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DesignSmart

MODULE 3

Practical Circular Economy Applications in Fashion



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Lesson Plan

Module purpose: This module introduces the practical application of circular economy principles within the fashion, textile and leather sectors. The content supports SMEs, VET learners and women entrepreneurs in understanding lifecycle thinking, repair culture and circular production strategies.

EQF Level: 5

Related topics:

- Sorting and material reuse – CCIB
- Product longevity and closed-loop systems – CCIB
- Techniques for creating new higher-value products

Learning Outcomes

After completing this topic, learners will:

Knowledge
• Understand circular economy principles and LCA basics.
• Identify recycling, repair and upcycling strategies.

Skills
• Analyse product lifecycles.
• Apply basic repair and alteration techniques.

Competence
• Promote circular thinking within fashion and leather sectors.



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Module 3 – Unit 1

Selection and reuse of materials | EQF 5 | 1h 30 minutes

Topics and subtopics / Learning activities	Duration	Training methods used	Materials used	Implementation tips
Icebreaker activities "The Journey of a T-Shirt": Participants work in pairs to identify all stages in the lifecycle of a fashion product, from raw material extraction to end-of-life.	10 min	Brainstorming and group discussion	Product images, whiteboard or flipchart	Encourage learners to think beyond production and consider use, repair, reuse and disposal phases.
Pre-assessment: Multiple-choice questions on circular economy concepts, sustainability principles and lifecycle thinking. Example: ""Which stage of a product lifecycle usually has the highest environmental impact?"	10 min	Quiz and discussion	Mentimeter, Kahoot, or printed quiz	Use results to identify learners' prior understanding of sustainability and circular economy concepts.
Topic 1: Introduction to Circular Economy Principles. Subtopics include linear vs circular economy models, waste prevention, resource efficiency, reuse, repair, remanufacturing, regeneration and recycling strategies.	15 min	Interactive lecture	PPT presentation, circular economy diagrams, fashion industry examples	Compare the traditional "take-make-dispose" models with circular systems and discuss their relevance to fashion, textiles and leather sectors.

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Topic 2: Circular Economy in Fashion, Textile and Leather industries. Subtopics include product longevity, circular design, material recovery, responsible consumption, closed-loop systems and circular business models.	15 min	Lecture with discussion	PPT, case studies, product examples	Present examples of brands and companies implementing circular economy practices.
Topic 3: Introduction to Life Cycle Assessment (LCA). Subtopics include lifecycle stages, cradle-to-grave and cradle-to-cradle approaches, environmental hotspots and sustainability performance measurement.	15 min	Lecture with visual examples	Lifecycle diagrams, LCA examples, PPT	Use a simple fashion product such as a cotton T-shirt or leather bag to explain lifecycle stages.
Topic 4: Environmental Impact Indicators. Subtopics include carbon footprint, water consumption, energy use, waste generation, and resource efficiency.	10 min	Lecture and discussion	Environmental impact charts, infographics	Explain how environmental indicators help organisations identify improvement opportunities.
Practical Activity: Lifecycle Mapping Exercise. Learners analyse a fashion or leather product and identify environmental impacts, circular opportunities and potential	15 min	Group activity and presentation	Liefcycle mapping, worksheet, product examples	Encourage learners to identify where circular strategies such as repair, reuse or recycling can reduce environmental impacts.

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improvement actions across its lifecycle.				
Wrap-Up and Reflection. Learners identify one circular strategy they could apply in their professional context and discuss how LCA can support sustainable decision-making.	10 min	Reflection and peer discussion	Reflection questions	Connect lifecycle thinking with practical sustainability actions and business opportunities.

Module 3 – Unit 2

Selection and reuse of materials | EQF 5 | 1h and 40 minutes

Topics and subtopics / Learning activities	Duration	Training methods used	Materials used (PPT, case studies, best practices, activities, etc.)	Implementation tips
Icebreaker activities "What Would You Do With It?" Participants are shown images of damaged garments, discarded textiles and used leather products. They must decide whether the item should be repaired, reused, remanufactured, regenerated, recycled or upcycled.	10 min	Brainstorming and group discussion	Product images, whiteboard or flipchart	Encourage learners to justify their decisions and discuss why different circular strategies may apply to different products.
Pre-assessment: Multiple-choice questions on recycling, repair, remanufacturing and upcycling concepts. Example: "What is the main difference between recycling and upcycling?"	10 min	Quiz and discussion	Mentimeter, Kahoot, or printed quiz	Use results to identify learners' existing understanding of circular value retention strategies.
Topic 1: Recycling in Fashion, Textile and Leather Industries. Subtopics include	15 min	Interactive lecture	PPT presentation, recycling process	Explain the advantages and limitations of

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mechanical recycling, chemical recycling, fibre recovery, material separation technologies and recycled content applications.			diagrams industry examples	different recycling technologies and discuss their environmental benefits.
Topic 2: Repairing and Product Life Extension. Subtopics include repair culture, maintenance practices, product durability, repair services, customer engagement and circular business opportunities.	15 min	Lecture with discussion	PPT, repair examples, brand case studies	Highlight how repair contributes to waste prevention and customer loyalty while extending product life.
Topic 3: Remanufacturing and Regeneration. Subtopics include product refurbishment, component recovery, rebuilding products, material regeneration and industrial applications within fashion and leather sectors.	15 min	Lecture with examples	PPT, remanufacturing, case studies, product examples	Compare remanufacturing with repair and recycling, focusing on value retention and resource efficiency.
Topic 4: Upcycling and Creative Value Creation. Subtopics include redesign, creative transformation, product innovation, storytelling, product uniqueness and market positioning.	15 min	Interactive lecture and discussion	PPT, upcycled product examples, videos	Present examples of successful upcycling initiatives and discuss how creativity can increase product value.
Practical Activity: Circular Strategy Challenge. Learners analyse a discarded fashion or leather product and decide whether it should be repaired, remanufactured, regenerated, recycled or upcycled. They mut justify their decision and present the expected environmental and business benefits.	20 min	Group activity and presentation	Product scenario cards, worksheets, sustainability assessment template.	Encourage learners to evaluate environmental impact, technical feasibility and economic value before selecting a strategy.

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Wrap-Up and Reflection. Learners reflect on which circular strategy offers the highest value retention and discuss how these approaches can support sustainable business models.	10 min	Reflection and peer discussion	Reflection questions	Connect circular strategies with competitiveness, sustainability and consumer expectations.

Module 3 – Unit 3:

Selection and reuse of materials | EQF 5 | 1h and 40 minutes

Topics and subtopics / Learning activities	Duration	Training methods used	Materials used (PPT, case studies, best practices, activities, etc.)	Implementation tips
Icebreaker activities "Repair or Replace?" Participants are presented with examples of damaged garments and leather accessories and discuss whether the product should be repaired, altered or replaced.	5 min	Brainstorming and discussion	Product images	Encourage learners to consider environmental and economic impacts.
Pre-assessment: Short quiz on repair culture, product longevity and maintenance practices.	5 min	Quiz and discussion	Mentimeter, Kahoot, or printed quiz	Use results to assess prior knowledge
Topic 1: Repair Culture and Product Longevity. Subtopics include circular fashion principles product life extension, maintenance practices and responsible consumption.	15 min	Interactive lecture	PPT presentation, case studies	Explain how repair contributes to circular economy objectives and waste reduction.
Topic 2: Textiles and Leather Repair Techniques. Subtopics include hand stitching, patching, seam repair, cleaning, conditioning, and basic restoration techniques.	15 min	Demonstration and discussion	Textile and leather samples, repair toolkit	Present basic repair methods and their practical applications.

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Topic 3: Alteration and Product Adaptation Techniques. Subtopics include resizing, redesign, customisation and extending product usability.	10 min	Lecture with examples	PPT, before and after examples.	Show how alterations can increase product value and longevity.
Practical Activity: Repair and Circular Redesign Workshop. Learners analyse a damaged product and purpose a repair or alterations strategy.	15 min	Group activity	Product samples, worksheets	Encourage learners to justify their decisions from a sustainability perspective.
Wrap-Up and Reflection. Learners discuss how repair services support circular business models and sustainable consumption.	10 min	Reflection and peer discussion	Reflection questions	Connect repair skills with economy opportunities.

Module 3 – Unit 4

Selection and reuse of materials | EQF 5 | 1h and 10 minutes

Topics and subtopics / Learning activities	Duration	Training methods used	Materials used (PPT, case studies, best practices, activities, etc.)	Implementation tips
Icebreaker activities: "What's in this jacket? "Participants receive fabric samples or labels with the composition and must guess whether the material is recyclable, reusable, or destined for the landfill.	10 min	Peer discussion, critical thinking	Fabric samples or printed labels, answer sheets	The facilitator guides students to reflect on why the mixed composition of fibres complicates recycling. Separate waste collection is presented as a prerequisite for reuse.
Pre-assessment: multiple-choice questions on pre- and post-consumer waste, sorting methods, mechanical vs chemical recycling. True or false: A	10 min	True-false / multiple-choice quiz	Mentimeter, Kahoot, or printed quiz	Ask students to answer 3–4 questions, then lead a brief discussion on the answers before continuing.

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wool/polyester blend sweater can be mechanically recycled without separating the fibres.				
Topic 1: Types of Textile Waste. Subtopics include production waste (scraps, end-of-roll), post-consumer waste (used clothing), physical and compositional characteristics, environmental impacts.	10 min	Interactive lesson with visual examples	A Presentation (PTT) with a variety of images and fact sheets on materials	The trainer will show concrete examples of each type of waste. And discuss why single-fibre materials are easier to recycle than blended fabrics.
Topic 2: Sorting Algorithms. Subtopics include manual sorting (by colour, weave, composition), NIR and optical technologies, quality classification (A/B/C) and European sorting centres.	10 min	Lesson with demonstration & videos	PowerPoint presentation, short video of a sorting plant (e.g., Prato district)	The trainer should demonstrate how a NIR system works. Discuss its limitations: missing or incorrect labels make automatic sorting unreliable.
Topic 3: Mechanical and chemical recycling. This topic's subtopics include carding and fibre opening, quality loss in mechanical recycling, chemical dissolution and monomer recovery (RECOVER, Infinited Fibre).	15 min	Lecture with examples of industrial cases	PPT, technical data sheets on recycling processes	The trainer will explain why mechanical recycling is more accessible but degrades fibre quality, while chemical recycling preserves quality but requires a greater investment.
After the previous moments, a hands-on activity entitled “From waste to resources – Sorting and classifying textile materials(see dedicated section)”	20 min	Group practical activity, analysis	Worksheet for material analysis, sample descriptions	The trainer asks the Learners/Students to sort and classify three textile waste scenarios, assign them to disposal routes, and identify missing documentation.

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Module 3 – Unit 5

Product Longevity and Closed-Loop Systems | EQF 5 | 1 and 25 min

Topics and subtopics / Learning activities	Training methods used	Duration	Training methods used	Materials used (PPT, case studies, best practices, activities, etc.)	Implementation tips
Icebreaker activity: "How many times have you worn it? "Participants estimate how many times they have worn a specific item of clothing they own. A simple calculation of the cost per use is worked out together.	Peer discussion, critical thinking	10 min	Individual reflection, group discussion	Simple table on the board or shared screen	The facilitator introduces cost per use as a more significant sustainability metric than purchase price. Links to the issue of planned obsolescence.
Topic 1: Designing for Longevity Subtopics: choice of materials (abrasion resistance, colourfastness), build quality (reinforced seams), repairability, modularity, ease of maintenance.	Interactive lesson with product analysis	15 min	Interactive lesson with product analysis	PPT, samples, or images of garments with different durability characteristics	The trainer will ask the learners to examine a garment and identify points of expected wear. Discuss how design could prevent them.
Topic 2: Closed-loop models for SMEs Subtopics: end-of-life collection and recovery, integrated repair services, rental and product-as-a-service, resale and secondary market, circular loyalty programs.	Lecture with SME case studies	15 min	Lecture with SME case studies	PPT, fact sheets on circular service models	The trainer will guide the learners to distinguish between models accessible to a microenterprise and those requiring a larger scale. The trainer should provide examples of repair services and simple collection schemes for small businesses.

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Topic 3: EU Regulatory Framework on Longevity Subtopics: ESPR durability and reparability criteria, textile durability index, longevity labelling, extended producer responsibility (EPR).	Lecture with Q&A Session	15 min	Lecture with Q&A session	PPT, simplified repairability checklist	Regulation of frames as a competitive opportunity for those who already produce well. SMEs that document durability will be in a better position.
Practical activity Designing a take-back system for a small fashion company(see dedicated section)	Design + simulation, group work	30 min	Design + simulation, group work	Returns canvas, company profile sheets, customer journey worksheet	Work in groups. The Facilitator /Training guides the group in designing a repair or return service for a small business profile, then simulates a customer returning a product. Then present to the other groups

Module 3 – Unit 6

Techniques for creating new, higher-value products | EQF 5 | 1 hour and 40 minutes

Topics and subtopics / Learning activities	Duration	Training methods used	Materials used (PPT, case studies, best practices, activities, etc.)	Implementation tips
Icebreaker activity: "Find the Hidden Value". Participants receive a scrap of fabric or a photo of a discarded garment. They have 2 minutes to propose an idea for a new product.	10 min	Quick brainstorming, creative thinking	Fabric scraps or printed images of textile waste	The facilitator categorises the ideas on a shared board (accessories, home goods, patchwork, etc.) and introduces upcycling as a creative practice with real economic implications.
Topic 1: Comparison of upcycling, recycling, and	10 min	Lecture with visual examples	PPT with a comparison	Use examples from the fashion industry, as well

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downcycling. Subtopics: definitions and hierarchy of values, concrete examples across various sectors, implications for design and communication.			table and images	as from interior design and packaging, to illustrate the concept. Emphasise that upcycling requires a design intent.
Topic 2: Techniques for creating products of higher value. Subtopics: textile patchwork and collage, deconstruction and reconstruction, embroidery and surface decoration, printing on recycled materials, modular assembly, techniques using mixed materials (leather, paper, metal).	15 min	Lecture with practical demonstration	PPT, product samples, short videos of the process if available	Show physical samples or videos, if possible. Discuss the technical requirements of each technique and their accessibility for different skill levels.
Topic 3: Added Value and Positioning Subtopics: pricing an upcycled product, factors of uniqueness, communicating provenance, certifications, and documentation.	10 min	Discussion, case studies	PPT, product value worksheet	Address the topic of price directly: the value of creative work, the value of the material's history, how much the customer is willing to pay.
Hands-on activity: From waste to product – Developing an upcycled product concept (see dedicated section)	40 min	Creative design, individually or in pairs	Concept sheet, sheets with material scenarios, checklist for sustainability claims	The facilitator guides students to develop a complete concept: material, technique, product, story, communication, and an indicative price. The instructor verifies that the sustainability claims are specific and verifiable.
Conclusion: Presentation of concepts. Each student presents their upcycled product concept in 60 seconds.	15 min	Quick presentation	Concept sheets	The instructor and classmates highlight the most valid and immediately applicable ideas. Link to Module 7 on marketing and communication for sustainable innovation.

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Case Study Patagonia – Worn Wear Programme

Country: **United States (Global Initiative)**
Link: https://wornwear.patagonia.com
Main Content including the following:

Background

Patagonia is an internationally recognised outdoor apparel company known for integrating environmental responsibility into its business strategy. Since its foundation in 1973, the company has positioned sustainability, durability and responsible consumption as core values. Rather than encouraging continuous purchasing of new products, Patagonia has consistently promoted the idea that the most sustainable garment is the one that already exists.

In 2013, Patagonia launched the Worn Wear Programme, a global initiative designed to extend the useful life of garments and encourage consumers to adopt more sustainable consumption habits. The programme was developed as part of the company's broader circular economy strategy and aims to reduce waste, maximise product longevity and minimise the environmental impacts associated with the production of new clothing.

The initiative includes repair services, maintenance guidance, garment care education, resale platforms and awareness campaigns that encourage consumers to repair, reuse and recirculate products instead of discarding them. Over time, Worn Wear has become one of the most recognised examples of circular economy implementation in the fashion industry and is frequently cited as a benchmark for sustainable business innovation.

The Challenge

The fashion industry is one of the most resource-intensive sectors globally. The production of textile and garments requires significant amounts of water, energy and raw materials, while large quantities of clothing are discarded each year despite remaining functional.

Patagonia identified several interconnected challenges that needed to be addressed:

- Growing levels of textile waste resulting from short product lifecycles and overconsumption
- High environmental impact associated with raw material extraction, manufacturing and distribution
- Consumer behaviours that encourage replacement rather than maintenance and repair
- Limited awareness of the environmental benefits associated with extending product life
- The need to demonstrate that sustainability and business competitiveness can coexist within the fashion industry

The company recognised that extending the useful life garments could significantly reduce environmental impacts throughout the product lifecycle. Research conducted by Patagonia showed that increasing the lifespan of clothing by only a few additional years could substantially reduce carbon emissions, water consumption and waste generation.

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The challenge was therefore not only technical but also cultural: changing consumer perceptions and behaviours while creating a business model that supports circular economy principles.

Actions Taken

- **Step 1 –Designing Durable and Repairable Products**

Patagonia incorporated durability, quality and repairability into product design processes. Products are developed with long-term use in mind, using robust materials and construction techniques that facilitate maintenance and repair.

The company views durability as one of the most effective environmental strategies because longer-lasting products reduce the demand for new resources and minimise waste generation.

- **Step 2 – Establishing Large–Scale Repair Services**

Patagonia developed one of the largest garment repair operations in the apparel industry. Repair centres provide services for damaged zippers, seams, buttons, tears and other common product issues.

Customers are encouraged to repair rather than replace products, and Patagonia provides repair guidance, spare parts and instructional materials to support self-repair whenever possible.

- **Step 3 – Creating the Worn Wear Resale Platform**

To further extend product life, Patagonia launched the Worn Wear online platform, allowing consumers to buy and sell used Patagonia products.

The platform creates a secondary market for garments that remain functional and desirable but are no longer used by their original owners.

By facilitating resale and reuse, Patagonia helps keep products in circulation for longer periods while reducing demand for new production.

- **Step 4 – Promoting Consumer Education and Awareness**

Education plays a central role in the Worn Wear initiative. Patagonia developed campaigns, videos, repair tutorials and workshops that encourage consumers to care for, repair and value their products.

The company actively challenges traditional consumption patterns and promotes a culture of responsible ownership and mindful purchasing.

Through storytelling and communication, Patagonia has succeeded in transforming repair form a necessity into a positive sustainability action.

- **Step 5 – Integrating Circular Economy and Lifecycle Thinking**

The Worn Wear Programme reflects a broader commitment to lifecycle thinking and circular economy principles.

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Patagonia uses environmental assessment tools and lifecycle analysis to understand where impacts occur throughout a product's lifespan. The company recognises that extending the use and purchase of products can significantly reduce environmental impacts compared to producing replacement garments.

The initiative therefore combines several circular strategies:

- Product longevity
- Repair
- Reuse
- Resale
- Resource efficiency
- Consumer engagement
- Waste prevention

Results

- **Environmental Impact**

The Worn Wear Programme has contributed significantly to reducing textile waste and promoting resource efficiency.

By encouraging repair and reuse, Patagonia has helped reduce:

- Raw material consumption
- Water use
- Energy consumption
- Greenhouse gas emissions
- Waste generation

The initiative demonstrates that extending product life is often more environmentally beneficial than recycling, as it preserves the value already embedded within products.

- **Business Impact**

Contrary to the belief that sustainability may reduce profitability, Patagonia has shown that circular economy initiatives can strengthen long-term business performance.

The programme has:

- Increased customer loyalty
- Strengthened brand reputation
- Enhanced consumer trust
- Created a new revenue opportunity through resale activities
- Differentiated the company within a competitive market

Worn Wear has become a strategic asset that reinforces Patagonia's sustainability leadership.

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- **Educational and Awareness Impact**

The initiative has influenced both consumers and industry stakeholders by promoting repair culture and responsible consumption.

Patagonia has successfully demonstrated that sustainability communication can change behaviours and encourage more conscious purchasing decisions.

The programme has also inspired other fashion companies to explore repair services, resale platforms and circular business models.

- **Key Takeaways**

• Product longevity is one of the most effective strategies for reducing environmental impacts within the fashion industry.

• Repair and maintenance services can become integral components of successful circular business models.

• Circular economy principles can generate environmental, social and economic benefits simultaneously.

• Consumer education and awareness are essential for promoting sustainable consumption behaviours.

• Reuse, repair and resale initiatives can strengthen customer engagement and brand loyalty.

• Lifecycle thinking enables organisations to identify opportunities for reducing environmental impacts throughout product lifecycles.

• Sustainability can become a source of innovation and competitive advantage when integrated into business strategy.

- **Discussion Questions**

• Why is extending product life considered one of the most effective circular economy strategies?

• How does repair culture contribute to sustainability within the fashion and leather sectors?

• What are the environmental advantages of repair and reuse compared with recycling?

• Can repair and resale services become a competitive advantage for SMEs operating in fashion and leather industries?

• How can lifecycle thinking support better decision-making during product design and development?

• What lessons can European SMEs learn from Patagonia's Worn Wear Programme when developing circular business models?

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• How can companies encourage consumers to adopt more sustainable purchasing and consumption behaviours?

Case Study: ETNIA 36: FUERTE; HONESTA, INCLUSIVA

Country: **Spain-Barcelona**

Link: https://etnia36.com/

Main Content including the following:

Background

ETNIA 36 is a circular fashion initiative based in Barcelona and developed through collaboration with Indigenous women's communities in Bolivia. The project combines sustainable fashion practices with social impact, cultural preservation, and ethical production methods. The initiative operates through a cross-cultural network of women connected by craftsmanship, shared values, and long-term collaboration. Its production model emphasises slow fashion principles, prioritising quality, transparency, and environmental responsibility over mass production.

The Challenge

ETNIA 36's main challenge is developing sustainable, commercially viable fashion products while reducing environmental impact and preserving traditional craftsmanship. The project responds to the growing need for circular production models in the textile sector, where excessive resource consumption, waste generation, and fast-fashion practices continue to create significant environmental and social pressures. A key issue is how to integrate reused and recovered materials into the design and production process without compromising product quality, aesthetics, or market value. At the same time, ETNIA 36 addresses the challenge of maintaining and economically supporting ancestral textile knowledge and Indigenous artisan communities in a highly competitive global fashion industry. The project also explores how circular economy principles can be combined with social inclusion and ethical production practices. This includes reducing water and energy consumption, minimising waste and emissions, and treating production waste as a reusable resource within the manufacturing cycle.

Actions Taken

- **Step 1 –Sustainable and circular material sourcing**

ETNIA 36 adopted a circular sourcing strategy by recovering sustainable fabrics from textile houses and factories located in Italy, France, Spain, and Portugal. The company incorporated ECONYL regenerated nylon, produced from post-consumer and industrial waste materials such as fishing nets, old carpets, and industrial plastics. In addition, fabrics containing LENZING ECOVERO fibres were selected to reduce the environmental impact associated with conventional viscose production. The project also integrated

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circular textiles recovered from the textile industry with handmade Indigenous fabrics and traditional weaving techniques. This approach combined material reuse with artisanal craftsmanship, creating a production model that transforms waste into new, higher-value products while minimising environmental harm.

- **Step 2 – Integration of recovered and artisanal textiles**

The project combined circular textiles recovered from the textile industry with handmade Indigenous fabrics and traditional weaving techniques. This approach merged circular economy principles with cultural heritage preservation, transforming discarded or unused materials into higher-value fashion products without generating additional environmental harm.

- **Step 3 – Integration of recovered and artisanal textiles**

ETNIA 36 developed a local production model based in Barcelona, ensuring that the production chain remained transparent, traceable, and geographically close. By producing locally, the company aimed to reduce transport-related emissions, strengthen the local economy, and maintain greater control over ethical and environmental standards throughout the manufacturing process.

- **Step 4 – Ethical and socially inclusive collaboration**

The company collaborated with Indigenous artisan communities, supporting the preservation of ancestral textile knowledge and promoting economic inclusion through fair and value-oriented partnerships. The company integrated traditional craftsmanship into contemporary fashion design, helping maintain cultural relevance while creating sustainable income opportunities for artisans.

Results

Environmental impact

The ETNIA 36 model helps lower the environmental footprint of fashion production by prioritising regenerated and responsibly sourced materials. This approach helps limit waste generation and contributes to reductions in water and energy use, as well as greenhouse gas emissions associated with conventional textile manufacturing. In addition, the use of recovered fabrics and geographically close production processes strengthens overall resource efficiency by reducing the environmental costs linked to long supply chains and transport.

Business impact

The company exemplifies how strategic differentiation enables the brand to thrive in the niche of ethical, conscious fashion. By integrating recycled materials and artisanal craftsmanship, the brand not only strengthens its authenticity but also reinforces a value proposition that goes beyond product functionality.

Regulatory readiness relevance

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ETNIA 36 demonstrates strong alignment with emerging sustainability and circular economy regulatory frameworks at both European and international levels. The initiative's commitment to the principles of the UN Agenda 2030 is reflected in its focus on responsible production, social inclusion, cultural preservation, and environmental sustainability. By prioritising regenerated and recovered materials, local production, supply chain transparency, and socially inclusive partnerships, ETNIA 36 reflects key principles promoted by the European Green Deal, the EU Circular Economy Action Plan, and evolving ESG reporting expectations.

Key Takeaways

- Circularity in fashion can be strengthened by combining regenerated and recovered materials with traditional craftsmanship, creating products that generate both environmental and social value.
- Local and transparent production systems help reduce transport-related emissions, improve traceability, and strengthen control over ethical and environmental standards across the supply chain.
- Women play a central role in ETNIA 36's model, both as key agents of production and as drivers of social and economic empowerment. The collaboration with Indigenous women's communities highlights how circular fashion can contribute to gender equality by generating fair income opportunities, strengthening skills, and recognizing the value of traditionally female-led craftsmanship.

Discussion Questions

- What role does women's participation play in strengthening both the social impact and long-term resilience of circular fashion models like ETNIA 36?
- How can sustainability be ensured when integrating traditional craftsmanship into modern circular fashion systems without increasing environmental impact?
- What competitive advantages can brands gain by integrating transparency, traceability, and cultural authenticity into their business model?
- Could fashion brands or local designers in your context collaborate with artisan or women-led communities in a way similar to ETNIA 36?

Best Practice: Texlimca-Circular Textile Waste Management and Resource Recovery Model

Type: Business Practice/Technological solution

☐ Business practice ☐ Technological solution ☐ Educational approach ☐ Policy

Content (Executive Snapshot):

This practice is a circular textile waste management system developed by Texlimca. It **collects, sorts, reuses, and recycles** textile waste to convert it into secondary raw materials for new textile production. The approach integrates reuse prioritisation with advanced recycling processes to support circular economy objectives in

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Spain and across Europe. **Texlimca implements the initiative**, a company specialised in textile waste collection, sorting, and recycling. The company also collaborates with European partners and circular economy initiatives to scale sustainable textile resource management practices.

The Challenge Addressed

The practice addresses the growing environmental challenge of textile waste, including both pre-consumer and post-consumer waste streams.

Key issues include:

- Large volumes of textiles being sent to landfill or incineration
- Low rates of textile reuse and recycling
- Loss of valuable materials embedded in discarded textiles
- Environmental impacts from virgin textile production

If not addressed, these problems would continue to increase landfill pressure, carbon emissions, and resource depletion while undermining EU sustainability targets.

Innovation & Added Value

This practice stands out due to its combination of technological and methodological innovation, alongside strong sustainability and scalability benefits. It integrates automated sorting systems and mechanical fibre recovery technologies to efficiently process textile waste and recover valuable materials. At the same time, it applies a structured approach that prioritises reuse before recycling, embedding circular economy principles directly into industrial operations. This significantly reduces textile waste, lowers the overall environmental footprint, and supports the return of materials to productive use. In addition, the model is designed for industrial-scale replication, making it highly scalable and transferable across different regions in Europe.

Tools / Technologies Used

- Automated textile sorting systems
- Mechanical textile recycling technologies
- Material composition identification and separation processes
- Waste traceability and classification systems
- Industrial-scale recycling and preparation plant infrastructure

Practical Activity

PRACTICAL ACTIVITY – Module 3 (Units 4, 5 and 6)

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Activity title: From waste to value – Selection, extending the useful life and transformation of textile materials

Type: ☑ Practical ☑ Analysis ☑ Design

Activity objective:

The aim of this activity is to guide the learners/ students through the whole circular journey of a textile material — from the selection and classification to the creation of a new product of greater value, , through strategies for extending the product's useful life and by applying the key concepts of Units 4, 5 and 6 in an integrated manner.

By the end of this activity the learners will be able to:

- Know how to select and classify a textile material based on its composition, quality and end-of-life destination
- Identify at least one strategy for extending the life of a garment or of a product made from that material
- They will develop a basic concept/basic idea for a new, higher-value product using the same material as a recovered resource

Duration: 25

Activity outline / Activity description:

Phase 1 – Select (5 mins)

Each learner or pair/mini group receives the description for a textile material or a garment (e.g. a wool/polyester blend coat, a batch of cotton scraps, a worn leather bag). From that sheet, they must be able to identify:

- Fibre composition and quality grade (A/B/C)
- Whether the material is pre- or post-consumer waste
- Best end-of-life destination: direct reuse, mechanical recycling, chemical recycling
- What information is missing that would prevent correct sorting or certification

No tools required — the worksheet is provided by the trainer.

Stage 2 – Extend the life (5 mins)

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Using the same material profile, students propose a realistic strategy to extend the life of the product or material before it reaches the end of its life cycle:

- A repair or maintenance service
- A take-back or resale scheme
- A product redesign that improves its durability or repairability

They note down, in a single sentence, who would manage it, how much it would cost the company, and how it would be communicated to the customer.

Phase 3 – Transform it (5 min)

Now participants treat the material as a recovered resource and develop a brief concept for an upcycled product:

- What new product could be made from it
- What technique would be used (patchwork, deconstruction, surface decoration, etc.)
- A specific and verifiable sustainability claim for the new product (not 'eco-friendly' — something concrete)
- An indicative price and a one-line justification of the added value

Phase 4 – Share and compare (5 mins)

Each student or pair shares their three decisions (separate / extend / transform) in 60 seconds. The trainer highlights where different groups have made different choices for the same material and explains the reasoning behind each option.

By the end of this activity, students will be able to:

- Apply selection criteria to real-world textile waste scenarios
- Link decisions on material recovery to choices regarding the circular business model
- Develop a credible upcycled product concept, based on specific and verifiable sustainability claims

Total duration: 25 minutes

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