tripartite description is generally presented in the form of three intersecting circles representing society, environment and economy, with sustainability being placed at the intersection, as shown in Figure 1 below and regularly affecting each other. This graphic is found in diverse forms as a description of ‘sustainability’ within the academic literature and is a clear visual representation of the broadness and variety in the representation of the concept under analysis. (Pereira, 2021)

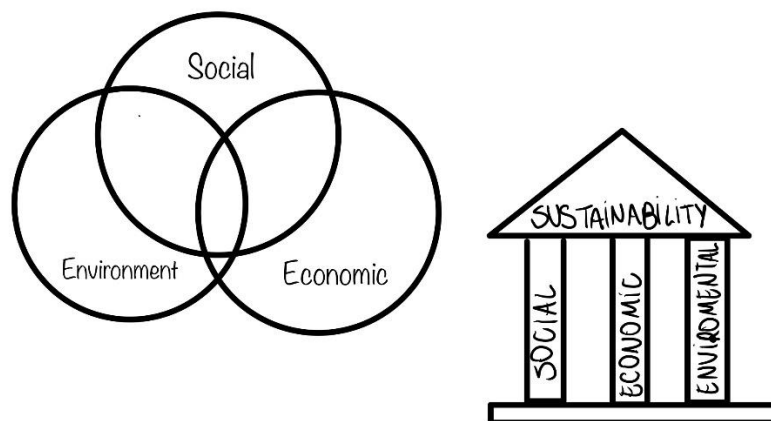


Figure 2 - Three ways of sustainability representation

The approach of developing sustainable fashion includes a set of eight considerations according to Shen (apud Vanyushyn 2020) The first factor is that sustainable fashion gets produced from or contains recycled materials, relating to the utilized materials for sustainable fashion items, they are furthermore often organic, meaning that the fibers come from natural sources without the use of pesticides or other toxic chemicals. Thirdly, green fashion is in many cases vegan to protect the animals that suffer for the fashion industry, which means that no real leather or fur is being used for the product.

The next three factors that will be explained are more related to the production process of sustainable fashion. Sustainable products are often locally made in order to minimize transportation as well as contribute to the local economy and they are in many cases fair trade certified which touches upon the respect of human rights in the production process and sweatshop-free labor conditions. Artisan is the third criterion of how fashion items are being produced, referring to traditional ways of producing fashion with new ways of consumption. Finally, the last two factors are connected to the longer usage of fashion items in order to encourage less consumption. The topic of upcycling clothes or buying fashion second-hand has been a trend of sustainability conscious consumers, which is why vintage is the first factor related to consumption patterns of sustainable fashion. (Vanyushyn, 2020)

An article published by Alisson Bringue in Vogue (Bringé, 2023) shows that the fashion industry is responsible for the production of up to 10% of the global carbon dioxide output and accounts for one-fifth of the 300 million tons of plastic produced globally each year, therefore, the attitude of embracing sustainable practices may be a challenge in the industry, however they are everyday trying to embrace the cause.

The actualization of sustainable development hinges on achieving consensus in the relationship between global South and North, as well as between the economically disadvantaged and the wealthy. The table below highlights various sustainable practices implemented in the fashion industry.

Table 1 - Considered sustainable practices in the Fashion Industry

<p>Fair Trade - Involves responsibility for human rights, including no use of child labor, right to unionize, fair wages, better environmental standards (no environmental influences that impact people in their workplace in the form of fumes, gasses, dust, noise, and temperature), and social standards;</p>
<p>Organic and natural materials - natural fabrics and fibers grown without pesticides or any other toxic materials contribute to the health of the soil and groundwater and the air that farmers breathe.</p>
<p>Low-impact printing and dyeing - use of natural dyes extracted from roots, seeds, fruits, flowers, or other natural sources.</p>
<p>Waste reduction - reduction of waste in the clothing production cycles (cutting and</p>

sewing process).
Green marketing - environmentally friendly packaging, labeling, promotion and business cards.
Social and environmental responsibility - products that raise awareness of environmental and social issues
Resource efficiency - products that generate the greatest possible benefit using the least amount
<p>Refuse, reuse, reform, upcycling - actions linked to solid waste management, these terms were highlighted at Rio-92 and were included in one of the chapters of Agenda 21. The Rs that were most widely covered were:</p> <p>Reduce: reduce the consumption of natural resources in the form of raw materials and energy, reducing the amount of waste and saving resources.</p> <p>Reuse: using products again, giving them new functions or not; Recycle: returning what has been used to the production cycle.</p>
<p>Eco-design - Eco-design is the systematic integration of environmental considerations into the design process of products (understood as goods and services). The main objective of eco-design is to develop products that contribute to sustainability by reducing their environmental impact throughout their life cycle, and that meet requirements such as functionality, quality, safety, cost, ease of manufacture, ergonomics, and aesthetics.</p>

2.3.1 Social aspects in sustainable Fashion

Whenever the social dimension in sustainable fashion is mentioned, there are two things we must take into consideration. The first one is how consumers not only nowadays but almost in our entire life lack information about the fashion products they are buying. Together with the lack of information, comes the lack of communication about sustainability, and the transparency of the product development process, which

is where the brand shows us the originality and sustainability when producing clothes.

The key elements of social engagement within the realm of sustainable fashion encompass consumer consciousness, minimalistic consumerism, item tracking and openness, a comprehensible labeling framework, environmentally-friendly attire, minimalist wardrobes, garment rentals, the secondhand fashion market, repeated clothing use, recycled and upcycled clothing, and, not to be overlooked, the emergence of digital fashion commerce. All of these social aspects are intertwined with the actions we can undertake to cultivate a deeper understanding of sustainability within ourselves.

2.3.2 Economic aspects in sustainable Fashion

Numerous elements play a role in shaping sustainability practices, including closed-loop systems and market demands, the creation of value, authenticity, innovation, government regulations and exclusivity, functionality, fairness, and the promotion of local initiatives.

According to (Daukantienė, 2022) to become more sustainable, the fashion industry must overcome the costly demand for the design and technological expertise necessary for the innovations in manufacturing processes and communication with customers that would support slow fashion, strong brands or buy and rent used clothing.

The economical key elements with sustainable fashion encompass circular model vs linear model, fair salary for employees, secondhand clothes retail, online renting of worn clothes, digital fashion and de-growth.

To instigate significant shifts in the fashion industry, companies need to understand their ultimate consumers and develop strategies for gathering or repurposing used products. By giving a fair salary and keeping transparency with the employees, the company ensures sustainability. Regarding the key elements and the aspect of de-growth, it signifies that this theory aims to decrease energy and resource consumption in order to restore equilibrium between the economy and the natural environment, thereby lessening inequality and enhancing human welfare.

As an example, one big fast fashion company called "H&M" has built its sustainable supply chain, including the development of eco materials, safe training, sustainable manufacturing, reduced carbon emissions in distribution and had a big promotion of eco fashion. H&M made some of its bestseller items suitable for recycling and demonstrated valuable input in the creation of its circular system. (Daukantienė, 2022)

2.4 Companies applying Slow Fashion concept

Slow Fashion revolves around sustainable measures, incorporating recyclable and eco-friendly materials. Apparel companies adhering to this concept prioritize these measures earnestly. Clothing brands like Patagonia, Mara Hoffman and Sheep Inc.

Patagonia is considered one of the most successful fast fashion brands, a well-known outdoor clothing brand that is known for its long-time commitment to sustainability, it uses sustainable materials such as organic cotton and recycled polyester in their products, and they also prioritize fair labor practices and reducing waste in their manufacturing processes. Patagonia is also involved in several environmental initiatives, like supporting grassroots environmental organizations and advocating for public lands protection. The company focuses on sustainability initiatives to promote environmental stewardship and encourage others to take action. (Loffredi J., 2023)

Recently, they developed a campaign during Black Friday telling people to not buy their most successful jacket, the main message was "Don't buy this jacket" in an attempt to address consumerist tendencies, and to reinforce the idea of buying things out of need and not because of advertisements and subliminal messaging encouraging us to buy things we don't need or even care for. Some of the research showed that these strategies have increased their consumer base and sales, with the Don't Buy This Jacket resulting in a 30% increase in sales.

DON'T BUY THIS JACKET



It's Black Friday, the day in the year retail turns from red to black and starts to make real money. But Black Friday, and the culture of consumption it reflects, puts the economy of natural systems that support all life firmly in the red. We're now using the resources of one-and-a-half planets on our one and only planet.

Because Patagonia wants to be in business for a good long time—and leave a world inhabitable for our kids—we want to do the opposite of every other business today. We ask you to buy less and to reflect before you spend a dime on this jacket or anything else.

Environmental bankruptcy, as with corporate bankruptcy, can happen very slowly, then all of a sudden. This is what we face unless we slow down, then reverse the damage. We're running short on fresh water, topsoil, fisheries, wetlands – all our planet's natural systems and resources that support business, and life, including our own.

The environmental cost of everything we make is astonishing. Consider the R2® Jacket shown, one of our best sellers. To make it required 135 liters of

COMMON THREADS INITIATIVE

REDUCE

WE make useful gear that lasts a long time
YOU don't buy what you don't need

REPAIR

WE help you repair your Patagonia gear
YOU pledge to fix what's broken

REUSE

WE help find a home for Patagonia gear you no longer need
YOU sell or pass it on*

RECYCLE

WE will take back your Patagonia gear that is worn out
YOU pledge to keep your stuff out of the landfill and incinerator



REIMAGINE

TOGETHER we reimagine a world where we take only what nature can replace

water, enough to meet the daily needs (three glasses a day) of 45 people. Its journey from its origin as 60% recycled polyester to our Reno warehouse generated nearly 20 pounds of carbon dioxide, 24 times the weight of the finished product. This jacket left behind, on its way to Reno, two-thirds its weight in waste.

And this is a 60% recycled polyester jacket, knit and sewn to a high standard; it is exceptionally durable, so you won't have to replace it as often. And when it comes to the end of its useful life we'll take it back to recycle into a product of equal value. But, as is true of all the things we can make and you can buy, this jacket comes with an environmental cost higher than its price.

There is much to be done and plenty for us all to do. Don't buy what you don't need. Think twice before you buy anything. Go to patagonia.com/CommonThreads or scan the QR code below. Take the Common Threads Initiative pledge, and join us in the fifth "R," to reimagine a world where we take only what nature can replace.

patagonia
patagonia.com



Figure 3: Patagonia advertisement from the Friday, November 25, 2011, edition of The New York Times (Patagonia.com)

Mara Hoffmann and Sheep Inc are also companies dedicated to promoting a sustainable approach. Through the utilization of biodegradable materials, they demonstrate their unwavering commitment to environmental preservation and contribute to the broader effort of fostering sustainability.

2.5 Product lifecycle Management

Product Lifecycle Management (PLM) is commonly characterized as a strategic business strategy with the focus on efficiently managing a company's intellectual assets. Nowadays, the challenges that the product development teams encounter are globalization, outsourcing, mass customization, fast innovation, and product traceability.

These challenges enhance the need for collaborating environments and knowledge management along the product lifecycle stages. PLM systems are gaining acceptance for managing all information about the corporation's products throughout their full lifecycle, from conceptualization to operations and disposal. The PLM philosophy and systems aim at providing support to an even broader range of engineering and business activities. (Gecevska, 2010)

Furthermore, the PLM approach implies the involvement of many stakeholders, internal or external to the organization along the product chain, to develop and support the product throughout its whole lifecycle (Sharma, 2005). Amongst the actors involved, we note contractors, suppliers, partners and customers each with a different business architecture and organizational structure (Marchetta apud Alemanni, 2008)

A set of key concepts focalized on management, technological, and collaboration aspects are arranged around the proposed definition and can be specified in the following:

- (1) strategic business approach;
- (2) phases of product life cycle;
- (3) a unique and timed product data source;
- (4) consistency, traceability, and long-term archiving;
- (5) integrating people, processes, and technologies;
- (6) collaborating within and across the extended enterprise.

They are described in the following section paying attention to the innovative aspects. The figure below represents graphically the PLM definition displaying how the concepts of centrality and uniqueness of a product data source and its main technological attributes (consistency, traceability, and long-term archiving) support all the product life cycle phases; PLM data are managed by people, technological systems, and processes that are integrated and enable the collaboration in extended enterprises. (Angelo Corallo, 2013)

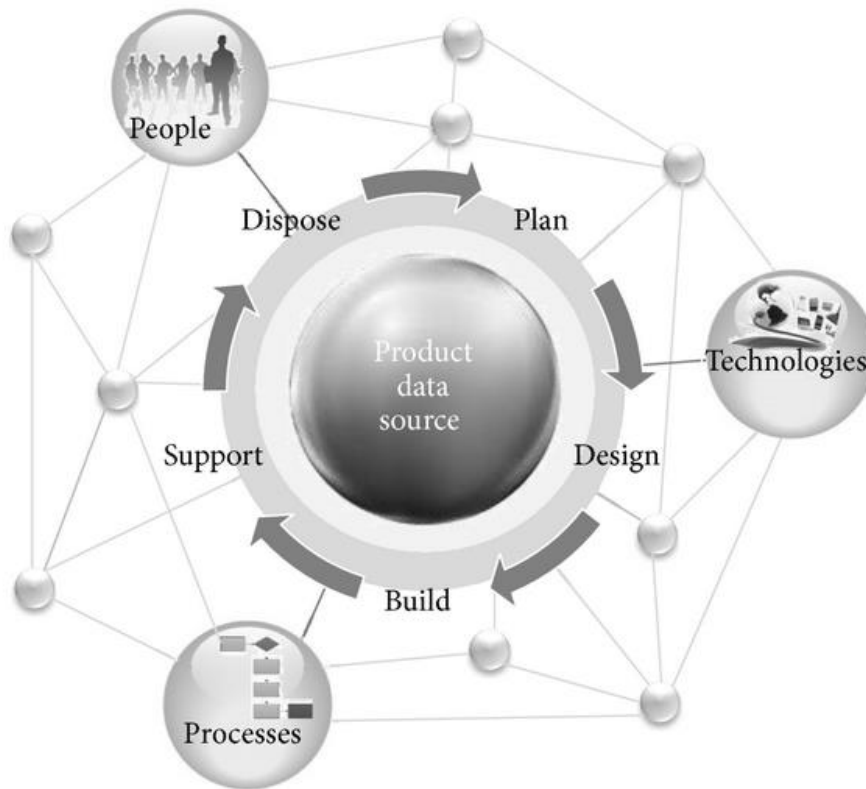


Figure 4: The Challenges of Adopting PLM Tools Involving Diversified Technologies in the Automotive Supply Chain (Zammit, 2017)

2.6 Industry 4.0

There has been an increase in technological advancement all over the world since the beginning of the 19th century. The advances are possible through the construction industry being the epicenter of technological development. In the wake of the industry 4.0 advances, Industry 4.0 has been the game-changer that alters the traditional practice of digital innovations. (Buildings 2020, 10, 221)

Industry 4.0 leads to the advent of application of IoT in the creation of smart and intelligent manufacturing. The application of Industry 4.0 has led to the eruption of several inventions in the construction industry. Various applications enhance industrial production, which cut across areas of operations which includes decision making, design, planning, control, and monitoring. (Buildings 2020, 10, 221)

Within the previous industrial revolutions, the technologies have enabled the 4th Industrial Revolution such as robotics, virtual reality, artificial intelligence, and intelligent manufacturing. Throughout history, it is evident that the primary emphasis of every industrial revolution has not revolved around the development of technologies.

Instead, these revolutions have centered on elevating the quality of human life by boosting productivity, achieved through groundbreaking inventions and innovative technologies.

2.7 The impact of the 4th industrial revolution on the fashion industry

Every industrial revolution has dramatically reshaped economic systems and societal structure. The fashion industry was no exception. Between 1760 and 1840, the 1st industrial revolution ushered in mechanical production, powered by water and steam. Between the late 1800s and early 1900s, the 2nd industrial revolution enabled mass production, powered by electricity and the assembly line. The prime goal of the first two industrial revolutions was to enhance production productivity through mechanization and automation. Following a series of inventions, such as the spinning jenny, spinning mule, and assembly line, fashion production has moved away from the traditional system of craft-based production (Duarte apud Jin, Byoungcho & Shin, Chloe 2021). The 3rd Industrial Revolution, which occurred in the mid twentieth century, focused on maximizing already enhanced productivity, based on automation and optimization. It was enabled by computer aided design and manufacturing systems, which significantly increased production speed, flexibility, and precision (Duarte apud Jin, Byoungcho & Shin, Chloe 2021).

The 4th Industrial Revolution builds on the previous digital revolution and capitalizes on the synergistic effects of various advanced technologies (Philbeck & Davis apud Jin, Byoungcho & Shin, Chloe 2021).

The technologies encompass wide-ranging fields, including artificial intelligence, robotics, the internet of things, 3D printing, virtual and augmented reality (Schwab apud Jin, Byoungcho & Shin, Chloe 2021).

In the fashion industry, the first three industrial revolutions had evolved to solve the problem of inefficiency in the production system. During the 1st industrial revolution, technologies were invented and applied to increase production output. This effort to increase productivity continued through the 2nd Industrial Revolution, culminating in factories of mass production (Allen apud Jin, Byoungcho & Shin, Chloe 2021).

During the 3rd Industrial Revolution, to beat the heightened competition in the global economy brought on by the internet, new technologies were deployed to maximize productivity, further reducing the additional cost of producing one more unit of a good or service (Liu & Grusky apud Jin, Byoungcho & Shin, Chloe 2021)

The aim of the first three industrial revolution technologies was to deliver products and services more efficiently, reducing costs and time while increasing productivity. With

the advent of the 4th revolution, novel technologies emerged, addressing significant challenges not only across various sectors but notably within the fashion industry.

Within the technologies offered by the 4th industrial revolution, the fashion industry was seeking to achieve sustainable measures, efficiency, customer experiences and innovation, to solve consumer and industry concern towards environmental sustainability.

Together within the 4th IR, plenty of new technologies has been discovered, such as robotics and intelligent manufacturing, 3D printing and knitting, virtual reality and artificial intelligence; All of these technologies applied in the fashion industry has made a huge change in how to production of clothes is conducted, the business model of fashion companies and foremost, how these technologies help them to achieve the concerns they have towards sustainability, efficiency and innovation.

In the fashion industry, the advancement in robotics is beginning to automate a traditionally labor-intensive task: sewing. With machine vision, sewing robots can detect distortions in fabrics and make necessary adjustments (Emont apud Jin, Byounggho & Shin, Chloe 2021) Robotics and intelligent manufacturing enhance productivity by reducing production time and enhancing manufacturing efficiencies (Wellener apud Jin, Byounggho & Shin, Chloe 2021), and by adapting to changing demands in real-time.

Furthermore, the shorter lead time and minimal human intervention allow factories to be located closer to consumers, better positioned to respond to their ever-changing demands with agility, which indirectly helps reduce unsold inventory, thereby enhancing environmental sustainability.

3D printing, also known as additive manufacturing, creates 3D objects from a digital file. It is an additive process whereby an object is created by adding successive layers of materials, referred to as filaments. Each layer is a thinly sliced horizontal cross-section of the final output (Berman apud Jin, Byounggho & Shin, Chloe 2021)

3D printing and 3D knitting technologies are leveraged to enhance productivity and hyper-personalization. They reduce waste, lead time, and production costs by minimizing manual labor and simplifying the production process. The lean operation and digitization make it possible to achieve hyper-personalization, which is costly to scale with conventional means (Paul apud Jin, Byounggho & Shin, Chloe 2021)

Virtual reality (VR) technology creates a computer-generated digital environment, which supplants the user's real-world environment. The fully artificial environment can

replicate a real-world environment or render an imaginary one (Kunkel apud Jin, Byounggho & Shin, Chloe 2021)

Moreover, artificial intelligence (AI) pertains to machines that replicate cognitive functions often linked to human capabilities, like recognizing patterns, perceiving information, and acquiring knowledge. In the fashion industry, AI-driven predictions have a crucial role in various corporate activities, including marketing, pricing, inventory management, and product development. Through the analysis of up-to-the-minute data regarding competitors' products, prices, and promotional strategies, brands can make well-informed decisions concerning their own products, marketing campaigns, and pricing strategies.

2.8 Lean Manufacturing

Lean production is a systematic technique of waste elimination in the production process. Promote lean development as a multi-dimensional strategy that incorporates a broad variety of managerial activities, involving on-time, quality processes, workplace forces, cellular manufacturing, supply management, etc., in an interconnected environment. The key principle of lean manufacturing is that which generates finished goods in the presence of consumer demand with little to no waste.

Henry Ford had used elements of Lean as late as the 1920s and claimed that one of the most significant successes of holding the cost of Ford goods down is the steady reduction of the manufacturing process. The National Institute of Standards and Technology Manufacturing Extension stated lean manufacturing as, "lean manufacturing is systematic approach of identifying and eliminating waste through continuous improvement, flow the product at the pull of the customer in pursuit of perfection" (Vinoth Kumar, 2020)

Lean is thus supported by guiding principles and a strong culture aimed at innovation, permanent development, and respect for people and society. (Moraes, A, 2023). There are several methods and tools—Jidoka, Kaisen, pull system, Value Stream Mapping (VSM), Just-in-Time (JIT), Andon, Gemba, Kanban, Hoshin Kanri, Kata, etc.—that support it, reinforced by a culture where trust, respect, and empowerment of employees and partners is constant.

The most famous methodology is the VSM, originally developed by Toyota, a VSM is a collection of actions, value added as well as non-value added that are required to bring a product or a group of products that use the same resources through the main flows, from raw material to the arms of customers. (Kumar, 2016)

According to Kumar, VSM was applied in a company which manufactures plastic parts that make up mobile phone bodies, button units and keypads, the production lead time was reduced from 26 days to 20 days and value-added lead time was reduced from 0.7 days to 0.5 days. (Kumar, 2016). Upon implementation, they also documented cost savings and a decrease in inventory levels of raw materials, semi-finished products, and finished goods.

2.9. Lean Manufacturing in the Fashion Industry

Fashion industries aim to produce quality products in a sustainable way. Lean tools help the apparel industry to identify and eliminate waste therefore there will increase the profitability and productivity through all the processes, increase the quality level at the lowest cost rate, and these tools implement industry focus on effective and efficient manufacturing processes for the Market. (Mazharul Islam Kiron, 2021)

Lean Management is used in many textile companies, in special garment and apparel industries. In the apparel industry, there exist various types of waste in their departments, like sewing, cutting, and packaging departments. This serious waste will add more cost to the production system and arise various defects in the final product. So with the help of lean techniques apparel industry can eliminate this waste and provide high-quality products to their respective customers. (Mazharul Islam Kiron, 2021)

The methods employed to integrate lean practices in the apparel, fashion, and footwear sectors may differ, but the fundamental principles of lean manufacturing revolve around the concepts of 5S and Kaizen.

5S is a workplace organization method composed of five Japanese words: seiri, seiton, seiso, seiketsu, and shitsuke.

Kaizen is a Japanese word that means "improvement", it refers to the continuous improvement of all business and workforce functions at every level, in garment manufacturing, every level of production can be improved from raw materials handling to inventory. (Seon Barbera, 2016)

Lean Thinking is a concept that, in a nutshell, focuses on creating value to the customer and eliminating non-value adding activities. It gives value to both customers and the garment industry. Value from the customer perspective is any activity that changes in size, shape, properties or special features which the customer is willing to pay for.

The objective of LM is to achieve competitive advantages. A manufacturing firm using traditional mass production can expect a reduction of lead time of 90%, 90% reduction of inventories, cost reduction of 90% and a labor productivity improvement of 50% through the implementation of lean manufacturing systems. Many organizations have implemented lean manufacturing systems and successfully enjoy the benefits of lean. But the misapplication of lean tools and techniques make the organization unsuccessful. The reasons for misapplication are the use of the wrong tools or use of the same tools for solving all problems. (Bashar & Hasin, 2019)

Lean Manufacturing advantages are such as reduced inventory position, enhanced comprehension of the entire supply chain process, shortened lead times for customers, less process waste, fewer errors resulting in less rework, and significant financial benefits from expedited business processes and reduced operating costs. In detail, lean practice, which includes tools such as Kanban, Kaizen, 5S system, and just-in-time (JIT), can detect non-value-added operations in the manufacturing process, which can be eliminated to improve productivity and efficiency. The lean implementation can lead to a better production flow with value stream management, lower production lead time, better quality products and better inventory management. Hence, fashion and textile industries can achieve higher production and customer satisfaction, lower production costs, eliminate waste and unnecessary operation, thus resulting in higher profitability. (Nayak, R., 2022)

As any procedure a company aims to adopt, lean manufacturing comes with its own set of challenges. The primary obstacles during its implementation include a lack of awareness about lean principles and insufficient resources, misunderstanding of lean concept, resistance from the employees and implementing lean without setting specific goals. The apparel manufacturing firms need strategic planning to overcome all the barriers to lean implementation.

2.10 Project Management

Formal project management has been around for over 50 years and is practiced in many sectors. But the history of project management practices goes back hundreds of years. These processes and practices have been documented and disseminated over the last few decades (Cleveland David, 2009).

A project consists of a combination of organizational resources brought together to create something that did not exist before and that will provide a superior performance

capability in the formulation and execution of organizational strategies. Projects are the main means by which the organization deals with change; changes in products, services and organizational processes are brought about by the use of the project (Cleveland David, 2009).

According to Cleveland (2009), project management is implemented through a process consisting of the basic functions of administration, using resources to achieve the project's objectives. These basic functions are:

- Planning: Developing the objectives, goals and strategies for committing the necessary resources to the project.
- Organizing: Identifying the human and non-human resources needed, formulating an appropriate arrangement for these resources and determining the individual and collective roles of the project team members, serving as a focal point for the use of resources.
- Motivation: The process of instituting a cultural system that brings the best out of people in their work on the project.
- Direction: The leadership competence needed to ensure the formulation and execution of project-related decisions.
- Control: Monitoring, evaluating, and controlling the use of resources consistent with the project and organizational plans.

From an economic perspective, a major objective of any project is to increase productivity, defined as the ratio of system outputs to system inputs. If productivity improves, then more results can be obtained using as many or fewer resources, resulting in an overall benefit for society (MARTLAND, 2012).

Project management encompasses the detailed planning, scheduling, monitoring and adjustment of many processes involved in the execution of a project. A series of related projects can be managed as a program; public policy usually dictates the criteria to be used in the execution of projects as part of a program (MARTLAND, 2012).

2.11 Projects

A project is an effort undertaken that creates a single product, service or result. The temporary nature of a project indicates that the project has been defined and has a beginning, middle and end. The end of a project is reached when the project has been effectively completed, when the project objectives have not been achieved and cannot be met or when there is no longer any need for the project to exist (PMBook 2017).

A project can also be terminated if the client wishes the project to be terminated. Temporary does not mean that the duration of the project is short. Temporary does not apply to the product, service or result created by the project; most projects are carried out to create a lasting result. For example, a project to build a monument will create results that will last for hundreds of years. Projects can also have social, economic and environmental impacts that outweigh many other projects (PMBook 2017).

Every project creates a single project, service or result. The project result can be tangible or intangible. However repetitive elements may be present in some project deliverables and activities, this repetition does not change the fundamental, unique characteristics of the project work. For example, office buildings can be built with the same or similar materials and be built by the same or different teams. However, each construction project continues with a different location, different design and different circumstances and situations, different stakeholders and so on (PMBook 2017).

2.12 Business Models

Business models fundamentally are linked with technological innovation. They are used to describe and classify businesses, especially in an entrepreneurial setting, but they are also used by managers inside companies to explore possibilities for future development. (Trott, P., 2017)

It reflects the value that a company offers to its customers, alongside with the capabilities and resources that are required in order to create the right market, deliver the promised value and generate profitable revenue.

A business model is created to guide the company to answer the main question: How will this business bring us money?

According to researchers, the most necessary questions that they need to address are:

- Who is the target customer?
- What value does it deliver?

- How does it reach, acquire and keep customers?
- How does it generate revenue?
- What is the cost structure?
- What is the profit margin?

Overall, a business model holds significant value for a company as it defines the external interactions they will establish with suppliers, customers, and future partners.

Throughout the year, many people have defined what a business model is, to Hamel (apud Mason, Richard, 2019) four components to the business model are important: core strategy, strategic resources, customer interface and value network. As for Stahler (apud Tukker, A.,2017), has defined business model only including three key elements:

- Value Proposition
- Configuration of value creation
- Revenue Model

The value proposition describes how the products and services offered by the company create value for the customer. Respecting the configuration of value creation, the most important question concerns which stages of the value chain should be carried out by the company. Ideally, a company should develop core competencies by which it can distinguish itself from its competitors. Also included in the configuration analysis are aspects such as cross-selling effects, complementary products and the design of processes that transcend the value stage. Finally, the revenue model describes how the company generates its sales revenue and, ultimately, its profits.

2.13 Business Model Canvas

The business model canvas helps companies with a framework for examining, organizing, and developing a business, ensuring a focus on the overarching perspective. Following the traditional business model concept, Alexander Osterwalder created the Business model Canvas in which has a representation of the 9 key building blocks that builds a foundation of every successful business. (Alberdi, 2020)

It's basically a *blueprint* to help the companies to invent, design and build models with a more structured approach.

The business model canvas enables the company to conduct a high-level analysis without deep diving too deeply into details. By sketching out the 9 building blocks on a blank canvas and filling them in each block with concepts related to your business, it provides a visual overview of your entire business on a single canvas.

The canvas is broken down into 9 key building blocks:

01. Customer Segments
02. Value Propositions
03. Channels
04. Customer Relationships
05. Revenue Streams
06. Key Resources
07. Key Activities
08. Key Partners
09. Cost

After sketching into the canvas, it will look like this:

| BUSINESS MODEL CANVAS

The Power MBA

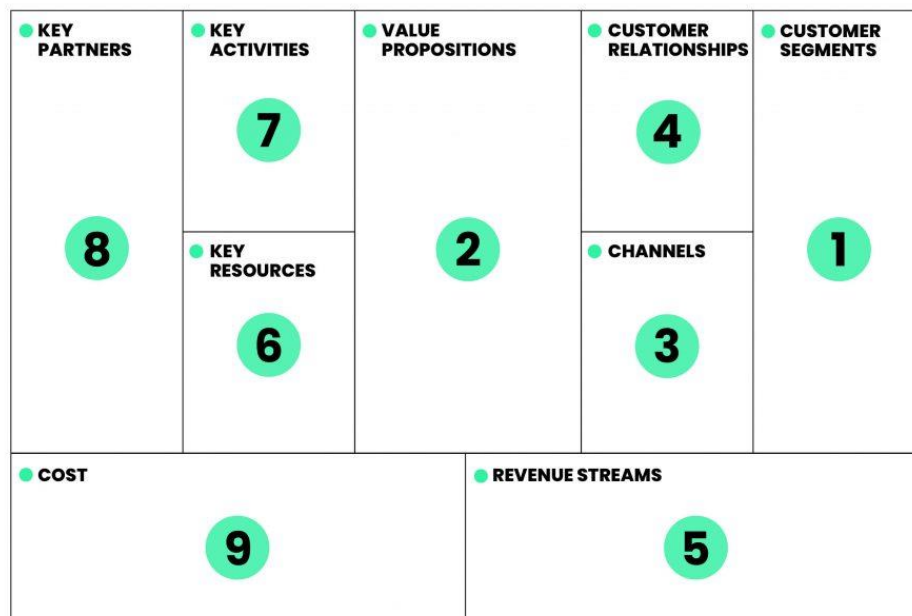


Figure 5: Business Model Canvas by Raquel Alberdi.

The suggested sequence to fill in the canvas aligns with the order presented in the figure above. To initiate the process of sketching and constructing each block, the best approach is to gather all your teams together including members from Marketing, Finance, Sales, Operations and Manufacturing and deep dive in a workshop style meeting to collectively brainstorm and define each block together fostering

collaboration for the definition of the business model tailored to your company.

2.14 Business Model in the fashion system and CBM

The fashion system follows the standards of key elements of any other business model. Alternatively, they are defined as business strategies and structures which acknowledge the value of fashion.

In the current era we are living in, sustainability has become a prominent subject of interest within this industry, leading them to develop alternative business models that prioritize sustainability. Considering all current scenarios, *CBM* has been created.

According to Fashion for Good (Studio, 2023) the Circular Business Model offers an approach to designing, producing and consuming garments that "drive innovation and simultaneously reduce environmental impact". *CBM* moves away from the traditional "take-make-waste" linear model and closes the loop by creating a regenerative flow of materials and products.

"Circular business models can enable brands to continue to grow while moving away from their dependence on scarce and finite resources"

Katrin Lez - Managing Director at Fashion for Good

According to Ellen MacArthur Foundation (Ellen MacArthur Foundation, 2021) four business models (rental, resale, repair, and remaking), which all have the potential to decouple revenue streams from production and resource use, currently represent a USD 73 billion market. Rental, resale, repair, and remaking have the potential to grow from 3.5% of the global fashion market today to 23% by 2030, representing a USD 700 billion opportunity with the potential to provide a third of the emission reductions necessary to put the fashion industry on a 1.5-degree pathway.

These models presented in *CBM*, has the potential to change the commercial incentives in the Fashion Industry, especially the volume focus to a company which incentivized on quality, durability and number of uses would be enablers of commercial viability. Considering these advantages, that is the reason that is crucial to formulate a fresh business model that places a strong emphasis on sustainability to harness the potential environmental benefits.

2.15 A history overview of the Fast-Fashion Zara part of the Inditex group.

Zara is a Spanish fast fashion retailer based in Aretixo, Galicia in Spain.

The company was founded in 1975 by Amancio Ortega and Rosalía Mera. It is the main brand of the Inditex group, the world's largest apparel retailer. The fashion group also owns brands such as Massimo Dutti, Pull Bear, Bershka, Stradivarius, Oysho, Zara Home and Uterqüe.

Zara as of 2017 manages up to 20 clothing collections a year. (Jangid, Monu, 2022)

Amancio Ortega opened the first Zara store in 1975 in downtown A Coruña, Galicia, Spain. At this time in Inditex's history, Ortega was responsible for only four factories and two stores. He used his interest and curiosity in technology to harvest store data on customers' wants and desires. Zara reached Madrid, the capital of Spain, in 1985, and by the end of the 80s, had stores in all Spanish cities with more than 100,000 inhabitants. Zara then shifted to opening new stores internationally as well as adding other retail brands, creating the corporation Inditex, by the early 1990s.

Spanish consumers wanted low prices but were not considered as fashion conscious or as stylish as Italian buyers, for example. However, Spain had advanced quickly in the world of fashion after the death of dictator General Francisco Franco in 1975. Following this, the country had opened to the rest of the world and engaged more in international trade and the global economy. Spain had a strong and productive apparel manufacturing sector by European standards and as a result, Ortega was able to rapidly and relatively easily expand his company. (Sitaro, 2020)

In 1989, it entered the United States, and then France in 1990. During the 1990s, Zara expanded to Mexico (1992), Greece, Belgium, and Sweden (1993). In the early 2000s, Zara opened its first stores in Japan and Singapore (2002), Russia and Malaysia (2003), China, Morocco, Estonia, Hungary, and Romania (2004), the Philippines, Costa Rica and Indonesia (2005), South Korea (2008), India (2010) and South Africa and Australia (2011). There are over 6,500 Zara stores located across 88 countries.

Zara usually selects the best located and most expensive real-estate locations in the world to open its flagship stores. (Jangid, Monu, 2022)

3.0 Case Study

3.1 Business Structure of Inditex group

Inditex describes its business model as "creativity and quality design together with a rapid response to market demands and the "democratization of fashion" (Crofton apud Sitaro , 2020). Aiming to drift apart from the traditional model of the majority of couture designers, the group decided to apply Lean Manufacturing tools, integrating just-in-time in the production, distribution, and sales.

To achieve cost-effective production, fashion companies frequently engage subcontractors situated in East Asia to execute the production part of the clothes such as dyeing, embroidery, and fabric sewing in each respective country. However, this model can result in a production timeline of up to eight months before the final product is ready for sale and distribution.

To speed up the production cycle, Inditex introduced the vertical integration model, producing a significant portion of their products with their own factories. To reiterate, typically, they carry out the more "capital-intensive and value-added-intensive stages of production, such as raw materials, designing, cutting, dyeing, quality control, ironing, packaging, labeling, distribution, and logistics and outsources more labor-intensive and less value-added-intensive stages of production, such as sewing(Crofton apud Sitaro , 2020).

Inditex also aimed to have speediness in their delivery to the stores, in order to ensure it, they developed their own network of suppliers, manufacturers and workshops. According to Crofton, once the raw materials are received from various countries including China and Morocco, the fabrics are sent to workshops for finishing touches. These workshops, estimated to be numbered around 400, are located primarily in Galicia and Northern Portugal. It is in these workshops that the clothes are dyed, cut, and sown. Once the garments are assembled and completed, they are sent by truck to the stores (Crofton apud Sitaro, 2020).

Even though Inditex is largely technology savvy they waste little on expensive technological products that they deem to be unnecessary "Inditex avoids complex technology and spends little on information technology, no permanent electronic networks link stores, headquarters, factories, and distribution centers" (Crofton, 2007).

While Inditex spends little on technology it is a fundamental aspect of their business model it "is a key element in the group's ability to innovate" (Castellano, 2002).

Managers are given a lot of authority and can make decisions based on what they think will sell. While in the United States 2% of total revenues are spent on information technology Inditex spends little more than 0.5%. (Reynolds, C. 2024)

Inditex's sales growth has grown increasingly and by multiple measures. Sales grew from \$0.086 billion in 1985 to \$0.8 billion in 1990, \$1.2 billion in 1995, \$2.4 billion in 2000, and \$8.2 billion in 2005. Inditex employees jumped from 1,100 in 1985 to 5,018 in 1995, 24,004 in 2000, and 58.190 in 2005 (Sitaro , 2020)

3.2 Zara Business Model and Zara's Business Model Canvas

As a pioneer of fast fashion, Zara's motto is "Give customers what they want, and get it to them faster than anyone else". Fitting perfectly with their key value proposition of being the fastest and the cheapest. Part of Inditex Group, Zara is the most successful brand they carry.

Their business model is characterized by a high degree of vertical integration, compared to other models developed by international competitors, in which all stages of the fashion process are integrated: design, manufacturing, logistics and distribution in its own stores. It has a flexible structure and a strong customer orientation. The key to this model is the ability to adapt the offer, in the shortest possible time, to consumer desires. For Zara, time is the main factor to consider, apart from production costs. Vertical integration makes it possible to reduce lead times and have great flexibility, with a reduction in stocks to a minimum, reducing "fashion risk" as much as possible. The success of the collections lies in the ability to recognize and assimilate the constant changes in fashion trends, designing new models each time that respond to consumer desires. Zara takes advantage of the flexibility of its business model to adapt to the changes that can occur during a collection and thus react to them with new products in stores in the shortest possible time. The new models are developed entirely by the creative teams of the different chains, and in 2004 they created approximately 40,000 pieces, 10,000 of which were actually produced. While other players need an average of 6 months to design and another 3 months to manufacture and place the new products in stores, Zara's entire process takes around 15 days.

This is a representation of Zara's business model canvas:

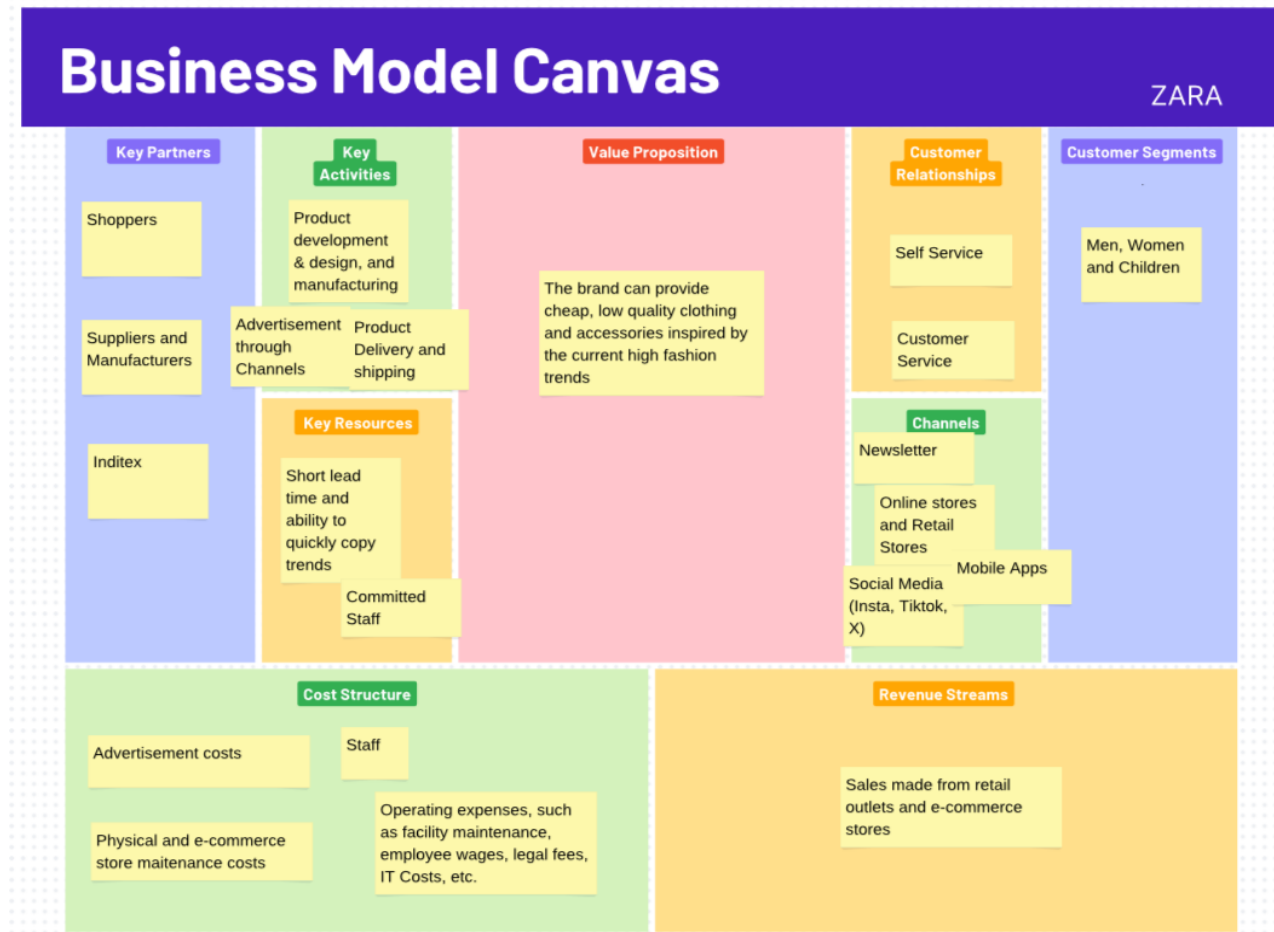


Figure 6: Business Model Canvas based on Zara's Model

The customer segment for Zara is characterized by low-cost clothes and accessories for men, women, and children, emphasizing current fashion trends. As previously articulated in this study and reflected in their motto, their value propositions center on offering cheap, trend-mimicking clothing with lower quality. Using channels such as stores, websites, social media platforms like Instagram, TikTok and X, newsletters, press and mobile apps, Zara effectively reaches diverse target groups, contributing to a daily increase in sales. As stated in the business model canvas, Zara has 2 different customer relationship, the self-service whereas shoppers are allowed to choose clothes in the available catalog and purchase items without any further assistance, the second one is the customer service relationship, whereas the company helps their customers within any complains they may have, it's considered one of the most important sectors not only for Zara but all companies in general.

Their revenue streams are based on the sales from the e-commerce stores (online and physical) and retail outlets. Zara's key resources revolve around its fashion concept, having extremely short lead time, cheap labor costs as well as the clothing material, additionally, the company relies on a committed staff who are passionate about the brand, finally key resource is their revolutionary fast fashion business model.

Their key activities are product design and development, manufacturing, advertising, and market, delivering and shipping clothes as well as monitoring the current fashion trends online through their well-established channels. As for the key partners, they have shoppers, manufacturers, suppliers, and their group Inditex. Cost structure are the physical and e-commerce store maintenance costs, their fixed price for their marketing team and online advertisement as well as the research and development.

3.3 Key Strategy behind Zara's Business Model

As previously highlighted, Zara owes its success and expansive global presence to its distinctive business model. The company places a significant emphasis on aligning various aspects of its operations, including design, manufacturing, and distribution. To gain a deeper insight into their strategy, several primary approaches were developed by the company including vertical integration, logistical trade-offs, control over design and manufacturing, rapid product cycles, and a minimal reliance on promotional activities.

Integration on a Vertical Scale oversees the design, manufacture, distribution, management, shipment, promotion, and sales entirely on its own by using this method. This technique allows fluid communication between the company's stages (design, manufacture, and transportation) where later the company will be able to develop more efficient supply and distribution channels as a result of this.

Trade off englobes the operation logistics in the company. The company faces an ongoing challenge of potential production space loss due to advanced bookings by competitors. Zara's production, primarily based in Europe, is a costly undertaking. Notably, the majority of Zara's revenue is derived from Europe, constituting approximately 66% of total sales, while Asia and America contribute around 20% and 14%, respectively. Zara's ability to circumvent the expenses associated with vertical integration is attributed to its substantial sales in Europe. This strategic advantage sets Zara apart from other companies heavily reliant on low-cost Asian labor, making it difficult for them to adopt a similar approach.

The oversight of *design and manufacturing* ensures the production of garments of superior quality. The use of high-quality equipment, combined with skilled workforce, significantly influences the excellence of the clothing manufactured.

Zara can quickly reproduce the clothes that are trendy and that's only because of their *quick cycle of production*, this cycle helps Zara to assist the business in staying and to adapt to customer requests which is part of the trend of clothes. The product cycle steps consist of patterns, new styles, customer demand, design and production, distribution and redistribution as needed.

Surprisingly, Zara doesn't incorporate advertising as a key element in their marketing strategies. Instead, their most impactful *form of promotion* stems from shopping bags and catalogs. Despite the affordability of Zara's products compared to luxury brands, the absence of traditional advertising does not pose a challenge for the company. Zara's multifaceted business strategies, coupled with a commitment to innovation and adaptability, underscore its resilience and competitive edge in the dynamic world of fashion.

3.4 Zara's Product Management

Discussing product management necessitates addressing organization, processes, and operations. As indicated in our research, the efficiency of product management and its life cycles holds significant importance. Zara, in particular, has devised a distinctive approach to product management, where the entire process of design, production, and distribution of clothes takes only 15 days. This was a crucial consideration for Zara during the development of their business model, emphasizing the importance of speed. Zara has successfully implemented a speed-to-market strategy, introducing new store items to customers twice a week. This approach allows Zara to consistently offer the latest fashion trends, bypassing concerns about inventory costs and prolonged production times. The key to their success lies in their adept product management, enabling them to swiftly adapt factory output to meet customer demand. The combination of speed and flexibility positions Zara competitively in the dynamic fashion industry.

However, all this strategy behind Zara Product Management and Business Model would not be possible without their incredible Supply Chain Management.

3.5 Supply Chain at Zara - The way to the customer

Zara has a very high inventory turnover compared to its competitors, and this is reflected in the characteristics of its supply chain. It owns its own factories, most of which are in Spain, close to the main consumer markets and local suppliers. This allows the company to have the shortest lead times in the market and the flexibility to follow trends, reaching consumers before competitors. One of the brand's main characteristics is that it doesn't create fashion, but rather imitates it. The production process starts with fashion agents at clubs and events analyzing what the trends of the moment are among consumers, then the ideas are sent to teams of designers who develop around 1000 imitations a month. After this process, the parts are sent to the factories, once produced, the products are sent to the company's mega-center in Spain, where they are then distributed to the stores based on demand needs, captured through a highly integrated information system. Every two weeks, Zara sends new garments to its more than 2,000 stores around the world, using air and road transportation. Zara's production process and supply chain are more focused on quality control and low lead times than on reducing costs. For example, Spain is a country where labor costs are high compared to countries in Asia, Africa or South America, however, the concentration of operations in Spain allows Zara to reach the consumer market very quickly, offering the product desired by consumers before its competitors, gaining a competitive advantage. As mentioned during this research, Zara uses vertical integration as key strategy making their product design to sales, guaranteeing total control of its supply chain flows, giving it great flexibility and autonomy in decision-making regarding production and changes.

Zara's supply chain strengths revolve around three key attributes: efficient distribution, rapid introduction of new fashion products, and swift adaptation of clothing collections. These attributes align with the company's strategic objectives. The combination of air and road transportation for distribution supports fast delivery, contributing to competitive pricing. The centralized and verticalized operations give Zara complete control and efficient management of material and information flows, resulting in shortened delivery times, reduced inventories, and rapid collection renewals.

While the centralized approach is a strength, it also poses a vulnerability, as evidenced by Spain's challenges during the 2008/09 crisis. Additionally, the fashion-centric market presents a continual threat to Zara's business.

3.6 Zara's dynamic Supply Chain: Direct and Sub suppliers

One of Zara's key strengths lies in the geographical proximity of its factories to major consumer markets and local suppliers. An agile and flexible supply chain allows them to respond to their customer demands as per analyzed during our research. According to the Inditex group (Inditex, 2022), the group worked with a total of 1,729 direct suppliers located in 50 markets who, in turn, used 8,271 factories to make their product.

Zara views its association with suppliers as an ongoing commitment and support system. In this context, supplier clusters play a crucial role in shaping the company's sustainability strategy by serving as platforms for discussions and collaboration with key industry stakeholders, including trade unions, employers' associations, government bodies, and non-governmental organizations (NGOs). Covering twelve locations, these clusters are situated in Spain, Portugal, Morocco, Turkey, Brazil, Argentina, India, Pakistan, Bangladesh, China, Cambodia, and Vietnam—regions where 98% of their production was centered in the year 2022.

The supply chain at Inditex in 2022				
	Suppliers with purchase in 2022	New suppliers in 2022	Unused suppliers in 2022	Suppliers with purchase in 2021
Africa	201	30	23	194
Americas	11	0	1	12
Asia	955	156	179	978
Europe outside the EU	230	39	32	223
European Union	332	37	88	383
Total	1,729	262	323	1,790

Figure 7 – The supply Chain at Inditex (Inditex.com, 2023)

Zara is known for its ownership of direct suppliers, which are often its own factories, however, the company also engages with sub-suppliers as part of its extensive and intricate supply chain. Sub-suppliers form a collaborative network that plays a crucial role in supporting Zara's production to process and ensure the efficient flow of materials and information. These sub suppliers have as key aspects diverse geographic presence, materials, quality control, transportations and logistics. The company's holistic approach to supplier engagement underscores its commitment to maintaining efficiency, sustainability, and responsiveness in the ever-evolving landscape of the fashion industry.

4.0 Profit

“The fashion industry is a major economic driver, generating billions of dollars in revenue each year.” – Source: The World Bank, “The Fashion Industry: A Global Economic Force,” 2017.

The Global Fashion Industry is an ever-evolving sector that reflects societal, cultural and economic changes. Guided by trends and world economy, the industry has been facing many challenges along the years but showing resilience. With a market valuation exceeding a trillion dollars and contributing 2% to global GDP, we can say that the power in the industry is clear. Approximately 430 million individuals globally have built their careers within the apparel sector, including production workers to fashion designers.

Beyond the overarching realm of fashion, the market is segmented into various demographic targets. The largest sector, women's wear, boasts an approximate annual revenue of \$804 billion. In contrast, men's wear, the second-largest sector, generates just over half of that amount at \$483 billion.

4.1 The application of Zara's Business Model results in Revenue Generation

During this research we observed that a strong part of Zara's business model is the revenue stream, how does Zara generate money? The answer is: through sales of the products which are designed and introduced each year. The group Inditex continues with a very robust operating performance due to the creativity of the teams and the committed execution of their business model. Oscar Garcia, the current CEO states about the 2023 results:

"The 1H2023 results demonstrate that the talent of our teams continues to consolidate the improvements in the performance of our business model. The ongoing commitment to creativity, quality and customer experience, as well as the determined progress in sustainability, drives a strategy that is taking our business to the next level"

As mentioned before, Inditex has a very large group of Fast Fashion brands under their

umbrella. With Zara leading their profit, the collections of 2H2022 and 1H2023 were well received by the customers making the sales growing 13.5% reaching \$16.9 million, in both stores and online. (Inditex, 2023)

Format	31 July 2023	31 July 2022	23/22
Zara (Zara and Zara Home)	12,362	10,927	13.1%
Pull&Bear	1,042	936	11.4%
Massimo Dutti	842	721	16.8%
Bershka	1,184	1,055	12.3%
Stradivarius	1,075	913	17.7%
Oysho	346	293	18.3%
Total	16,851	14,845	13.5%

Figure 8: Net sales by concept in 1H2023 and 1H2022 (Inditex.com, 2023)

Inditex continues to roll out its global sales platform, their sales were positive in all geographical areas and in all concepts.

Area	1H2023	1H2022
Europe ex-Spain	47.8%	46.3%
Americas	19.4%	20.1%
Asia & RoW	18.4%	19.4%
Spain	14.4%	14.2%
Total	100%	100%

Figure 9: Store and online sales by geographical area. (Inditex,2023)

At the end of 2023, Zara's owner announced that its net profit jumped 32.5 per cent in February-October; however, the sales growth in the nine-month period slowed compared to the previous year amid tougher times for consumers. As for Inditex's sales in general (all the stores under their umbrella), in the first half of 2023 they posted a

13.5% rise in sales and 40\$ net profit increase. When Black Friday week came, Zara offered 40% discount on their clothes, making the sales grow 14% between November 1st and December 1st. In conclusion, the financial success of Zara, under the umbrella of Inditex, is a testament to the effective execution of their business model, supply chain dynamic, strategic innovations, and the brand's ability to navigate challenging market conditions while consistently meeting customer expectations.

5.0 Conclusion

The rapid expansion of Fast Fashion has been a significant phenomenon in recent years, with a remarkable growth. In chapter 2 we explored the history and the evolution of Fast Fashion, where clothing was considered as a precious commodity to viewing it to perishable food, and due to this poor view toward clothing, Slow Fashion was created. A concept that represents a vision of sustainability in the fashion sector, prioritizing high quality, treatment of workers and durable garments, slow fashion is quite the opposite of Fast Fashion and as we saw during this research, many companies are adopting it to have a more sustainable and conscious approach when it comes to dressing people.

We live in a generation where trends are more important than being sustainable, however, many apparel companies are approaching the Slow Fashion concept, where they use recycled materials to produce their clothes. Even though our Gen Z cares about being up to date with what they wear, there are many people who are concerned about the environment. When we talk about sustainable fashion, we are talking about the three pillars of Sustainability: Economy, Society and Environment. And this is because they are connected with what the consumers are also aware of, the social consciousness in being sustainable and minimalistic consumerism, the economic situation inside the fashion industry which is fair salary for employees and digital fashion, and the environment where apparel companies use only recyclable materials in the production.

In companies like Patagonia, Sheep Inc and Mara Hoffman that apply the Slow Fashion concept, we can conclude that the product management involves a deliberate and sustainable approach to the development and lifecycle of fashion products. In contrast to fast fashion, which prioritizes rapid production and consumption, slow fashion emphasizes quality, ethical practices, and environmental consciousness. The product development cycle in slow fashion is more thoughtful, with an emphasis on craftsmanship and responsible consumption. Product management in the slow fashion approach aligns with values of environmental sustainability, social responsibility, and a mindful approach to fashion consumption.

When discussing success, it's essential to explore the means by which success is attained, particularly in the context of business. In chapter 3 we delve into the concept of a Business Model, examining how one of the highly successful Fast Fashion brands achieved success and implemented this concept. Zara, currently one of the most

successful fast fashion brands, owes its success to an exceptional Business Model. Emphasizing speediness in their processes, Zara has established a reliable and efficient method for distributing their clothing to consumers within a 15-day timeframe. Departing from the traditional new product process, Zara employs a vertically oriented system, enhancing speed and reducing costs. This approach creates a mutually beneficial scenario where customers access the latest fashion items, and the business attains increased profitability. Zara's approach to Product Management does not prioritize environmental considerations or responsible consumption. Our research reveals that their production and sales model is based on a high-output strategy – *the more they produce, the more they sell*. This stands in contrast to the principles of Slow Fashion, where environmental consciousness and responsible consumption are significant factors.

Different from the Slow Fashion Product Management, Zara's fast fashion product management is marked by agility, vertical integration, data-driven decision-making, and a global perspective. These elements collectively contribute to Zara's success in delivering on-trend and rapidly changing fashion items to consumers worldwide.

The question arises: Can other companies replicate Zara's Business Model and achieve comparable success? While drawing inspiration from Zara's success, other companies have the potential to enhance their overall business performance by challenging traditional product processes. However, it's important to note that replicating Zara's approach doesn't guarantee automatic success. Zara's success is intricately tied to a distinctive set of strategies and specific conditions that contributed to its achievements. While companies may choose to employ a similar approach as Zara did in the past, success is contingent on a nuanced understanding of their own market dynamics, operational capabilities, and alignment with customer expectations.

We can conclude that this thesis gave us an insight into how the product management is conducted inside a Slow and a Fast fashion company and how the fashion industry is balancing sustainability with being in trends. The Business Model is an important and strategic part for a company to have, Zara's success is not arbitrary; it stems from a meticulously designed business model that affords them flexibility and substantial revenue; their business model can serve as a paradigm for adapting to the dynamic nature of the fashion landscape and redefining success in the contemporary retail environment.

6.0 Reference List/Bibliography

Angelo Corallo, Maria Elena Latino, Mariangela Lazoi, Serena Lettera, Manuela Marra, Sabrina Verardi, "Defining Product Lifecycle Management: A Journey across Features, Definitions, and Concepts", International Scholarly Research Notices, vol. 2013, Article ID 170812, 10 pages, 2013.

<https://doi.org/10.1155/2013/170812> (accessed January 2024)

Alberdi, R. (2020, November 17). Business Model Canvas: A 9-Step Guide to Analyze Any Business. ThePowerMBA. <https://www.thepowermba.com/en/blog/business-model-canvas>

(accessed December 2023)

Allen APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Berman APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Bringé, A. (2023). Council Post: The State Of Sustainability In The Fashion Industry (And What It Means For Brands). Forbes. Retrieved January 18, 2024, from

<https://www.forbes.com/sites/forbescommunicationscouncil/2023/01/02/the-state-of-sustainability-in-the-fashion-industry-and-what-it-means-for-brands/?sh=779a86c31c82>

(accessed October 2023)

Bashar, & Hasin, M.. (2019). Lean Implementation: The Progress and the Future Challenges of Apparel Industry to achieve Manufacturing Competitiveness. Journal of Mechanical Engineering. 48. 30-36. 10.3329/jme.v48i1.41092. (accessed November 2023)

CLELAND, David. Gerenciamento de Projetos. [S. l.]: Editora Lab, 2009.

Crofton APUD Sitaro , T. D. (2020). Fast Fashion and Sustainability - The Case of Inditex-Zara . Fordham University.

https://research.library.fordham.edu/cgi/viewcontent.cgi?article=1044&context=international_senior (accessed November 2023)

Daukantienė, V. (2022). Analysis of the sustainability aspects of fashion: a literature review. *Textile Research Journal*, 93(3-4), 004051752211249.

<https://doi.org/10.1177/00405175221124971> (accessed December 2023)

Dal Forno, M. (2017). Fundamentos em gestão ambiental. Retirado 11, 2019, de <http://www.ufrgs.br/cursopgdr/downloadsSerie/derad108.pdf> (accessed January 2024)

Domingos, M., Vale, V. T., & Faria, S. (2022). Slow Fashion Consumer Behavior: A Literature Review. *Sustainability*, 14(5), 2860. <https://doi.org/10.3390/su14052860> (accessed October 2023)

Duarte APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Ellen MacArthur Foundation, Circular business models: Redefining growth for a thriving fashion industry (2021)

Emont APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

FLETCHER, Kate. *Sustainable Fashion and Textiles: Design Journeys*. Earth Scan, London, England, 2008.

Fletcher, Kate. (2010). Slow Fashion: An Invitation for Systems Change. *Fashion Practice: The Journal of Design, Creative Process & the Fashion*. 2. 259-266.

10.2752/175693810X12774625387594.

George, M., Ngoc, N.M., Nhi, L.K.Y., Tung, V.N.D., Truc, L.P.T., Nayak, R. (2022). Lean Manufacturing: Case Studies from Fashion and Textile Industries. In: Nayak, R. (eds) *Lean Supply Chain Management in Fashion and Textile Industry*. Textile Science and Clothing Technology. Springer, Singapore.

https://doi.org/10.1007/978-981-19-2108-7_11 (accessed November 2023)

Gennaro Cuofano. (2018). A Quick Glance At Inditex, The Spanish Fast Fashion Empire - FourWeekMBA. FourWeekMBA. <https://fourweekmba.com/inditex-fast-fashion-empire/> (accessed December 2023)

Gecevska, V., Chiabert, P., Anisic, Z., Lombardi, F., & Cus, F. (2010). Product lifecycle management through an innovative and competitive business environment. *Journal of Industrial Engineering and Management*, 3(2), 323–336.

<http://jiem.org/index.php/jiem/article/view/266/64> (accessed January 2024)

Hamel APUD Mason, Richard. (2019). The Practical Application of Business Model Innovation as a Process-Driven, Competitive Strategy in Networked Markets.

DOI: 10.13140/RG.2.2.15085.44009 (accessed January 2024)

Inditex Annual Report 2022 from

https://static.inditex.com/annual_report_2022/pdf/SUPPLIERS.pdf (accessed December 2023)

Inditex. (2023, September 13). Interim Half Year 2023 Results. Inditex.com

<https://www.inditex.com/itxcomweb/en/press/news-detail?contentId=5a9cb89f-dde8-4f1b-99b3-1e4cec22480a> (accessed January 2024)

Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Jangid, Monu. (2022). ZARA'S CASE STUDY - The Strategy of the Fast Fashion Pioneer The Strategy of the Fast Fashion Pioneer.

Kumar, Senthil. (2016). Value Stream Mapping-A Lean Manufacturing Approach to Reduce the Process Wastages in Clothing Industry. 5. 1-15.

Kiron, M. I., & Mazharul Islam Kiron Founder & Editor of Textile Learner. He is a Textile Consultant. (2021, October 28). Lean management in Apparel industry. Textile Learner. <https://textilelearner.net/lean-management-in-apparel-industry/> (accessed November 2023)

Lekan, A.; Clinton, A.; Fayomi, O.S.I.; James, O. Lean Thinking and Industrial 4.0 Approach to Achieving Construction 4.0 for Industrialization and Technological Development. *Buildings* 2020, 10, 221. <https://doi.org/10.3390/buildings10120221> (accessed December 2023)

Loffredi, J. (2023). 7 Sustainable Fashion Brands Leading the Way. *Forbes*. Retrieved January 19, 2024, from

<https://www.forbes.com/sites/julieloffredi/2023/04/25/7-sustainable-fashion-brands-leading-the-way/amp/> (accessed January 2024)

Lean Manufacturing in textile and garment production. Fibre2Fashion.

<https://www.fibre2fashion.com/industry-article/9785/lean-manufacturing-in-textile-and-garment-production> (accessed November 2023)

Liu & Grusky APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Moraes, A.; Carvalho, A.M.; Sampaio, P. Lean and Industry 4.0: A Review of the Relationship, Its Limitations, and the Path Ahead with Industry 5.0. *Machines* 2023, 11, 443. <https://doi.org/10.3390/machines11040443> (accessed November 2023)

Mason, Richard. (2019). The Practical Application of Business Model Innovation as a Process-Driven, Competitive Strategy in Networked Markets.

DOI: 10.13140/RG.2.2.15085.44009 (accessed January 2024)

MARTLAND, Carl. Avaliação de projetos: Por uma infraestrutura sustentável. [S. l.]: Grupo Editorial Nacional, 2012.

Marchetta APUD Alemanni, M., Alessia, G., Tornincasa, S., & Vezzetti, E. (2008). Key performance indicators for plm benefits evaluation: the alcatel alenia space case study. *Computers in Industry*, 59(8), 833-841. <https://doi.org/10.1016/j.compind.2008.06.003> (accessed December 2023)

Pereira, L., Carvalho, R., Dias, Á., Costa, R., & António, N. (2021). How does sustainability affect consumer choices in the fashion industry? *Resources*, 10(4), 38.

<https://www.mdpi.com/2079-9276/10/4/38> (accessed October 2023)

Philbeck & Davis APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Patagonia. (2011, November 25). Don't Buy This Jacket, Black Friday and the New York Times - Patagonia. Patagonia. <https://eu.patagonia.com/gb/en/stories/dont-buy-this-jacket-black-friday-and-the-new-york-times/story-18615.html> (accessed January

2024)

Rauturier, S. (2023, August 7). What is fast fashion and why is it so bad? Good on You. <https://goodonyou.eco/what-is-fast-fashion/> (accessed September 2023)

Refosco, C., Oenning, E., & Neves, J. (n.d.). ModaPalavra e-periódico. <https://www.redalyc.org/pdf/5140/514051719003.pdf> (accessed September 2023)

Reynolds, C. (n.d.). Inditex business model. Www.academia.edu. Retrieved January 18, 2024, from [https://www.academia.edu/6142044/Inditex_business_model.15"bn](https://www.academia.edu/6142044/Inditex_business_model.15) (accessed December 2023)

Saxon, K. (2021, April 7). Fast Fashion In 2021 (All Definitions, Problems, Examples). TheVOU. <https://thevou.com/fashion/fast-fashion/> (accessed September 2023)

Studio, Q. I. D. (2023). What are circular business models? Fashion for Good. https://fashionforgood.com/our_news/what-are-circular-business-models/ (accessed January 2024)

Shen APUD Vanyushyn, V., Hinzmann, C., & Stark-Nässlin, R. (2020). Sustainability in the Fast Fashion Industry A Quantitative Study on Consumers' Brand Attitude towards Green Brand Extensions and its Effects on Brand Loyalty. <https://www.diva-portal.org/smash/get/diva2:1450848/FULLTEXT01.pdf> (accessed October 2023)

Sharma, A. (2005). Collaborative product innovation: integrating elements of cpi via plm framework. Computer-Aided Design, 37(13), 1425-1434. <https://doi.org/10.1016/j.cad.2005.02.012> (accessed December 2023)

Sivakumar Annamalai, H. Vinoth Kumar, N. Bagathsingh. Analysis of lean manufacturing layout in a textile industry, Pages 3486-3490 (2020) <https://doi.org/10.1016/j.matpr.2020.05.409>. (Accessed November 2023)

Sitaro, T. D. (2020). Fast Fashion and Sustainability - The Case of Inditex-Zara . Fordham University. <https://research.library.fordham.edu/cgi/viewcontent.cgi?article=1044&context=internati>

[onal senior](#)

(accessed November 2023)

Schwab APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Stahler APUD Tukker, A., Charter, M., Vezzoli, C., Stø, E., & Andersen, M. M. (2017). System Innovation for Sustainability 1: Perspectives on Radical Changes to Sustainable Consumption and Production. In Google Books. Routledge.

<https://books.google.de/books?hl=es&lr=&id=3m1QDwAAQBAJ&oi=fnd&pg=PA70&dq=Chesbrough+and+Rosenbloom> (accessed January 2024)

Trott, P. (2017), chapter 12. Sixth Edition INNOVATION MANAGEMENT AND NEW PRODUCT DEVELOPMENT.

Wellener APUD Jin, B.E., Shin, D.C. (2021). The power of 4th industrial revolution in the fashion industry: what, why, and how has the industry changed?

<https://doi.org/10.1186/s40691-021-00259-4> (accessed December 2023)

Vanyushyn, V., Hinzmann, C., & Stark-Nässlin, R. (2020). Sustainability in the Fast Fashion Industry A Quantitative Study on Consumers' Brand Attitude towards Green Brand Extensions and its Effects on Brand Loyalty.

<https://www.diva-portal.org/smash/get/diva2:1450848/FULLTEXT01.pdf> (accessed October 2023)

Zara owner's nine-month profit soars 32.5% but sales growth slows down. (n.d.). The Irish Times. <https://www.irishtimes.com/business/2023/12/13/zara-owners-nine-month-profit-soars-325-but-sales-growth-slows-down/> (accessed January 2024)

Zammit, J.P., Gao, J., Evans, R. (2017). The Challenges of Adopting PLM Tools Involving Diversified Technologies in the Automotive Supply Chain. In: Ríos, J., Bernard, A., Bouras, A., Fofou, S. (eds) Product Lifecycle Management and the Industry of the Future. PLM 2017. IFIP Advances in Information and Communication Technology, vol 517. Springer, Cham. https://doi.org/10.1007/978-3-319-72905-3_6 (accessed January 2024)

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I declare that the work in this assignment is completely my own work. No part of this assignment is taken from other people's work without giving them credit. All references have been clearly cited.

Date:

Place: Chicago, Illinois, USA

Signature: