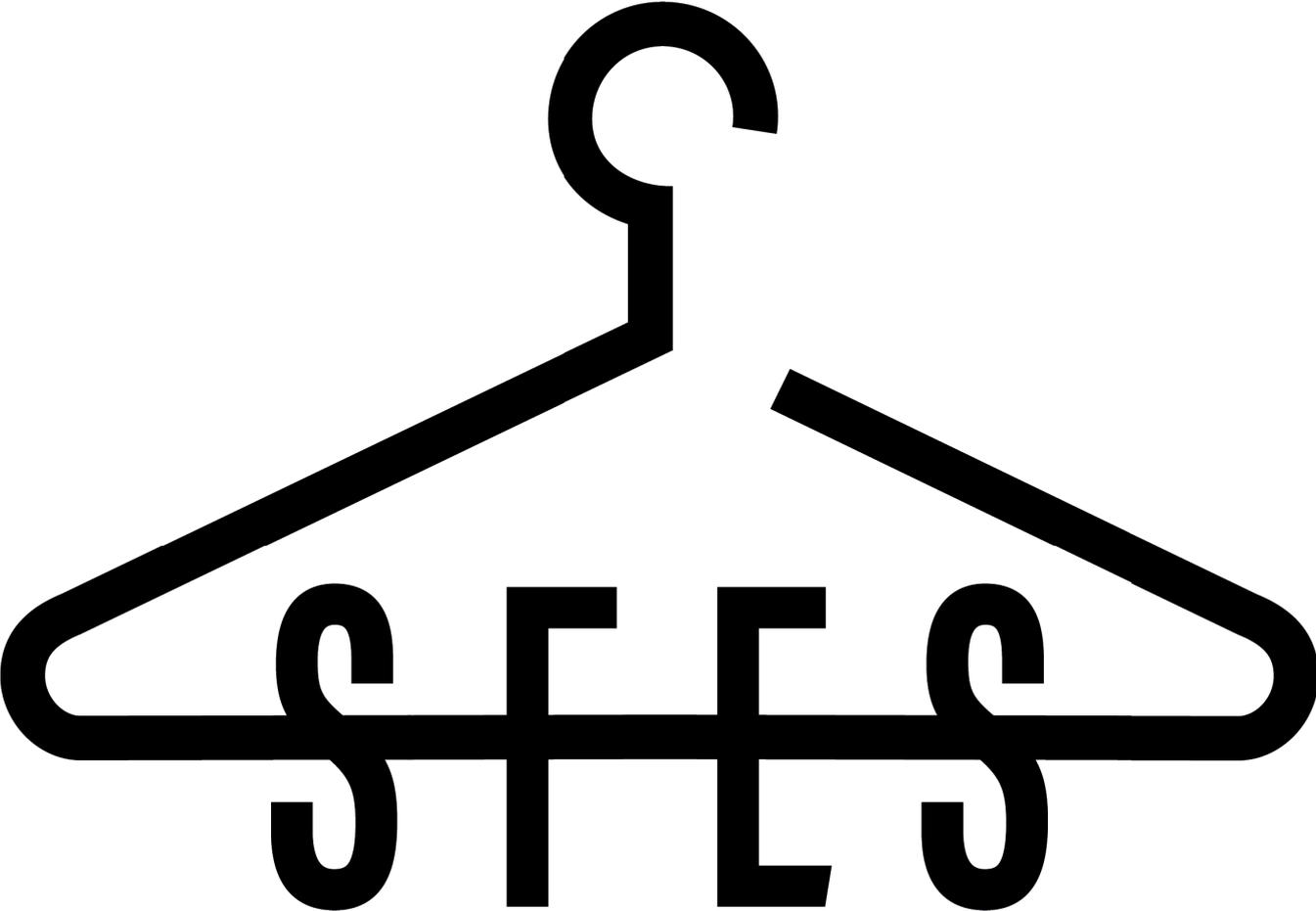


# TOOLKIT

by SFES

Marissa Marino



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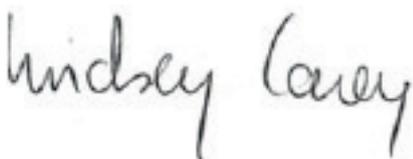
# Introduction

The project SFES (Sustainable Fashion and Employability Skills) has welcomed over 60 students and staff from the partner universities (Universidad Politecnica de Valencia, Edhec, Universidad Villanueva and Universidade de Madeira) and two industrial partners (Harris Tweed Hebrides and Tendam Retail Group) in Europe as part of the Sustainable Fashion Employability Skills (SFES) Erasmus + funded project workshop led by GCU. The participants have been with us for a week of immersive experiences with visits and workshops to the best representations of sustainable businesses in Scotland and Portugal.

We have been visiting inspiring businesses who are a true representation of the circular economy including the Harris Gin Distillery, the candle manufacturer Essence of Harris, the international beauty skincare business Ishga as well as at the heart of the trip the Harris Tweed Authority, the Harris Tweed Hebrides Mill at Shawbost and a Weaver (añadir portugueses). We have also packed in workshops about zero waste pattern cutting with the University of the Highlands and Islands as well as using the expertise of the academics on the trip to give the students a flavour of using the latest social media platforms such as TikTok, Videogames or Podcast to communicate about sustainable issues and enhance their employability skills.

The essence of the project is about recognising and developing employability skills directly linked to sustainable practices and the students have been transformed into Skill Hunters throughout the week at all the businesses they have visited in order to identify the sustainable practices and translate them into employability skills for the rest of their generation. The final output is this Toolkit that will enable the dissemination of their quest to the wider business and academic community.

Lindsey Drylie Carey, leader of the project.

A handwritten signature in black ink that reads "Lindsey Carey". The signature is written in a cursive, flowing style.

# **SUPPLY CHAIN**



Figure 1. Precurious HQ

# Supply Chain

## Over – view



The transportation of the materials used, the way in which garments are designed and made, and their distribution around the globe create significant social and environmental impact.

Supply Chain is created by the flow of raw materials, consumables, and finished goods through a network of interconnected business working towards the creation of completed products reaching the hands of the consumer.

This movement also has a long heritage, the 'silk road', connecting east and west from as far back as 200 B.C.

## Data



"Global traffic volumes are set to more than double by 2050 and the resulting emissions are expected to increase by 16 percent – even if the current voluntary commitments to reduce CO2 emissions are implemented." (OCDE, 2021).

"Mark says": The future of industry is about being transparent and honest about the supply chain.

All the positive progress that you would be making in a carbon negative way could be completely negated by the supply step in your supply chain.

## A garment

They manufacture in India with organic cotton under GOTS and fair trade certificates and the dyes they use are water-based biodegradable.

In addition, to compensate for the transport of the garments, they carry out annual reforestation to offset the CO2 emitted. And so that your garment does not pollute with its maintenance, they give you a tree for you to plant and take care of it.

## Explore it further

“Mark says” We have a very low carbon footprint because we are operating in traditional looms but we also have a modern model and we have to adjust it to the luxury and to the premium companies. Every year we try to be better with this and to aggregate the small gains.

With that we can explore more about the supply chain.



Figure 4. Mark Hogarth

# Supply Chain

## Instagram reel Cortefiel

Link:

[https://www.instagram.com/reel/CbkndOj-jul2/?utm\\_source=ig\\_web\\_copy\\_link](https://www.instagram.com/reel/CbkndOj-jul2/?utm_source=ig_web_copy_link)

## SFES tweet podcast

Link:

[https://twitter.com/sfes\\_eu/status/1534592174272167937?s=20&t=dctAlJf4gB-ymJiJmzo7Jg](https://twitter.com/sfes_eu/status/1534592174272167937?s=20&t=dctAlJf4gB-ymJiJmzo7Jg)

## El Mercantil Tweet (Desigual)

"We are testing technologies to cut garments in an oven and facilitate reverse logistics".

Link:

<https://twitter.com/isayolsanta/status/1525144246633865216?s=20&t=dctAlJf4gB-ymJiJmzo7Jg>



Figure 5. Mockup

# Web and QR

Link:

<https://www.gq.com.au/style/news/qr-codes-are-the-next-big-thing-for-fashion-supply-chain-visibility/news-story/afdf1a3beb-02754005ffa9d6e7006b55>



Figure 6. Mockup GQ

# Supply Chain

## Challenges

Find alternatives to Sea freight. This is the most long-distance transport used nowadays. This method needs fossil fuel, and this increases the CO2 emissions.

Also, the emissions will increase to 15-20% of the CO2 world emissions in 2050.

SEA FREIGHT - most long- distance transport used

Fossil fuel

Increase CO2 (15-30% in 2050)

But the real final challenge is for the industry, to consider and focus on the social factor and with that there will be a positive result to the environment.

## Our Inspiration

Sustainable home delivery with **Gema Gómez** (Slow Fashion Next)

A seal to promote responsible consumption in society and generate a greater commitment to ethics and ecology on the part of companies and organizations.

Promoted by the Companies for Sustainable Mobility platform within the framework of the European Green Week and recently presented at CONAMA, the Spanish foundation for the promotion of sustainable development in Spain and Latin America.



Figure 7. Gema Gómez

# Ready skill for supply chain

## Community engagement and collaboration in the supply chain

### Did you know?

This is a skill to empower locals, listening to them and taking on board their will.

It's essential to design the future of the company in a way that can meet the expectations of the community where the company is rooted.

This listening process can help identify opportunities to reduce the complexities and costs of the supply chain and third-party logistics requirements. The communities feel that they also play a key role in the reception of fabrics, treatment of materials, improvement of the quality of processes, deliveries, and other collaborators involved in the supply chain.

### Inspire us

The No Limits programme. With the North Lanarkshire council, founded by Young People's Guarantee.

It's a training and placement programme for young people with additional support needs who are starting their journey into the world of work.

<https://www.youtube.com/watch?v=-noNh-frTZa4>

### Scale it

It will be an example for another industry if they introduce the:

Communication  
Empathy  
Passion

# Supply Chain

If another brand introduces this skills on their plan, it will achieve the engagement and collaboration in the supply chain.

## **Another Skills**

Ability to examine potentially complex supply chains – could be in reference to international human rights laws etc. Use of tools + technologies advances and opportunities.

## **Adaptation to rapid change**

## **Working together to encourage communication**

## **Encouraging technological progress**

## **Dynamic work between production processes**



Figure 8. No Limits



**RAW**

Figure 9. Techs



# MATERIALS

Chapter 2

# Raw Materials

## Over - view

Raw material is a unique substance in any production oriented textile industry. A textile is a material made of thin fibres or filaments spun into yarn and woven into fabric. It plays a vital role in continuous production and for high quality fabric. The natural raw materials are the cotton and the linen, are very different from each other and are obtained with very different processes. Animal fibres are wool and silk. They come from the sheep and from the silkworm. With a huge difference on the quality. Nowadays textiles not only fulfil the basic human need for clothing but are also a fashion statement.

## Data

Although only 2.4% of the world's arable land is planted with cotton, 24% of the world's insecticides and 11% of the world's pesticides are used in its cultivation.

Cotton is also the most water-intensive crop. It takes between 7,000 and 29,000 litres of water to produce one kilo of cotton.



Figure 10. Wikipedia

## A gartment

They manufacture in India with organic cotton under GOTS and fair trade certificates and the dyes they use are water-based biodegradable.

In addition, to compensate for the transport of the garments, they carry out annual reforestation to offset the CO2 emitted. And so that your garment does not pollute with its maintenance, they give you a tree for you to plant and take care of it.

**Café Costume** (Figure 10)

### Raw Materials:

Outer - Wool  
Lining - Cotton

The Made to Measure (MtM) mode retail ensures no wasted garments going to landfill. The higher cost of the garment ensures that there is less waste through production. I wore the lining through in 5 years and put a new heavier Liberty cotton lining in 2019.

Due to the good quality of the raw materials, the garment lasts much longer.

Figure 11. Harris Tweed Skye Jacket



## Explore it further



"Nuria says": We reduced the plastic with the 3R Project. This involves the reduction or replacement of the polyethylene 'poly bags' that protect products from dirt and humidity until they reach the consumer.

Springfield has made a lot of progress in this area.

## Instagram post (SFES) Raw Materials in the Scotland Workshop

Link:

[https://www.instagram.com/p/CfeCxHmM-Nes/?utm\\_source=ig\\_web\\_copy\\_link](https://www.instagram.com/p/CfeCxHmM-Nes/?utm_source=ig_web_copy_link)



Figure 12. Mockup Sfes Instagram

## **Tweet (SFES) Linen Fabric**

Link:

[https://twitter.com/sfes\\_eu/status/1537804491449417729?s=20&t=dctAl-Jf4gByzmJiJmzo7Jg](https://twitter.com/sfes_eu/status/1537804491449417729?s=20&t=dctAl-Jf4gByzmJiJmzo7Jg)

## **The astonishing fabrics we could be wearing in the future! | Fashion Conscious – BBC**

Link:

<https://www.youtube.com/watch?v=CtK6ZL-ZoyEM>



## **Regenerative agriculture tweet (The future of raw materials)**

Link:

[https://twitter.com/sfes\\_eu/status/1537804491449417729?s=20&t=dctAl-Jf4gByzmJiJmzo7Jg](https://twitter.com/sfes_eu/status/1537804491449417729?s=20&t=dctAl-Jf4gByzmJiJmzo7Jg)

Raw Materials

# ECOALF

OCEAN WASTE



**BECAUSE  
THERE IS NO  
PLANET B**

Figure 15. Ecoalf

# ECOALF - Case Study

WHERE  
OTHER SEE  
TRASH WE  
SEE RAW  
MATERIALS



Figure 16. Ecoalf

## Kirsty Shearer & Lelia Fallon

Ecoalf is a Spanish fashion brand that was created with the purpose of being “truly sustainable”.

The fashion industry is the second biggest polluter in the world, and so Ecoalf's founder Javier Goyeneche set out in 2009 to change this by putting people and the planet first. At the heart of Ecoalf is innovation as they continually strive to find the least negative impact materials, and believe that the current rate of production is unsustainable.

One of Ecoalf's core missions is to use the “minimum amount of natural resources possible”. This has resulted in the development of over 400 new recycled fibres, with a focus on quality materials that can be recycled again. Their key recycled fabrics are polyester, nylon, cotton, wool, tyres and post-consumption coffee grounds, which all use significantly less water and energy and produce less CO<sub>2</sub> emissions than their conventional counterparts.

If they are not using recycled materials, Ecoalf ensures they are using natural materials with a low impact on the environment, such as wool based fibres, cupro, linen and tencel. As well as this, Ecoalf requires their suppliers to comply with their ‘Restricted Substances List’, which was created to ensure safe chemical use throughout all processes. The Ecoalf Foundation has been working with partners in Spain, Greece, Italy and Thailand since 2015 ‘Upcycling the Oceans’ and cleaning up marine litter, which is often used in their recycled fibres.

Ecoalf makes products for Women, Men and Kids, offering clothing, shoes and accessories for each category. They carefully select their supply chain partners, making sure they share Ecoalf's values and treat all employees in a respectful way. There is a sense of community throughout the supply chain and all staff work together to achieve their sustainable goals. Ecoalf employees volunteer to pick up trash and clean up areas around Spain. Ecoalf monitors their supply chain and holds conferences

about the issues with climate changes and making the world a greener place, they educate their consumers and employees on these issues, so they too can make a difference.

Ecoalf staff work together to create a safe working environment, they are an ethical company and look after their staff throughout all parts of the supply chain. Ecoalf have an inclusive and diverse team of staff, this inspires creativity, more engagement and also drives innovation. Ecoalf employees have effective communication and team work skills, from their work with collaborators eg. Camper, Starbucks, Swatch, to name a few. Ecoalf employees are also highly motivated, striving for a better planet and being passionate about sustainability. They realise the importance of saving our planet and each employee wants to leave the planet in a better state for the future generations. In conclusion, Ecoalf is a fashion brand that is “working together for a deeper change”, they are doing this by: adopting effective sustainable practices, through their use of recycled materials, ethical working conditions and striving for a greener future. Ecoalf employees strive for innovation and are passionate about what they do, improving their own skills and values along the way. Ecoalf have won many awards for their strong efforts and are an inspiration for other brands in the fashion industry, their values should be seen as the way forward for the rest of the industry.

# Raw Materials

## Challenges

The industry is facing a material revolution with more sustainability, functionality, and e-textiles (such as 3D printing). The drivers of this revolution are:

Consumer demand for more sustainable fashion items that match their 'digitally-enhanced lifestyles'

Strict government regulations that require fashion brands to be more sustainable and respectful of the environment

And a rising demand for low-impact alternatives that are functional or sustainable or both.

## Our Inspiration

### Inditex:

Our goal is to make 100% of our cotton more sustainable by 2023 and our cellulosic fibres sustainable, as well as linen and polyester sustainable or recycled by 2025.

-Last year, the consumption of raw materials from more sustainable sources accounted for 42% of the total used.

-By 2021, 47% of our garments have been labelled with our Join Life environmental excellence standard. More than 50% will be by 2022.

-In the last year we increased our use of recycled materials by 187%.



Figure 17. Wikipedia Inditex

# Ready skill for raw materials

## "INITIATIVE TO MAKE A CHANGE"

### Did you know?

It is the first thing you need to develop to achieve other sustainable skills.

Is the ability to use your judgment to make decisions, if you have initiative, you have the ability to decide what to do next and to do it, without needing other people to tell you what to do. It is something everyone wants but to make it you have to take a step forward and start the movement. You will need the ability of research and collect information about new materials, efficiency, and sustainable processes. This initiative should be focused on fostering collaboration between start-ups, fibre companies, manufacturers, fashion brands and retailers, development of 'centres of excellence' with product technologists which will allow brands to gain an edge over the competition, more vertical integration by brands with in-house roles for tasks that were formerly handled by their supply chain and strong focus on functionality with fibre companies looking to reflect 'digitally-enhanced lifestyles and changing consumer behaviour' in their products.

With this skill, several of the challenges presented previously can be overcome. The form of production and the market adapts to the new demands of the consumers, there is innovation, required by the companies and adapts to the new markets and their needs. In addition, the consumer is brought closer to the production method, so that he/she can know the production method used, with the greatest possible transparency.

Good practices in raw materials:  
(with images)

Recycled polyester  
Organic cotton  
Wool  
Seaweed

## Inspire us

### Yvon Chouinard

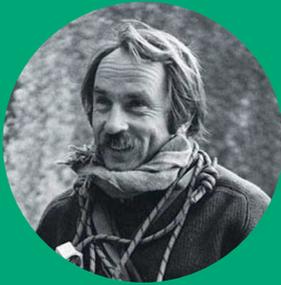


Figure 18. Yvon Chouinard

Around 1970, he became aware that the use of steel pitons made by his company was causing significant damage to the cracks of Yosemite. So he developed a new aluminium chockstones, called Hexentrics and Stoppers. The aluminium chockstones cannibalizing the sales of pitons, formerly his most important product.

In the early 1990s, an environmental audit of Patagonia revealed the surprising result (at the time), that corporate cotton, although it was a natural material, had a heavy environmental footprint. In 1996, Chouinard committed the company to using all organic cotton.

In 2002, Yvon Chouinard founded 1% for the Planet and Patagonia became the first business to commit 1% of annual sales to the environment. In 2021 Patagonia starts a new business area, to repeat the garments have been use for their clients.

### Brand Lagaam Inés Arroyo



Figure 19. Brand Lagaam Inés Arroyo

This brand launches products at the same speed as the fast fashion but with the least environmental impact possible. It isn't 100% sustainable but it's:

No animals harmed, with the PETA organisation and also supports entrepreneurs with zero stock on their production. They donate for free our spare materials to emerging brands, with the objective of inspiring the new generation of fashion entrepreneurs.

### Impact

#### The challenge:

Use of water for fast fashion is huge

- Fashion uses toxic dyes harming the environment.
- Cosmetic & fragrance companies make use of toxic ingredients with a negative impact on the environment and human health.
- And they also use tons of packaging, increasing emission of pollution

#### Some Alternatives:

#### Learning from the fashion industry:

- Harris Tweed  
Handwoven in the Outer Hebrides of Scotland from pure virgin wool, is the fabric of choice wherever quality and provenance are valued.
- Using natural wool from Harris & Lewis islands
- Oeko tex certified
- Moving towards natural dyes when possible
- Fix the fabric to make it perfect
- Possible improvements: reduces air pollution, enhance workers' health & safety practices, control more microfibers emission within the industry/mills
- ACS

We aspire to transform the fashion industry from the traditional linear take-make-dispose model, towards a circular fashion model that extends the life of existing textiles and diverts clothing from landfill

# Raw Materials

- Reduces environmental impacts by promoting second-hand fashion  
Toxic dyes.

- Water

- Reuse energy (water) in their processes  
Fixing garments before resale / rental

Possible improvements: plastic hangers, impact of dry cleaning.

## Learning from other industries

- Hishga

- Natural local ingredients (seaweed, salt, spring water etc.) / Clean Beauty  
Many non-plastic packs

- Cosmos organic certified

- Moving towards organic ingredients when possible + encouraging customers to recycle packs

- Possible improvements: reduce plastic packaging, use more natural raw materials

- Essence of Harris

- Local ingredients

- Refill solutions

- Possible improvements: use more natural & organic raw material and develop refill solutions for more products + develop solid hygiene products

## **Another Skills**

**Wasted material as a raw material: be able to reuse**

**Be open to new sourcing technology**

**Communication with the whole team, be open to new initiatives to source raw materials**

**Open up the company's circle of production in order to discover new forms of production in different areas**

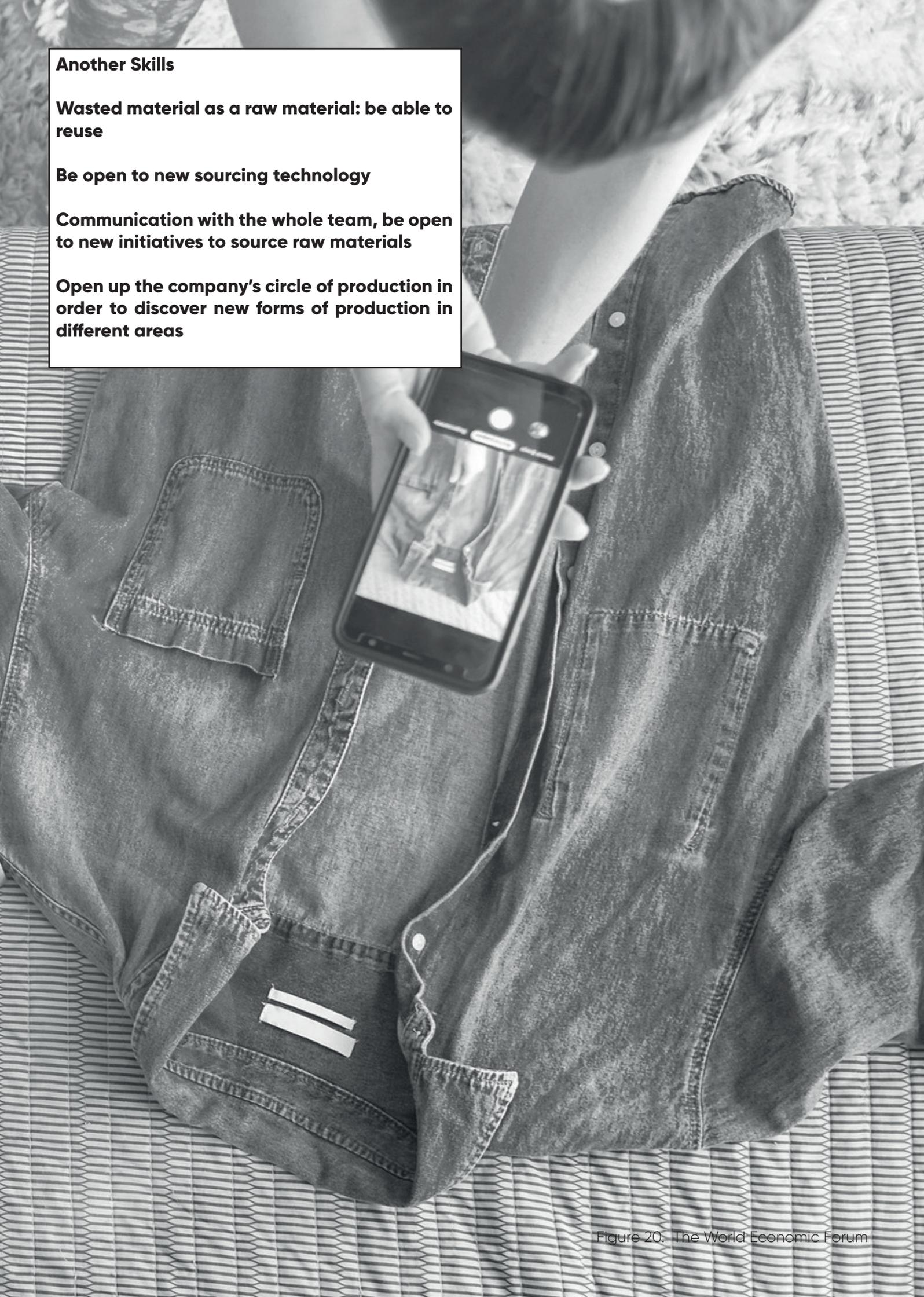


Figure 20: The World Economic Forum

## Chapter 3

# PRODUCTION



Figure 21. Pinterest

# Production

## Over - view

Clothing and garment production is one of the largest and most labour-intensive manufacturing industries in the world.

Most large-scale production, due to fast-fashion, takes place in distant countries, such as Asia, which use a much more polluting production due to their low restrictions and the transport is therefore over long distances, i.e. pollution increases but the price is lower.

Many of these productions are of large quantities, which do not end up being sold, and therefore remain in stock, eventually ending up in landfills. Furthermore, there is a considerable lack of consumer awareness of these production processes when they buy garments.

## Data

In 2018 global retailer H&M reported that they had \$4.3 billion of unsold clothing it is estimated across the industry globally. There is \$500 Billion wasted in overproduction



Figure 22. H&M

## A garment

### Laagam

The garments of this brand are made on demand, so there is no stock generated.

## Explore it further

"Nuria says" We have implemented a waste management plan. A selective collection system at headquarters and in the warehouses, together with a circularity programme for clothing on the market and recycling where it is appropriate.



"Mark says" For Harris Tweed, we see our product as an investment and not as an expense. Our jackets could last you for ten years or more, and this could cost more for you but less for the environment.





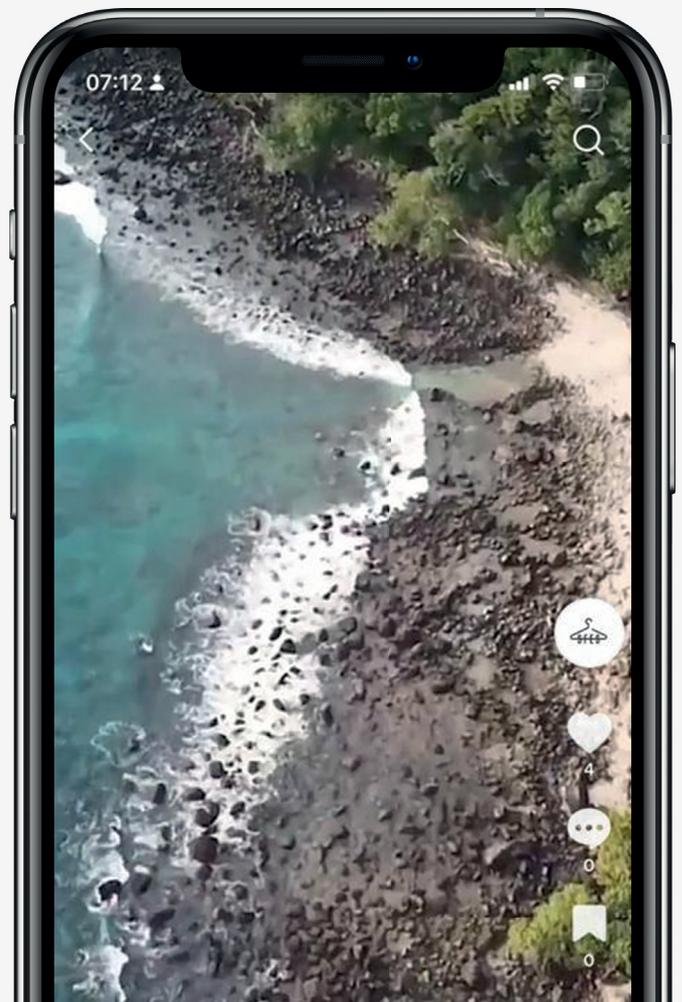
Figure 23. H&M Laagam

## SFES TIKTOK (Earth Day, be part of the movement)

Link:

[https://www.tiktok.com/@sfes\\_eu/video/7089524904395099397?is\\_from\\_webapp=1&sender\\_device=pc&webid=7093621687783491077](https://www.tiktok.com/@sfes_eu/video/7089524904395099397?is_from_webapp=1&sender_device=pc&webid=7093621687783491077)

Figure 24. Mockup TIKTOK





# Production

## Challenges

Some significant challenges are based around worker's rights and conditions and sustainable pay, reducing overproduction and meeting demand, reducing transport costs and increasing production security.

Worker's rights, working conditions and fair pay are something that has plagued the fashion industry for numerous years now.

Another huge challenge the industry faces is how to deal with the over ordering of stock which leaves companies with much deadstock.

Not all stock will become deadstock as some gets sold at heavily reduced prices by discounting it and selling it on to discounters. It also means more carbon footprint. If the discounted stock across the whole industry could be reduced by 15%, it would achieve a reduction in emissions of about 10%, without any impact on value growth to companies.

## Our Inspiration

### **Ancestral artisans in Jüpa**

Minimising the environmental impact of footwear manufacturing is the aim of Jüppa eco shoes, a company that uses recycled materials such as textiles made from recycled cotton and PET plastic, reused materials such as rubber from car tyres and natural materials such as fique and calceta. They purchase fibres directly from ancestral artisans.

### **GOI (Jessica Goicoechea)**

This Spanish company produces only on demand, produces on a small scale and increases according to purchases, and its production is entirely in Spain.



Figure 27. Jessica Goicoechea

# Ready skill

## Production

### “WEAVING KNOW-HOW AS A SOURCE OF LOCAL EMPLOYABILITY”

#### Did you know?

This skill is a good alternative to support sustainability. It replicates the model of local employability in remote rural areas as Harris Tweed Hebrides does.

Also, being able to transmit to others unique know-how as a legacy, defending the quality of products and traditions.

(The tradition consists in knowing how to transmit the know-how from one generation to another. It is crucial to preserve the traditional skills related with *waving* garments.

If you make a fabric by hand as Harris Tweed does, there is so much work involved to deliver a unique piece of fabric, with a quality and attention to the detail that a piece done by a machine cannot provide

With this skill, some of the challenges mentioned previously can be improved, manufacturing in distant countries, increasing the carbon footprint and the poor conditions of workers, would have been solved. A more controlled production as it is local and will not be fast-fashion. In addition, with the enrichment of the country of origin, transport could be better handled, helping with possible failures due to the pandemic.

#### Inspire us

Harris Tweed is a benchmark. Carrying more than 100 years of working and continuing to do so in a traditional way and without losing its essence is something admirable. It focuses on the quality of each fabric and generates local employability. It is amazing how a family business has become so big, but this is the result of making something by heart. “Made by the hand, woven by the heart”.

#### Impact

The business model of Harris Tweed Hebrides helps boost and keep the local economy alive. The brand increases the employment rate and protects the community – by giving a chance to people and preventing the youth and new generation from having to leave their homes to find jobs that provide a living wage and comfortable living.

Also prevents the chance of outsourcing the manual/artisan labour for cheaper options. The “sheep to ship” supply chain operates within short distances that minimise carbon footprint.

#### Scale it

Harris Tweed is a cross-business sustainable group with 3 parts: weavers, production mills and Harris Tweed authority.

The model can be transferred and be replicated in rural areas of other countries, regions and different businesses easily, but it needs the figure of an authority that cares about the people and preserves their skills about the good work of knowing how to weave.

#### Another Skills

#### More manual production in the production process

#### Adding courses for workers to learn about the traditional way of working

#### Assisting local trade from distant countries for further improvement

#### Communication with the customer to introduce him to the new sustainable methods and to accustom him to a slower production pace

# DES



## Chapter 4



Figure 28. Michiga Fashion Proto

# Design

## Over - view

Design decisions based on sustainability principles mean more than using recycled or environmentally friendly materials including textiles, fabrics and dyes.

Designing a new fashion product can go further by incorporate sustainable principles.

The design brief influences the environmental impacts of the garment and its lifetime therefore taking into account the amount of waste which will be generated on pattern cutting and production and being cognisant of the labour costs during production can be vital for increasing the sustainability of the garment.

## Data

The Design Council stated that 80% of the impact of a product or service is gestated in the early stages of design.

## A garment

### **Argentine brand CHAIN**

It's a "zero waste" design garment.

From its conception and its moulding do not generate waste. The aim is to ensure that each material chosen is used 100%.



Figure 30. Vogue

## Explore it further



"Mark says" If you make something timeless, then that doesn't necessary fit into the business model of some other companies.

"Nuria says" In Tendam we call it Quiet fashion, it's a fast fashion garment that you could use all the years with the system, because it's always going to be fashion but it's not going to be trendy. can be defined by clean-cut silhouettes, a minimalist aesthetic and a more timeless appeal.



## Reuse your jeans TikTok

Link:

[https://www.tiktok.com/@sfes\\_eu/video/7082348489769864454?is\\_from\\_webapp=1&sender\\_device=pc&webid=7093621687783491077](https://www.tiktok.com/@sfes_eu/video/7082348489769864454?is_from_webapp=1&sender_device=pc&webid=7093621687783491077)

## Essence of Harris sustainable company

Link:

<https://drive.google.com/file/d/1tQHNQnrj-9cYxYGDMo4nyDIXOYUMLw7le/view?usp=sharing>

## Zero waste production step by step

Link:

[https://www.tiktok.com/@andagain-co/video/6979630664308116742?is\\_from\\_webapp=1&sender\\_device=pc&web\\_id=7093621687783491077](https://www.tiktok.com/@andagain-co/video/6979630664308116742?is_from_webapp=1&sender_device=pc&web_id=7093621687783491077)



Figure 32. TIKTOK Zero waste



## How we achieve zero waste designs!

Link:

[https://www.tiktok.com/@andagain-co/video/6823057918200466693?is\\_from\\_webapp=1&sender\\_device=pc&web\\_id=7093621687783491077](https://www.tiktok.com/@andagain-co/video/6823057918200466693?is_from_webapp=1&sender_device=pc&web_id=7093621687783491077)

Figure 33. TIKTOK Zero waste design

# Design

## Challenges

Incorporating circularity into mainstream fashion design and business strategy of brands. This means anything designed to be effectively utilised, distributed and re-used in a responsible manner for as long as possible in its most valued form, and thereafter returned to the biosphere without damage or harm to others or the environment when no longer of use. This could be done through ensuring that design components are re-usable and that the materials used are of the highest quality.

Incorporating Digital prototyping in the design process. Digital prototyping enables the visualisation of a complete product before it is physically built. In the design process, this helps with the reduction of waste as areas of surplus can be addressed before the manufacturing stage.

## Our Inspiration

### **Narciza**

The company led and created by Laura Lucía González, Narciza, bases its production on biodegradable packaging that includes textile printing techniques that do not require the use of water. It uses heat-activated inks that go from a solid to a gaseous state directly, so the process does not require water resources. By 2022 the company expects to adopt the use of regenerated nylon.

### **Wata Unisex**

The materials used by the unisex fashion brand Wata, directed by Simón Román, are 95% re-usable and recycled with the aim of using less energy and resources than those required for the development of virgin raw materials. The most important process they carry out is the use of their raw material that comes from the recycling of plastic bottles, with which they have developed yarns for various types of garments.



Figure 34. Wata.co

# Ready skill

## Design

### “USER EXPERIENCE DESIGN”

#### Did you know?

User experience Design allows to transform ordinary products into valuable daily life customized experiences. This involves the design of the entire buying process, since the moment the person recognises the need until after actually buying the product.

This skill is user-centred and multidisciplinary as it involves diverse areas and aspects. The goal is to make the customer feel engaged with the brand and to create empathy with it, an emotional connection.

With this skill it is possible to address some of the challenges outlined above. By bringing the consumer closer to the brand and creating an emotional relationship, the user tends to keep the garment in his or her wardrobe longer, so that production can be reduced accordingly, making it possible, for example, to design on a small scale.

#### Tell me about it

Pau: On my way to the Harris Gin Distillery, it was cold & rainy: such a Scottish feeling. However, when I entered I could feel the tender, sweet, warm vibes out of the fireplace. God, a fireplace in July. Why tho? Suddenly, the fireplace ends up being the epicenter of the various assets that, through my senses, conditioned my visit from the very beginning and, beyond that, made me fall in love with the place and its vibes.

It's all about vibes. From a marketing perspective, it's all about experiential retailing. How, through attending to detail, anyone can create a beautiful, wholesome setting to ground the consumer (in this case, the visitor) into an optimal mood before even starting the verbal communication itself.

The smell of the coffee, the low-fi music, the taste of the gin, the softness of the wool walls: everything combined into a perfect match that made me forget about the rainy outside and say: Jesus Christ, this feels like home.

Therefore, we can conclude that, through experiential retailing, we stimulate visitors beyond and before the oral storytelling takes place, before a single word.

We also create an emotional pre-connection to the place or company that, through all of these assets, makes us feel like home and, finally: not surprised, reinforces the chances to achieve a curated, unique first impression, something memorable that might, finally, drive into an actual sale. There are no vibes without inspiration: in our case, thanks to Sandra, the salesperson that my colleague Melina is going to introduce you to.

#### Inspire us

#### Sandra Fraser



Figure 35. Sandra Fraser Harris Tweed Distillery

Sandra Fraser, the woman who works in the Harris Gin Distillery. She is part of the user experience design, and she brings added value to the distillery. We would like to highlight three points:

- Passion
- Feeling of being a community
- Experience

# Design

She makes us feel as a community and include us in the circle of Harris Gin Distillery by making a short presentation of the workers, with the photos on the wall, and telling us intimate stories, such as about her husband story. To continue, she explained to us the history of the logo and its meaning. She also explained that the distillery is not just a simple distillery, it's also a social hub, where people can come to share a good moment with others.

She makes us enjoy the visit thanks to her real passion, the way she makes us part of a community and by permit us to live the experience.

## Another Skills

**Helicopter value chain proficiency (efficient management of the value chain orientated towards circular economy and design for easy recycling.**

**Sustainable trend recognition capability (To be able to tap into for recognise the sustainable fashion trends for implementing then in the company)**

**Including young people with new ideas in sustainable design**

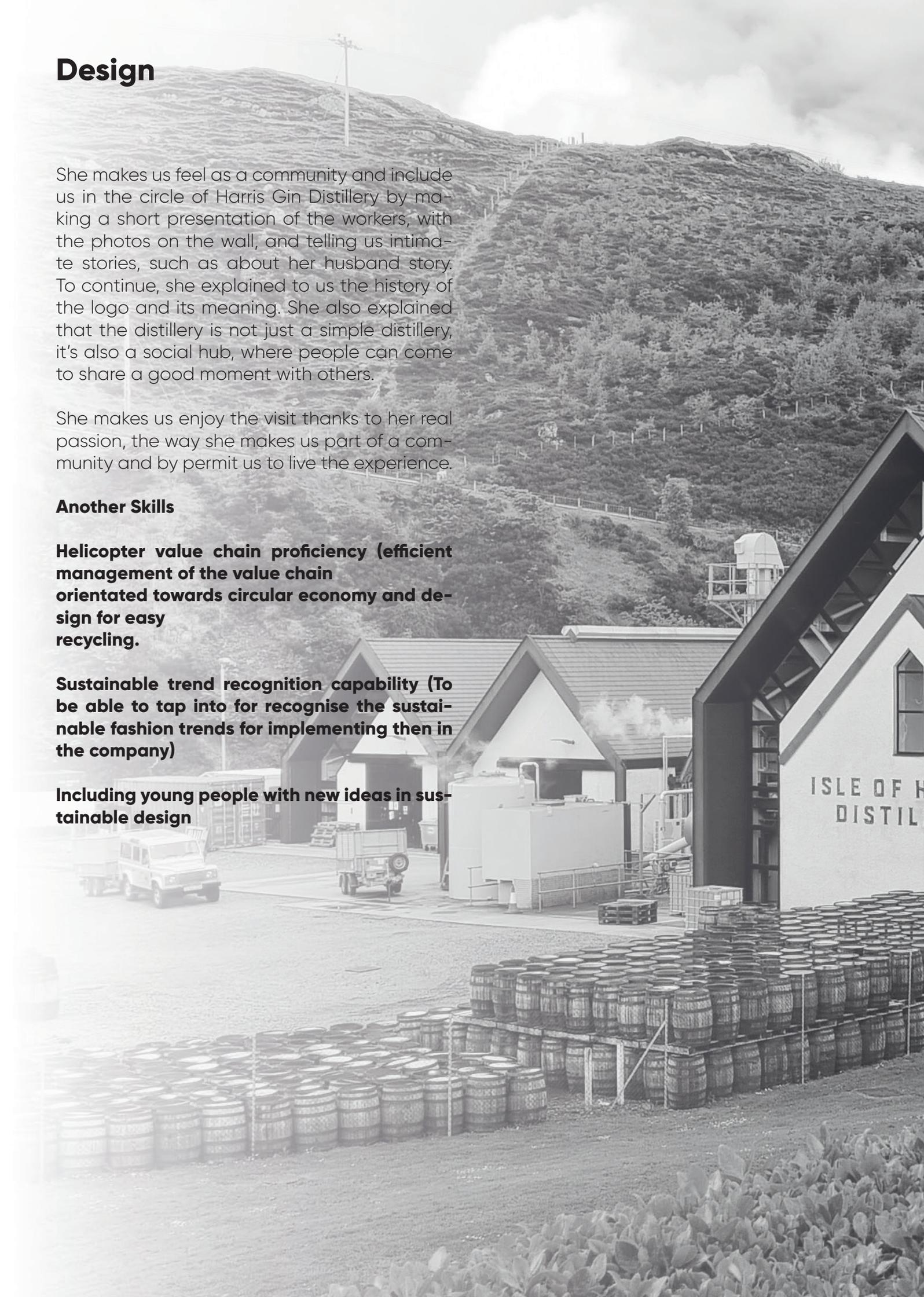




Figure 36. Sisle of Harris Distillery

**CONSUMPTION AND  
WASTE /**

**EMISSIONS AND  
BIODIVERSITY**



# Consumption / emissions

## Over - view

Biodiversity and Greenhouse gas emissions are two important environmental issues that reflect broadly on the biological health of Earth's ecosystems.

Greenhouse gas emissions (GHG emissions, carbon emissions, CO2 equivalents) are widely accepted to be the primary source of global climate change.

Less understood but certainly as serious is the impact that the Fashion industry has directly and indirectly on biodiversity loss.

Climate change is one of the main drivers of biodiversity loss because rising temperatures and changes in the physical and biochemical environments caused by increased levels of CO2 damages ecosystems and leads to eventually ecosystem death.

The global fashion industry is highly resource intensive. The raw materials either natural or man-made fibres use a lot of resources or are sourced from fossil fuels and result in greenhouse gas emissions being released into the atmosphere.

## Data

Current estimates have the fashion industry producing between 4 and 10% of total Global GHG emissions.

## A garment

### Pedro del Hierro's Shirt

The garments of this brand are made on demand, so there is no stock generated.



Figure 38. Pedro del Hierro's Shirt

Due to innovations in the treatment of cotton, it need less washing to be stain and odor free. Reduces customer's water consumption.

- Hand Wash
- Do not bleach
- Do not tumble dry
- Do not iron
- Do not dry clean

## Explore it further

"Nuria says": We have eliminated the paper tickets and we have added them in the confirmation emails of the online orders, as well as being able to find all of them in the APPS. This measure, since it was implemented in May 2019, has achieved more than one million paperless orders.

Also, our paper bags are certified by sustainable forest management and our plastic bags are made from 70% recycled material.



## There is no time to waste (earth day)

Link:

[https://www.tiktok.com/@sfes\\_eu/video/7089524904395099397?is\\_from\\_webapp=1&sender\\_device=pc&webid=7093621687783491077](https://www.tiktok.com/@sfes_eu/video/7089524904395099397?is_from_webapp=1&sender_device=pc&webid=7093621687783491077)

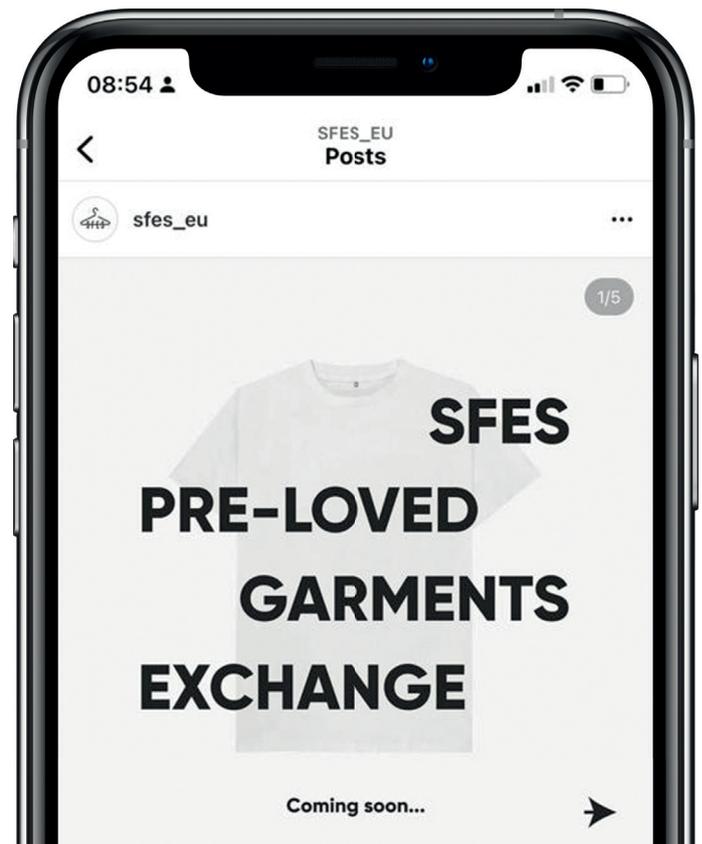
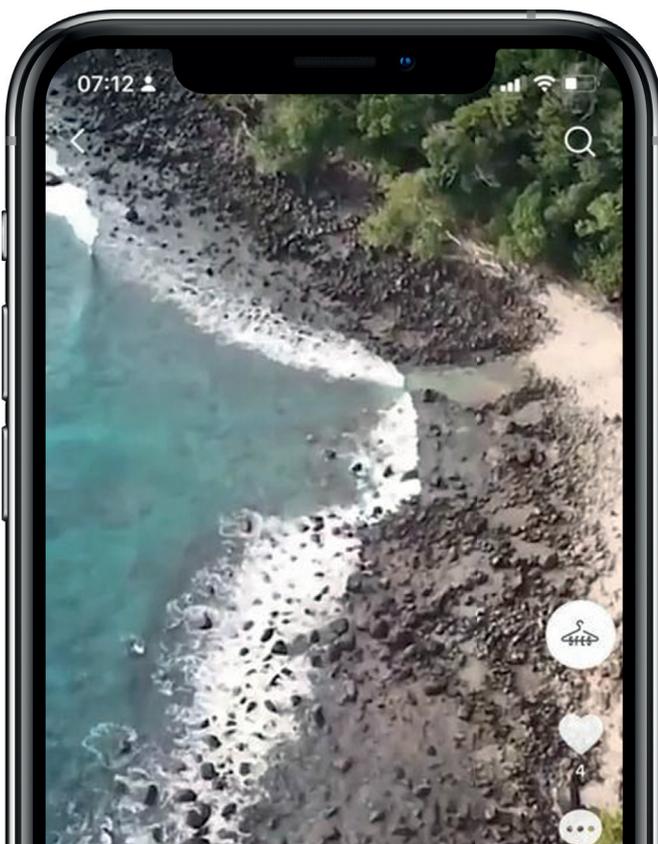
Figure 39. TIKTOK SFES Earth day

## Sfes pre-loved garments exchange

Link:

[https://www.instagram.com/reel/CeMSsP2lf2S/?utm\\_source=ig\\_web\\_copy\\_link](https://www.instagram.com/reel/CeMSsP2lf2S/?utm_source=ig_web_copy_link)

Figure 40. INSTA SFES garments exchange

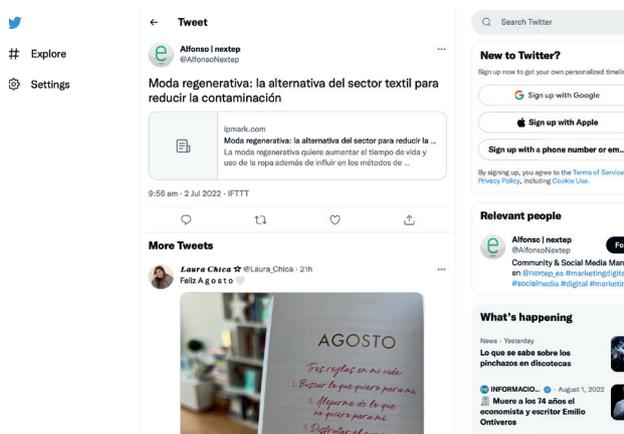


## Regenerative fashion

Link:

<https://twitter.com/AlfonsoNextep/status/1543141525588246528?s=20&t=dctAl-Jf4gByzmJiJmzo7Jg>

Figure 41. Tweed regenerative fashion

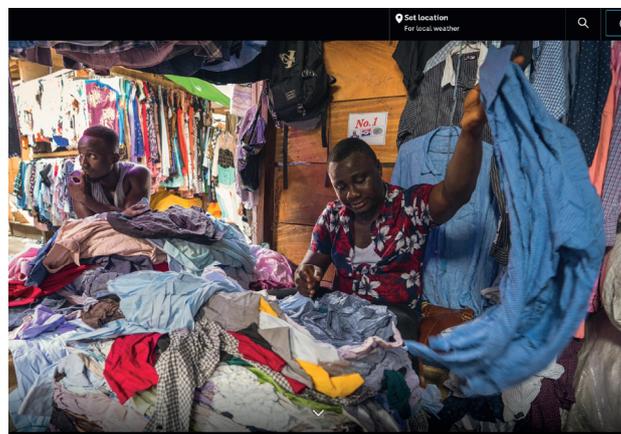


## "DEAD WHITE MAN'S CLOTHES"

Link:

<https://www.abc.net.au/news/2021-08-12/fast-fashion-turning-parts-ghana-into-toxic-landfill/100358702>

Figure 43. ABC News

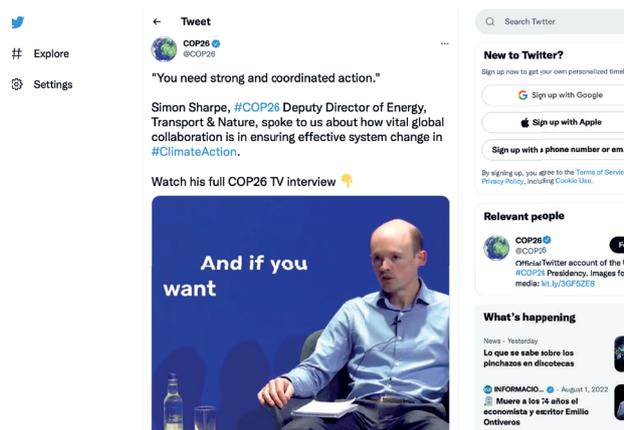


## Strong and coordinated action

Link:

<https://twitter.com/COP26/status/1483333338903429122?s=20&t=dctAl-Jf4gByzmJiJmzo7Jg>

Figure 42. Tweed Cop26



# Challenges

-The current linear value chain

The value chain for the global fashion industry is heavily dependent on virgin materials from non-renewable resources.

There are several key challenges to be addressed, including the material mix, resource intensive production and product disposability and these elements are interlinked. For example, weighing up the balance of water use with microplastics pollution.

-Siloed approach to issues.

-Lack of industry and system end of use garment collection and textile recycling solutions. waste management contactors and local and national governance this is a lack of leadership in developing systems for garment reuse and profitable, functional and sustainable textile recycling solutions.

-Lack of consumer knowledge on how to repair clothes, which leads to many garments being discarded of and replaced when they could be repaired. Also lack of knowledge on how to care for clothes through washing – for example how to reduce microfibre pollution of local water.

# Our Inspiration

## NGO

Recycling four tonnes of textiles a month, the NGO Clothe Moda Sostenible, directed by Camila Morentes, maintains a space among citizens where an average of 1,500 garments in excellent condition are exchanged, in addition to selling an average of 2,000 garments produced by six foundations. They carry out supra-cycling processes where they select usable scraps to extend the product's life cycle.



Figure 44. Camila Morentes

# Ready skill

## Consumption and waste / Emissions and Biodiversity

### “CREATIVITY “

#### Did you know?

Creativity is the ability to generate new ideas and solve problems.

Creative thinking during the design process can make the rest of the production process more sustainable and help tackle this environmental problem. One of the challenges within this sector as with most others is “Silo Mentality”. A mindset present when certain departments or sectors do not wish to share information with others in the same company. This type of mentality will reduce efficiency in the overall operation, reduce morale and may contribute to the demise of a productive company culture. It is crucial to design the digital and physical facilities of the company as vibrant spaces that foster collaboration.

With this skill, transferable to all the previous challenges, it is possible to solve both the waste of unnecessary raw materials, as well as the innovation in obtaining new ones with a less polluting process. However, the most important point that would help the rest is that it can be used to solve problems, which is the most important skill.

#### Tell me about it

The storytelling of the zero waste on kilt – comparison of the traditional kiltmaking pattern to the zero waste apron we made.

There is a lot of fabric waste from a Scottish kilt as a huge length of fabric is needed to fold up and make all of the pleats. This is very bulky at the waistband so a large chunk of this is trimmed off. These offcuts are usually used for another project after rather than simply being discarded, however zero waste design can eliminate this waste from ever being made in the first place.

### Real-life examples of the transferability of this skill

#### – Raw Materials

ECOALF are a fashion brand who continually harness creativity skills to experiment with sustainable fibres, developing over 400 new recycled fibres. Their key recycled fabrics are polyester, nylon, cotton, wool, tyres and post-consumption coffee grounds, which all use significantly less water and energy and produce less CO2 emissions than their conventional counterparts. If they are not using recycled materials, ECOALF ensures they are using natural materials with a low impact on the environment, such as wool based fibres, cupro, linen and tencel. As well as this, Ecoalf requires their suppliers to comply with their ‘Restricted Substances List’, which was created to ensure safe chemical use throughout all processes. The ECOALF Foundation has been working with partners in Spain, Greece, Italy and Thailand since 2015 ‘Upcycling the Oceans’ and cleaning up marine litter, which is often used in their recycled fibres.

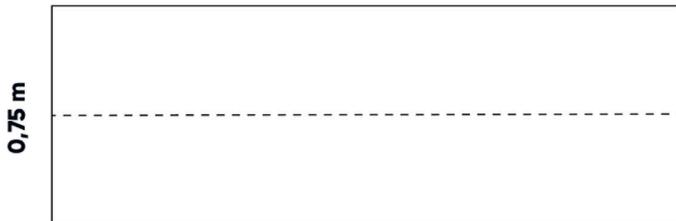
#### – Design & Consumption and Waste

In a workshop with Netty Sopata, we learned how to make a zero waste apron. The piece of Harris Tweed used to create the apron was half the width of a traditional Hattersley loom (0.75m), meaning two Aprons can be made from a rectangle of fabric with no waste offcuts at all. The rectangles are folded up like origami as shown below, and simply sewn together. This shows how creativity in the design process can improve resource efficiency and reduce fabric waste later on down the line into production.

Figure 45. Creativity Presentation

Figure 46. Creativity Presentation

### Zero Waste Pattern

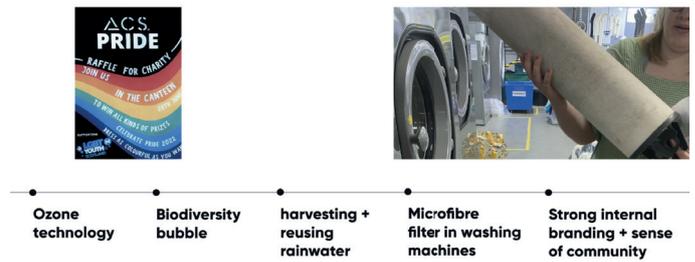


- Production

ACS is a good example of a company who use creativity and innovation to solve problems and make every part of their operations more sustainable

ACS mission is to be the leading enabler of the fashion industry's circular economy in the UK and Europe by providing 3PL+RL\* fulfillment services sustainably. To do so, ACS provide brands and retailers with a profitable, circular fashion solution that extends the life of clothing and diverts textile waste from landfill.'

Innovation is core to our business strategy. We always seek to find better ways of working. We have adopted many innovative ideas into day to day operations that improve the efficiency and effectiveness of the way we deliver our services to customers. Our track record of innovation and change spans from the implementation of good innovative ad-hoc ideas from staff all the way through to formal innovation projects See below for a short list of just a few innovative ideas ACS Clothing have come up with:



### Another Skills

**Adaptation to the new needs of the population**

**Collaboration with already sustainable companies**

### FINAL CHAPTER

### JUST DO IT (activities)

# 1. DISCOVERING TIKTOK

## WHY

TikTok is one of the most used social networks in the world. We can create audiovisual content and spread it. All the participants should be able to create content about sustainability and fashion in the platform.

## WHAT

We work in groups, so we can get many videos to represent why the garments can be meaningful.

As we have 3 groups of 15 members, we expect to get around 20 short videos that can be useful for the toolkit of the project to represent why the garments can be meaningful.

## HOW

The workshop is structured in 3 parts:

- 1: Why. Short explanation of the importance of the tool and the potential (5')
2. How. Short tutorial to create an account and use the app (10')
3. What. The participants in pairs develop a content of 15 seconds related with the garment exchange activity.

## EXPERT TIP...

We are living a moment of significant transformation in the fashion industry. The main drivers of the change are sustainability, digitalization, design, and innovation with new materials. Therefore, it is crucial for the industry to attract young talent connected with sustainability, and creativity, and also skillful with digital tools, and open to innovation.

Professor Esteban Galán. UPV. Spain.

# 2. GAMING TIME FOR TEAM BUILDING

## WHY

With this activity, we experience the importance of games to create a good atmosphere, and the participants realise how important is to work in a horizontal approach for co-creation.

## WHAT

It is important to experience the importance of games to create a good atmosphere and realise that is possible to have fun while working hard.

## HOW

The activity is structured in 3 parts:

- 1: Introduction. A short explanation of the ethos of the activity. The participants have their names written down on the tables but some of the participants are not there.
2. Question. We encourage the participants to guess the reason that is behind some of the participants have not their names on the list of the groups.
3. Finally we realize that we have chosen the youngest participants and we are going to use the dice to decide their group and they are going to lead the next activity on their groups.

## EXPERT TIP...

The individual research, teamwork, intercultural activities etc., are so important for the development of our students. Likewise for the staff. We can take these learning outcomes to our own institutions and encourage more participation and new initiatives.

Professor Bob Gilmour (GCU).

### 3. SKILL HUNTING COMPETITION

#### WHY

We can identify good practices with an impact in sustainability and the main skills that are required to go ahead with them.

#### WHAT

We will get a list of practices related with sustainability in different companies, and employability skills that come from them.

#### HOW

The activity is structured in three parts:

1. Context: In groups, participants visit a company.
2. The form: Each participant must fill the skill hunting form.
3. Bring together: In groups, participants elaborate a list with good practices and skills and their impact in sustainability.

#### EXPERT TIP...

The project wishes to work with "showcase" inspiring examples of sustainable business and help enhance and develop our sustainable business leaders of the future.  
Professor Pedro Correia (UMA).

### 4. SUSTAINABLE NARRATIVE VIDEO GAMES WORKSHOP

#### WHY

Video games are an inspiring experience to develop sustainable employability skills and fashion values through challenges.

#### WHAT

We can get proposals of video games related to the areas of the project: Raw material, Design, Supply chain, Production, Emissions and biodiversity, Consumption and waste.

#### HOW

##### Structure of the workshop:

1. Approach to the objectives of the video games. Answer questions: What result do we want the player feels at the end of their experience? In which story will we introduce the main character to take the player to the initial objective? What specific challenges can we pose to the player to achieve that goal? What kind of mechanics and interactions can we use to organize the development of the challenges? What are the possible intermediate and definitive endings that can be given?
2. Think about challenges to be incorporated into the video game related to the areas of the project.
3. Develop a draft of the video game.

#### EXPERT TIP...

Developing video games can be very important for sustainability in fashion industry. This can change people's attitudes for the better and help to make a real impact for the world.  
Professor Hamish Homatash (GCU).

## 5. GETTING INSPIRATION FROM FASHION DESIGNERS TO FOSTER SUSTAINABILITY

### WHY

We are working in sustainability skills, but this is also about fashion and style. So, it is important to think about garments, designers, and industry.

### WHAT

One expert in sustainability and fashion introduces sustainability through the garments and designers.

### HOW

Structure of the workshop:

1. The expert chooses 4 garments from 4 designers in 4 different countries and show the picture.
2. The expert talks about the interpretation of the garment for each designer in terms of sustainability.
3. We talk about the information of the expert and make a recap of the explanation.

### EXPERT TIP...

They can understand how sustainability begins with the actual people and communities involved in business development and is followed by the planet and business profits. Despite some bad practices, they CAN understand that there may be no tradeoff between income and ethics in the fashion industry.

Professor Paloma Díaz Soloaga (UCM).

## 6. PODCASTING FOR SUSTAINABILITY IN FASHION

### WHY

The number of podcast listeners increases year after year. It is an accessible and a cheap way to spread knowledge in different areas. Also, it improves the communication skills.

### WHAT

Working in groups, we can get a series of podcast talking about sustainability practices in fashion industry and their related employability skills. We can create a playlist with all of them.

### HOW

The workshop has 4 parts:

1. Short explanation about the podcasting and how we can make one with our own resources and how can we spread.
2. Choice of a topic for the podcast related with the issue of the project. It has be supported with the interview of an expert.
3. Write the script and make the interview for a 5 minuts podcast.
4. Edit and upload the podcast.

### EXPERT TIP...

We can use technologies to learn and to spread knowledge about different issues. In that case, podcast is an excellent way to do that in terms of accessibility, creativity, and motivation.

Professor Nadia Alonso (UPV).

## 7. CO-CREATION, SUSTAINABILITY, AND SELF-AUDIT

### WHY

It will be a good source of information for planning the career and to draw on for strong CVs, applications, interviews, and for the development of a professional LinkedIn profile. Also, it explores the knowledge in concepts like gamification, transmedia narratives, co-creation, storytelling and sustainability.

### WHAT

You can fill a survey with different items and get a knowledge of yourself in terms to improve and to be conscious about your personal skills.

### HOW

The activity has different steps:

1. Spread the online survey with the access by an email address (Please note the data protection and include a consent to the processing of the data provided in this survey by answering).

2. Give time to answer the survey. It includes questions about personal, academic, and job skills with the following rating in a Linkert scale:

#### Example 1

4 = I do this very well. I am consistent and successful in it.

3 = I am good at this. With some practice, I can make it perfect.

2 = I am getting better, but still need to work on it.

1 = I am not particularly good at this yet!

#### Example 2

6 = Strongly Agree

5 = Agree

4 = Neutral

3 = Disagree

2 = Strongly disagree

1 = I don't know

3. Students receive the results and self-evaluate their skills and possibilities for improvement.

4. They can repeat the survey sometime later and check their improvements.

### EXPERT TIP...

Lindsey/Charlie

## 8. FEELING CONNECTION WITH THE EARTH

### WHY

Throughout most of human history, running was performed while barefoot or in thin-soled shoes such as moccasins. Barefoot running in contact with the ground improves sensations and agility and stimulates brain function.

### WHAT

Introduction to barefoot running on different terrains.

### HOW

1. Explanation of basic concepts of the tread, cushioning, and interferences in the natural movement when wearing shoes.

2. Footprint test on different terrains.

3. Walk relaxed looking for sensations.

4. Slow running test on different terrains.

5. Final exchange of impressions and questions.

### EXPERT TIP...

Walking and running barefoot means discovering a world of unknown and intense sensations that are hidden behind thick rubber soles. It also strengthens the feet and legs.

Professor Emilio Sáez Soro (UJI).

