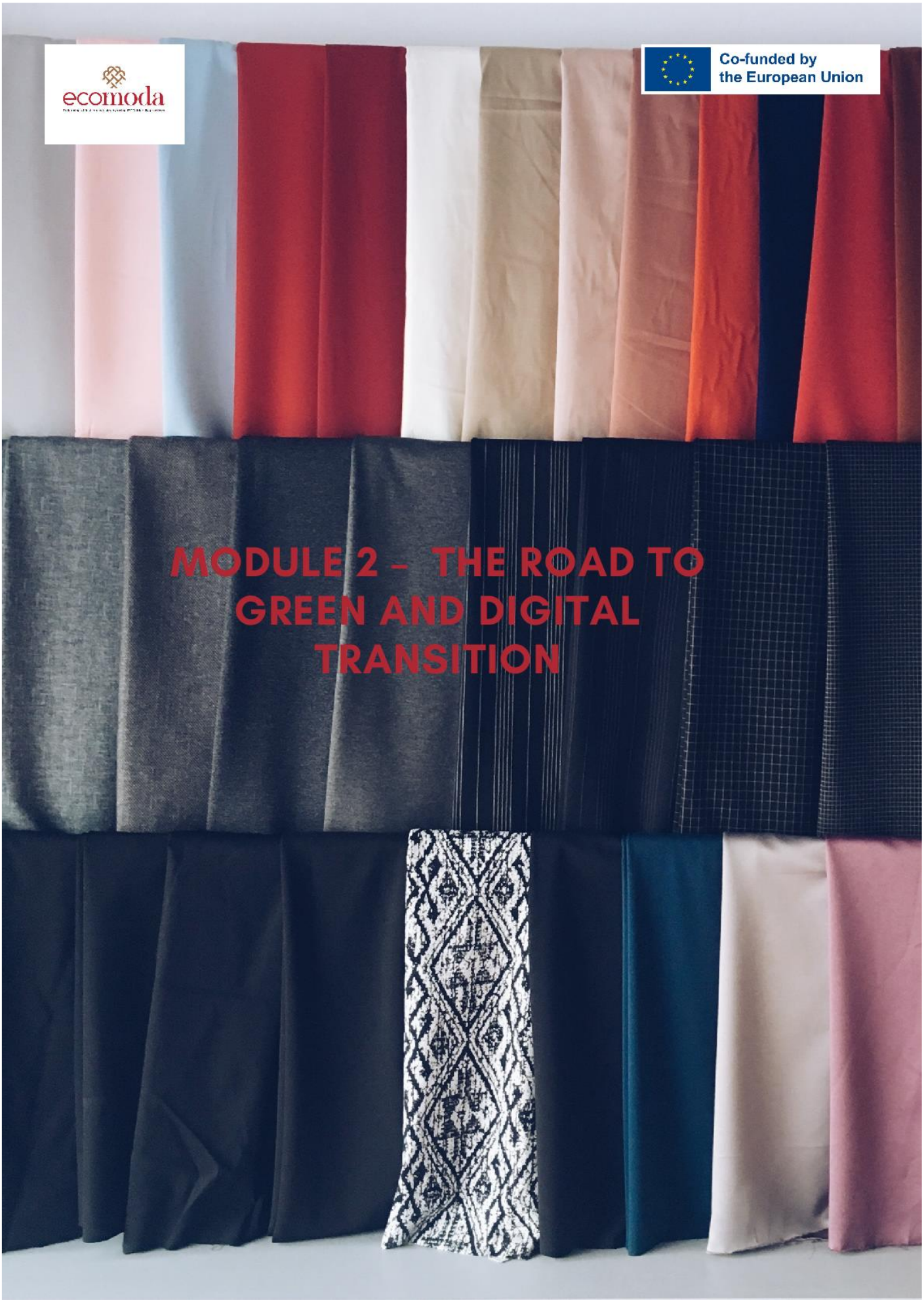

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Co-funded by the European Union

MODULE 2 – THE ROAD TO GREEN AND DIGITAL TRANSITION

ECOMODA Training Course - Introduction

Enoros Consulting

Literature review

The fashion industry represents a business with an annual estimated turnover of €147 billions (EURATEX, 2022) employing over 1.5 million people (European Environment Agency, 2019) in the EU-27 region. At the same time, the global fashion industry uses more than 98 million tons of non-renewable resources annually, including oil to produce synthetic fibers, fertilizers for cotton plantations, and chemicals for producing, dyeing, and finishing fibers and fabrics. To these, 93 billion cubic meters of water are added, which contribute to worsening the events of drought, the emission of about 1.2 billion tons of CO2, and 500 thousand tons of microplastic fibers poured into the oceans. Until the seventies, in a context where environmental concerns began to take on importance, fashion firms limited themselves to interpreting sustainability in a communicative key, mainly through green marketing initiatives. It was not until the 1990s when sensitivity towards environmental and social problems began to take on a new value; not only communicative, but above all, anchored to the actual productive and organisational capacity of companies. (Grant, 2009).

Nowadays, attention to sustainability, respect and protection of the environment, enhancement of human resources, safety of working conditions and protection of health, have become fundamental drivers for the development of the fashion industry, impacting the entire value chain, from the commercial proposal, to the relationship with the final consumer, up to the management of the end-of-life of a product. (Raworth, 2017). In a broader sense and in a strategic key, the concept of sustainability has evolved to embrace the search for well-being, a better quality of life and a sense of responsibility towards the community. (Ki, 2016).

In 2009, the **Copenhagen Fashion Summit (CFS)** launched the first sustainability program for fashion companies and the publication of an, at the time, pioneering sustainability report guide (CEO's Fashion Agenda), produced in collaboration with some of the world's top fashion brands and addressed towards fashion company CEOs . The CEO's Fashion Agenda identified Seven Priority Actions for achieving higher sustainability standards within the industry: **1. supply chain traceability**, **2. saving water and energy, 3. workers' security and respect, 4. sustainable material mix**, **5. circular fashion system, 6. better wage systems, 7. digital revolution.**

Its goal was to shift fashion leaders' priorities towards creating more durable products, favouring disassembly of fibers and realizing recyclable garments. On the other side, retailers were incentivized to increase the presence of collections of used garments, while leading fashion companies were encouraged to collaborate with governments to develop better circular systems, and develop innovative technologies to transform textile waste into high-quality fibers. (Cuc, 2011).

In 2018, under the auspices of UN Climate Change, fashion stakeholders worked to identify ways in which the broader textile, clothing and fashion industry can move towards a holistic commitment to climate action, resulting in the **Fashion Industry Charter for Climate Action** and the vision to achieve net-zero emissions by 2050. The Fashion Industry Charter was launched at COP24 in Katowice, Poland, in December 2018, and was renewed at COP26, in Glasgow, UK, in November 2021. The industry charter specifies the following overarching areas of work to be further developed by specific Working Groups: **Decarbonization pathway and GHG emission reductions, Raw material, Manufacturing/Energy, Logistics, Policy engagement, leveraging existing tools and initiatives, promoting broader climate action, Brand/Retailer Owned or Operated Emissions.** (Patrizia Gazzola, 2020).

In April 2020, McKinsey & Company conducted the `Consumer Sentiment on Sustainability in Fashion' interviewing2000 British and German consumers. Two-thirds of the interviewees affirmed the following issues: use of sustainable materials is an important driver for the final purchase (67%)

and brands should be totally transparent about sustainability (70%). The research also shows that Generation Z and millennials have a strong propensity to purchase second-hand items.

The new affluent generations are more socially and environmentally conscious, and so have higher expectations of fashion brands to be more sustainable and ethical in their production processes. This implies an important lesson for fashion brands that want to attract and retain this market segment: brands need to evolve towards new business models based on ethical, sustainable, and circular fashion. This change has also led large fashion companies to start following a greener path. Companies have understood how a sustainable model can produce a competitive advantage in reputation and differentiation.

During the pandemic period, this trend has greatly accelerated. The Kering Group, for example, to which Gucci, Bottega Veneta, Balenciaga and Yves Saint Laurent belong, was selected during the World Economic Forum as seventh out of over 8000 companies for its commitment to green production. "**Sustainability is the organizing principle on which to build the future of the fashion industry, more resilient than ever,"** declared Eva Kruse, CEO of Global Fashion Agenda. The pandemic period has caused severe socio-economic damage, but it is accompanied by environmental deterioration that can also affect economic opportunities and social equity. In the face of this double risk, future generations are ready to be resilient and make their contribution not only on the consumption side but also through their inclusion in fashion companies by bringing green and circular principles with them. (Idiano D'Adamo, 2021).

ECOMODA overall objectives

ECOMODA training course's goal is the creation of sustainable communities and flourishing ecosystems. It promotes environmental and social responsibility, aiming to help young fashion designers to adopt new ways of sustainable fashion.

"Sustainable fashion is defined as clothing, shoes, and other accessories that are manufactured and used in the most sustainable manner possible, taking into account both environmental and socio-economic factors." (https://greenstrategy.se/, n.d.)

The course provides a theoretical framework for practitioners, but policymakers and educators may also find it useful in developing and promoting the acquisition of novel teaching/learning approaches.

More specifically, the ECOMODA Training Course will assist young talented people in the fashion industry in acquiring the ideal blend of creative and strategic thinking that the industry seeks, preparing them, as well as their professors, for a successful career in the fashion sector.

It identifies:

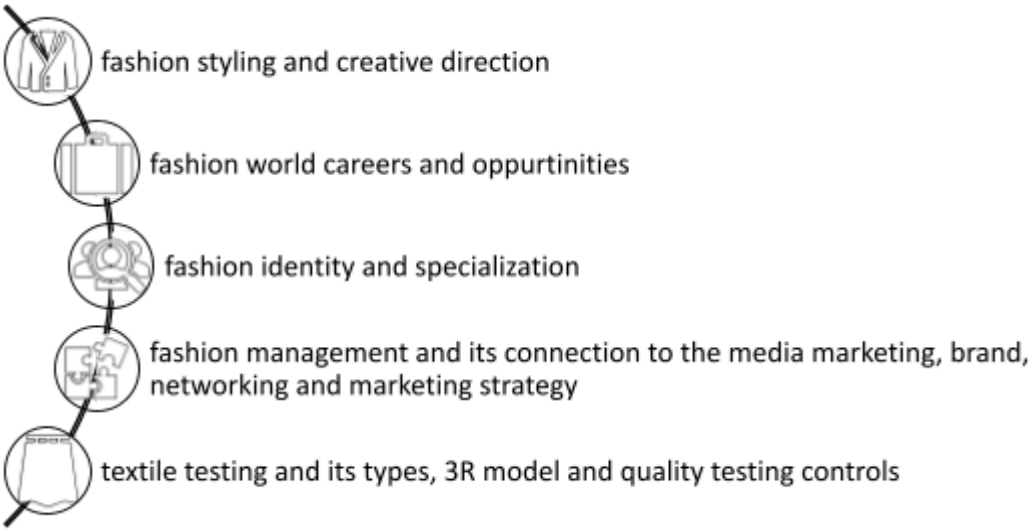
1. environmentally friendly textile and fashion materials
2. training and educational possibilities and pathways for each partner country
3. EU work experience opportunities and employment career growth in the fashion industry
4. best practices in textile and fashion industry businesses
5. ethical fashion

ECOMODA Training Course covers various areas, including legislation and practices, important information on sociocultural shifts and new frameworks for fashion trends. More specifically, the modules will cover topics such as:

- The history of the “Sustainable” fashion world
- The world of fashion and its careers
- Necessary skills for succeeding in the fashion industry
- How to start a career in fashion
- Sustainable development, technologies and products
- Linear vs. Circular economy and textiles
- Fashion Management
- How to promote and sell your brand

Learning outcomes

With the completion of the ECOMODA training course modules, young fashion designers would have acquired the basic **knowledge** of:



And the **skills** to:

Brief description of ECOMODA modules

Module 1 – Leave your mark in the Fashion World
Units
UNIT 1 - The world of fashion 1.1 The history of the fashion world, in particular of the “Sustainable” fashion world 1.2 The world of fashion and its careers 1.3 How to start a career in the fashion world UNIT 2 – The Fashion world ‘Must-Haves’ 2.1 What skills are required in today's fashion world (and why?) 2.2 Essential theoretical and soft skills 2.3 Best Practices UNIT 3 – Communicate effectively in the contemporary fashion world 3.1 How to leave your impact on the fashion world 3.2 Effective communication 3.3 Secrets and tricks of the trade
Self-Assessment Quiz
Six multiple choice questions to assess the comprehension of the main topics of Module 1.

Module 2 – The road to green and digital transition
Units
UNIT 1 - The fashion industry and its environmental impact UNIT 2 - Fashion and the COVID19 pandemic UNIT 3 - The Quest for Innovation 3.1. Fashtech 3.2. New business models 3.3 New services: Automation and Artificial Intelligence 3.4. New production models: Just in time and on-demand production 3.5. Traceability and blockchain
Self-Assessment Quiz
Four multiple choice questions to assess the comprehension of the main topics of Module 2.

Module 3 – Fashion Management and Media Marketing
Units
UNIT 1 - What is fashion management? UNIT 2 - The fashion supply chain UNIT 3 - How to promote and sell your brand
Self-Assessment Quiz
Six multiple choice questions to assess the comprehension of the main topics of Module 3.

Module 4 – A new approach to quality perception of textile and its evaluation via testing
Units
UNIT 1 - What is the circular economy and why has it been introduced in the textile industry? UNIT 2 - What is textile waste and - what types of textile recycling are there? UNIT 3 - Textile labeling and the responsibility of producers and consumers to minimise the environmental impact of textile products. UNIT 4 - Definition of textile product quality and its testing.
Self-Assessment Quiz
Five multiple choice questions to assess the comprehension of the main topics of Module 4.

Every module of the ECOMODA training course has the **following structure:**

- Title of the module - Name of the partner
- Summary - Brief description of the topics and key terms
- Main goal of the module
- Learning Objectives (Knowledge, skills, attitudes)
- Main keywords of each module
- Units of the module
- Activities
- Self-Assessment Quiz

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ECOMODA Training Course

Module 2 - The road to green and digital transition

Title of the module	Module 2 – The road to green and digital transition
Responsible Partner	ATEVAL

Content:

Module Summary

Regulation, innovation and awareness, building the foundations for a 'greener' fashion industry, committed to sustainability, society and the planet.

Module Aim(s)

Module 2 will provide an introduction into the environmental impact of the fashion industry and how technological advancements could help improve the environmental cost of fashion.

Learning Objectives

Module 2: The road to green and digital transition		
Knowledge	**Skills**	**Attitudes**
• Basic knowledge regarding the environmental impact of the fashion industry • Practical knowledge on how the pandemic has affected consumers' habits • Theoretical knowledge on how digitalisation can support the fashion industry	• Explore the latest digital tools in fashion • Recognize the importance of 'Reduce, Reuse, Recycle' • Identify new trends in business models	• Willingness to learn more about the environmental impact of the fashion industry • Willingness to learn about new business models and technological developments in fashion • Willingness to learn why it is important to opt for sustainable fashion brands

Key Terms

Sustainability; digitalisation; fashtech; blockchain; textile passport; artificial intelligence; just in time; automation.

UNIT 1 - The fashion industry and its environmental impact

To understand the fashion industry's role in the global economy and the environment, it is necessary to review some key facts and figures. The global value of the fashion industry is $3 trillion, equivalent to 2% of the world's GDP. (McKinsey Global Fashion Index). Before the pandemic, between 80 and 100 billion garments were produced each year, employing 86 million workers directly (mostly women) and some 300 million in the value chain.

According to Life Cycle Assessment (LCA) expert, Quantis, the global apparel and footwear industry accounted for 6.7% and 1.4% respectively of the world's greenhouse gas emissions; which is approximately equivalent to all EU emissions in one year (Quantis, 2018). Of particular concern is that if current trends continue, by 2030 these figures could increase by 49% (Quantis, 2018). The challenge here is that the industry's environmental impact is disproportionate to its economic value, which is the result of the widespread trend towards the production of increasingly affordable, short-lived clothing and footwear (Ellen MacArthur Foundation, 2017).

Clothes, footwear and household textiles are responsible for water pollution, greenhouse gas emissions and landfill. Fast fashion (the constant provision of new styles at very low prices) has led to a big increase in the quantity of clothes produced and discarded. Several textile industry reports have exposed the high cost of fast fashion, including underpaid workers, child labour allegations, and deplorable conditions for mass production. According to a 2019 UN study, global clothing production doubled between 2000 and 2014, revealing that the industry is "responsible for 20% of total global water waste". In addition, the manufacture of clothing and footwear generates 8% of greenhouse gases.

The arid lands of the Atacama Desert in northern Chile have become the setting for an image that looks like something out of a science fiction novel. Here you can find mountains of second-hand clothes from the United States, Canada, Europe and Asia, which were discarded for resale and ended up in this open-air dump, emitting toxic gases as they decompose. In terms of inequality, to this place plagued by what some people have thrown away, others arrive in search of clothes to wear or resell to make a living. This clandestine rubbish dump has been rising from the 59,000 tonnes of discarded clothing that arrive each year in Chile (Latin America's leading importer of second-hand clothing) through the free trade zone at the port of Iquique, 1,800 kilometres north of Santiago. Most are used items, but there are also some unworn items with the sales tag still attached.

Source Picture: GETTY https://elpais.com/autor/afp-agence-france-press/#?rel=author_top

Source: https://elpais.com/autor/fermin-torrano-echeandia/#?rel=author_top

UNIT 2 - Fashion and the COVID19 pandemic

The outbreak of the pandemic has accelerated changes that the fashion industry had been anticipating for some time, and the fragilities that have now become apparent are the result of underlying problems that had been in the industry for more than a decade; a resource-intensive and high-impact sector due to its linear production system, and risks and social inequalities being concentrated in the upstream activities of the value chain.

At the global level, the crisis caused by the COVID19 pandemic has aggravated vulnerabilities along the value chain. Textile orders dropped by 31% on average worldwide (International Textile Manufacturers Federation) (UN 2020). Faced with a huge number of cancelled orders, 40% of manufacturers had difficulties in paying their workers (BCG, SAC, Y Higg Co, 2020), while 72% of buyers refused to pay for raw materials already purchased by suppliers (Anner 2020). This has exacerbated the social and human rights issues that had already been highlighted in numerous studies prior to 2019, with the majority of fashion brands paying their suppliers for raw materials already purchased by the supplier only after delivery (UN 2020), and those involved in the production stage being the most vulnerable (Fashion Revolution, 2020).

With this evident recession, the fashion industry has faced the biggest crisis in its history. According to *McKinsey (The State of Fashion 2020)*, international revenues are expected to fall by 30%, and although the global economy is expected to partially recover in the coming years, economic growth will continue to decline from previous levels.

The effect of the crisis corroborates the trend towards "a world more aware of interdependence, the health of the planet and the health of people, the human and the digital, individual well-being and collective well-being, highlighting our shared destiny" (21 grams et al. 2021). In this line, consumer trends highlight an expectation of systemic change, which will affect fashion beyond the current situation, and may highlight new patterns of behaviour such as:

- Accelerated digitalisation due to movement restrictions, coupled with the fact that people in many countries are still reluctant to gather in crowded environments. E-commerce growth during the first four months of 2020, in the United States alone, equaled that of the last 10 years altogether (WEF 2020). Modaes' report, 'Barómetro 2020 de empresas in Spain', points out that in 2020 the percentage of companies considering the digital channel as the most important, has gone up from 34% to 59%. Currently, one in four Spaniards spends between 21% and 50% of their income online, which is almost double the amount recorded before the outbreak of the pandemic.
- The way we engage with and through technology has also changed, as has the value we place on data; 48% of users say they avoid brands that misuse their data (21 grams et al., 2021).
- More time spent at home, and thus a clear shift in the type of clothes we use. Since the pandemic, formal clothing (the consumption of which was already declining before the crisis) has been on a downward slope.
- Health as part of green and social shopping. Since the start of the pandemic, around 94% people globally have adopted healthier habits, while 60% switched to more sustainable and ethical products (World Economic Forum 2020).
- The hyper-consumerism trend of the past century is giving way to movements related to lowsumerism (or deconsumerism). DIRSE research findings show that only 4 out of 10 citizens say that shopping makes them happy (in 2020, it was almost 6 out of 10).
- More reflexive shopping habits; 85% of citizens say they only buy when they need it, or rethink their needs.
- More conscious consumption; Two-thirds of consumers say that sustainability has become a higher priority than tackling climate change (Global Fashion Agenda, 2020). 84% of consumers stated that they admire people who consume with a conscience, and 76% are willing to pay more for more sustainable products (DIRSE Spain 2021).

However, there is a clear attitude-behaviour gap when it comes to purchasing products or services. Consumers have difficulties when translating their environmental concerns and their responsibility as citizens into consistent consumption habits. These clear consumer purchasing preferences are not aligned with their purchasing behaviour, as they continue to opt for cheaper or more accessible alternatives (McKinsey, 2021). In 2020, 20% of Generation Z (1995-2010) said they would reward brands that respect the environment, whilst today, only 4% say so. Moreover, the public is increasingly aware of the vulnerability of workers and the precariousness of employees in the fashion value chain (Mackinsey, 2021). Consumers are looking for companies that incorporate social and environmental criteria, both in their internal management and in the places where they operate, offering more dignity, security and fairness.

"Less activism in communication and more activism in actions"
(21gramos et al 2021).

UNIT 3 - The Quest for Innovation

3.1. Fashtech

Digital technology has radically changed society and its business activities. Digitalisation has enabled fashion to transform itself through data analysis and new technologies, which have provided the industry with seamless visibility, renewed insights, and expanded capabilities. All this in a context where users have changed the way they relate to brands and the products they offer. With digital penetration, shoppers demand increasingly sophisticated online interactions, therefore, fashion players are called to optimise online experience, while at the same time, find persuasive ways to humanise the medium.

The fusion of technology and fashion, called fashtech or fashion-tech (Fashion Technology), has generated a new ecosystem with different agents and sectors, from social networks and influencers to new services and business models. According to Antonio Segura, founder of Fashion Retailer, fashtech is redefining traditional processes, capabilities and tools, offering tools to process the enormous amount of data that is being used to improve efficiency throughout the value chain.

Distribution and retailing are changing at the pace of technology and we can differentiate innovations with Artificial Intelligence (AI) and Robotic Process Automation (RPA), Augmented Reality (AR), and the use of Augmented Reality (AR) and Virtual Reality (VR), Additive Production (3D Printing / 3D Knitting), Blockchain and IOT or Internet of Things (IoT). The combination of several of these technologies is activating the transition in the fashion industry, driving disruptive innovations in the different links of the value chain and giving rise to new automated production systems, virtualisation and automated production systems, virtualisation of user-product interaction, redefinition of customer service or even stock management, among others.

3.2. New business models

Although second-hand sales have been around for decades, the boost they have had in recent years is due to several factors: such as mass digitalisation, economic crisis, and more conscious consumers who prioritise value. Their consumption is mainly concentrated in the new generations, and the Anglo-Saxon and Nordic markets.

The latest report from ThredUP estimates that online second-hand sales will grow by 69%, while retail sales will fall by 15%, and according to their projections, it will almost double the fast fashion market by 2029. Some examples already recognised for their track record are: Micolet, ThreadUp, The Real Real, Vestiaire Collective and many others.

Something similar happens with renting. Thanks to the new generations, who are more interested in access to goods than in their ownership, clothing rental is gaining ground, although it still has a long way to go. Until now, this model was aimed more at special occasions, but the rise of social networks and new platforms with new services has enabled its development, proposing itself as an interesting alternative within the circular economy. Thanks to Rent the Runway (a digital platform that was born in 2009 and currently has physical shops in New York, Chicago, San Francisco, Los Angeles and Washington), this has been widely adopted in the US market. Its customers number more than eleven million and its portfolio of brands is made up of more than 550 designers, being valued at more than one billion dollars.

3.3 New services: Automation and Artificial Intelligence

Robotic automation and new technologies to perform human-like tasks are already changing the way fashion companies operate. Almost 50% of digitally mature companies now claim to have a defined artificial intelligence strategy in place (Garcia, F.2020). Among the solutions that are set up to automate and facilitate operations for fashion companies are:

- automated logistics
- automated sewing machines
- automated online merchandising
- automated content generation and, of course
- data processing driven by Artificial Intelligence

Many of the opportunities offered by these technologies are associated with advantages that the retail sector is already enjoying, such as:

- **Experience and personalisation:** algorithms track customer searches and help them find the right product. It is like Netflix's machine learning system that shows you what you might like based on your previous choices.

- **Customer service**: real time communication through chatbots (an assistant that communicates with users through text messages) or touch screens. Bots located inside stores help customers to find the items they are looking for and answer basic questions.
- **Design and shopping:** Artificial Intelligence (AI) analyses customer trends and behaviour. This information is very useful for designers (when creating new collections) and buyers (when selecting collections, selecting colours, styles, etc.).
- **Demand forecasting and planning**: planners have better information to plan the right amount, at the right time (e.g. allocations, clustering, etc.).
- **Supply chain inventory management:** real-time inventory tracking (with RFID, Radio Frequency Identifiers), warehouse management and operational procurement reduce the uncertainty of maintaining stock levels by monitoring supply chain, market and consumer demand variables.
- **Customer engagement:** Virtual assistants provide a new level of immediacy and simplicity to their customers' shopping and support experiences. For example, H&M's Kik Bot personalises the customers' shopping experience through chat. Customers receive a set of styles to choose from and once the customer's preference is integrated, the kik bot starts searching for similar styles of clothing.
- **Supply chain optimisation:** AI leads to greater accuracy and timeliness compared to traditional systems. AI tools can help predict future supply and demand scenarios.
- **Recruitment:** AI helps companies to recruit the right candidates by analysing historical performance and employee attributes.

On the customer side, AI enables them to make better purchasing decisions. Hyper-personalisation and conversational commerce are hallmarks of customer-facing AI enhancements, which want natural conversations as they shop online. 65% of millennials prefer interacting with bots to talking to live agents. Both AI and machine learning are two technologies that can solve complex customer engagement and operational problems inside and outside the four walls (Sahir Anand, 2018). Examples include:

Heuritech is an AI platform that can predict fashion trends based on deep analysis of millions of images, shared every day on social media by influencers and consumers. Heuritech is connected to social listening tools every day to form a representative and powerful panel.

Truefit provides an online recommendation engine that helps consumers find brands and new styles in the market.

Farfetch is an online fashion retail platform that sells products from more than 700 boutiques and brands around the world. The company was founded in 2007 by London-based Portuguese entrepreneur José Neves. In 2017, Farfetch imagined the Shop of the Future to provide an experience that brings together the best of the online and offline worlds. The enabler is, of course, technology and data (e.g. smart fitting rooms, RFID, personalised service, etc.).

3.4. New production models: Just in time and on-demand production

While the automation of garment manufacturing is not yet scaled up, the technologies that are being developed show its enormous potential. By automating the progress of sewing using a multi-stage sewing assembly line with smart sewing machines and sensors, interest in close-in production is increasing. Other highlights include innovations in 3D woven additive printing, digital printing and laser finishing. These can help companies to reduce labour intensity, make more customised products, improve reliability and reduce process times. Below, we list some of the benefits these technologies can offer:

- rapid response
- free replacement cost when a part is out of stock and an extended lead time is required
- redistribution of manufacturing
- logistics savings - for example, if part of the manufacturing is relocated, this will reduce overall transport costs, as well as shipping
- reduced energy costs in production (i.e., reduction of greenhouse gases)
- material savings and reduced production costs

- elimination of stock and maintenance costs (e.g., warehouse rental, material handling equipment, shelving, resource time, etc.)
- improvements in customer service and customer satisfaction
- customisation (e.g., fit and comfort)

Sportswear and footwear brands, such as Nike or Adidas, are already using 3D printing to produce soles, which traditional moulding techniques could not create. Many of these evolving changes have had an impact in several key areas. Examples include:

Rodinia is a Danish company which reduces their volume of production through a system that allows brands to adapt their orders to real demand.

Grabit provides an electroadhesion-based handling system which has the ability to handle something as fragile as a soft fabric or a 25k box. This unprecedented flexibility opens up completely new possibilities in the use of automated robots and machine learning software.

Unmade is an entirely digital, on-demand MTO (Made to Order), UK-based company offering end-to-end technology solutions, from design to manufacturing, while maintaining brand identity for personalised use through a collaborative approach. Among its customers is New Balance.

Lectra is a French company that offers digitised MTO services, related to textile transformation.

3.5. Traceability and blockchain

Ensuring consumers have real-time, tangible information throughout the lifecycle of garments is crucial because, as the Harvard Business Review confirms, the consumer behaviour when purchasing sustainable products depends on emotional appeal and tangibility. It is in this yearning for tangible evidence that traceability and transparency become the backbone of sustainability, offering companies the possibility to act responsibly and contribute to the education of conscious citizens, capable of making informed decisions, and thus to the creation of an environmentally and socially sustainable industry.

Blockchain technology is a tool that allows companies to store information about their supply chains in a decentralised network. It ensures that data is not stored in a single location, and that it is easily accessible and verifiable by anyone with access to the network. Each record in the production process serves as a block in a chronological chain. The chain is completed by a QR code attached to the end label of a garment, which can trace the history of the garment through all stages of production. By scanning a QR code or an NFC chip, customers can access data that not only shows the materials used and production locations, but also the amount of carbon dioxide or water used during production. Essentially, it creates a product's digital "passport" and tracks it across locations, suppliers and garment workers. This will guide customers towards buying ethical and sustainable brands.

When a piece of clothing has a digital garment passport, there is a QR code or hardware tag on the clothing that has detailed information about the product. This "passport" enables the product to be tracked through its lifecycle and through circular business models like resale and recycling. Digital garment passports will help add more transparency to the fashion industry by including information on the material contents of the garment, production, and even transportation. This will also help with making the product more sustainable through repair, resale, and recycling. With blockchain technology both customers and retailers can monitor deliveries by tracking products throughout the shipping process, and protect their brands against counterfeiting. Counterfeiting has always been a problem for the luxury fashion industry based on how difficult it is to track and eliminate counterfeit products. The traditional technologies such as watermarks, serial numbers and special labels have not proven effective in the long run. With blockchain technology, the authenticity of luxury products can be verified before purchase.

Major luxury brands such as LVMH, Cartier (Richemont) and Prada SpA have partnered to offer a blockchain solution to their customers that can be used to verify the authenticity of luxury goods prior to purchase, seeking additional

authenticity for their products. For buyers from generations Z and Millennials, trust and sustainability are important. The blockchain is a technology that enables this traceability and enhances the customer experience by allowing them to scan and discover the history or roots of each garment. Some examples:

Textile Genesis is a platform that offers a traceability system that combines blockchain with the GS1 traceability standard, for the fashion industry. Its vision is twofold: to create radical transparency from fibre to retail and to guarantee the authenticity and provenance of sustainable textiles versus generic ones. Its partners and collaborators include major sustainability advocates such as Fashion for Good, Textile Exchange, WWF, HM Foundation or Lenzing.

Another interesting business model is **Reverse Resources**, a platform for tracking and trading of textile waste that provides 360-degree transparency of waste streams.

Do you want to learn more about fibres and textile technologies? Check out the following resources:
Classification of textile fibres:
https://youtu.be/o2N7pQIrHG8
https://www.youtube.com/watch?v=CNDtsSWDIS0

Properties of fibres:
https://youtu.be/ZNrUt0eFMOI
https://www.youtube.com/watch?v=JsHv7qYJlsc

Thermal properties of fibres:
https://youtu.be/iWn4zEHt7sk

Synthetic fibre-forming polymers:
https://youtu.be/SuCJrmCsoZ4
https://www.youtube.com/watch?v=LWxoDV-Ll8k

Non wovens:
https://youtu.be/zHPbJtq4YJc

Fibre recycling process for nonwovens:
https://youtu.be/yxJOPEadFDc

3D printed textiles-Sustainable technology and fashion:
https://youtu.be/r5GbLsRGxKE
https://youtu.be/WquJ7PEqYi8
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Self-evaluation test

Read the assignment carefully and choose the correct answer. Only one of the given options is correct. Check your answers below the test.

1. How many litres of water does it take to produce one kg of cotton for t-shirts?
a) 500 litres
b) 5000 litres
c) 20.000 litres

2. Fast Fashion
a) has a positive impact on the environment through carbon emissions
b) is responsible for 20% of total global water waste
c) provides Safe Labour Conditions to children workforce

3. Which of the below is a new business model in fashion?
a) Renting instead of buying
b) Including lawyers to settle any issues that may arise
c) Limiting the production of garments

4. What is Fashtech?
a) Clothes that have the ability to express our beliefs and values
b) the intersection of technology and fashion
c) The latest collection of H&M

Correct answers: 1. c); 2. b); 3. a); 4. b)

Glossary

Fashtech (or fashion-tech): the intersection of technology and fashion (e.g., items such as Apple watch).

Business model: Business model is a plan for the successful operation of a business, identifying sources of revenue, the intended customer base, products, and details of financing to achieve the setted company goals and a profit.

Just-in-time (JIT): A just-in-time inventory system is a management strategy that aligns raw-material orders from suppliers directly with production schedules to minimise storage costs.

Textile Passport: A digital garment passport in the form of a QR code or hardware tag on the clothing that has detailed information about the product. This "passport" enables the product to be tracked through its lifecycle and through circular business models like resale and recycling.

ECOMODA Training Course – Conclusion

Enoros Consulting

Congratulations, you have completed the ECOMODA Training Course!
More specifically in this learning journey, you have learned:

How to leave your mark in the fashion world:
• By looking into the history of fashion
• Through an introduction into the different careers in the world of fashion
• Through tips on how to start a career in fashion
• By looking into the essential theoretical and soft skills for making it into the fashion industry
• By identifying the top qualities of successful fashion designers
• Through effective communication practices
• By learning secrets and tricks of the trade

About green and digital transition:
• Through key-facts about fashion's environmental impact
• By looking into the pandemic's impact on consumer habits
• Through an introduction into fashtech and the need to switch to more sustainable business models and services in fashion
• By looking into the traditional and new production models

About the Fashion Management and Media Marketing:
• Through the basics of fashion management, its brief history from the mid-19th century and its main manufacturing categories
• Through an introduction to the fashion supply chain and its different levels of operations
• By looking at the examples of cashmere and the biodiversity crisis
• Through tools to develop a good marketing strategy for managing a fashion brand

About textile quality and its evaluation via testing:
• Through a brief introduction to the terms related to sustainable development, technologies and products
• Through a presentation of the general data about consumption of textiles and textile waste and an action plan for circular economy in textile
• Through the introduction of the types of textile waste and its possible reuse, the basic procedures for textile waste recycling and the sustainable technologies in general with practical examples.
• Through information on selected topics such as: - What are standards and why is it good to use them? - How to find your way around the system of standards? - Who creates them and how and what they are used for? - Why and when is it necessary to follow them?
• Through an introduction to textile labeling and the responsibility of producers and consumers to minimize the environmental impact of textile products
• Through knowledge about eco-design and the life cycle of products, how to define the minimum criteria for different types of textile products and how and where the quality of textile and textile products can be tested.

You are now ready and confident to face the challenges of the sustainable fashion world with more:

Awareness

- of the principles of fashion styling and creative direction
- of the personal qualities to be cultivated for a succesful career as a creative director
- of how to leave your mark in the fashion world
- of how marketing can help in promoting your brand
- of how to promote and provide information about textile testing

Willingness

- to develop and exercise new creative skills that will help you built your career and manage new challenges in the world of fashion
- to think about your long-term impact in the fashion industry, discover new tools to promote your brand and manage every challenge
- to be informed about the impact of textile testing and employ different approaches
- to devote time to learn about quality control testing and how it can help reduce the negative impact on the environment

Appreciation

- of practical approaches in styling and how it can help with staying competitive
- of the importance of connecting and sharing
- towards 3R model (Reduce, Reuse, Recycle) benefits
- of the importance of fashion communication

Openess

- to identify weaknesses and try to transform them into strengths for your personal career development and wellbeing
- to discuss production, sales, advertising, etc. with other people in the fashion industry

If you wish to learn more about sustainability and the fashion world, have a look at the following free online courses and articles:

Course 1: Sustainable Fashion
Content: Business model theory as a foundation to look at how real-world fashion brands are adopting more sustainable ways of doing business.
Learning outcomes: ● Understanding the overall challenges and potential solutions for businesses to become more sustainable; ● learn about the challenges and opportunities of circular business models; ● introduction to the various tools that companies use to measure and report sustainability.
Offered by: Copenhagen Business School
Course Link: https://www.coursera.org/learn/sustainable-fashion

Course 2: Circular Fashion: Design, Science and Value in a Sustainable Clothing Industry
Content: Provide designers, retailers, scientists, engineers, etc. in the industry with holistic insights of the complex challenges of circular fashion, while engaging you to start the transition towards circularity for your personal and/or professional practices.
Learning outcomes: ● The difference between sustainability & circularity; ● Ecosystem circularity and closing the loop in fashion; ● Biobased innovation and new materialism; ● Business as crafting value.
Offered by: Wageningen university, Hague university
Course Link: shorturl.at/iBMN5

Course 3: Fashion's Future: The Sustainable Development Goals
Content: Explore the fashion industry's impact on the people and the planet, Sustainable Development Goals, and the link between the two.
Learning outcomes: ● Assess brand's sustainability disclosure to better understand their efforts to improve their human rights and environmental impacts; ● Develop an understanding of global clothing supply chains and their impact on the people and the planet; ● Develop an understanding of Sustainable Development Goals and how they relate to the clothes you wear; ● Debate how the fashion industry interlinks with the Sustainable Development Goals and how we can all help achieve them.
Offered by: Fashion Revolution - global movement campaigning for systemic reform of the fashion industry
Course Link: https://www.futurelearn.com/courses/fashion-s-future-and-the-un-sustainable-development-goals-

Course 4: Fashion and Sustainability: Understanding Luxury Fashion in a Changing World
Content: Introduction to issues, agendas and contexts relating to fashion and sustainability in a changing world.
Learning outcomes: ● Discuss the complex nature of sustainability through the introduction to materials sourcing for luxury fashion;

• Apply understanding of fashion & sustainability knowledge and reflection to your practice through manifesto creation and design thinking processes; • Demonstrate a critical understanding of key sustainability agendas; • Develop innovative approaches to fashion for ecological resilience and thriving societies.
Offered by: London College of Fashion's Centre for Sustainable Fashion
Course Link: https://www.futurelearn.com/courses/fashion-and-sustainability

Course 5: Who Made My Clothes?
Content: Discover who made your clothes, share their stories, and find out how you can influence global change.
Learning outcomes: • Explain garment supply chains and explore the interdependence of places, resources, and the people upon which supply chains rely; • Investigate your own clothing: its brand, where it was made, and from what; • Identify and employ search techniques for investigating the policies employed by clothing brands, and the human stories behind them; • Demonstrate empathetic writing about the stories of garment production; • Reflect on how to use your findings to influence brands.
Offered by: Global movement Fashion Revolution
Course Link: shorturl.at/qIJW3

Articles/Reports:

Effective Disclosure in the Fast-Fashion Industry: from Sustainability Reporting to Action

Key challenges for the fashion industry in tackling climate change

Making Resilient Decisions for Sustainable Circularity of Fashion

Sustainability and Resilience after COVID-19: A Circular Premium in the Fashion Industry

The environmental price of fast fashion

Trends in the Fashion Industry. The Perception of Sustainability and Circular Economy: A Gender/Generation Quantitative Approach

Sustainable fashion: New approaches

Innovative and sustainable business models in the fashion industry: Entrepreneurial drivers, opportunities, and challenges

Exploring the Relationship Between Business Model Innovation, Corporate Sustainability, and Organisational Values within the Fashion Industry

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-Vivienne Westwood

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