

Circular Economy Platform: best practice



ERASMUS+
Jean Monnet Module
European Inclusive Circular Economy:
Post-War & Post-Pandemic Module for Ukraine
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1

RECIMAP project: recycling blended cotton and polyester fabric waste

Spain, Valencia

Description

Fabric waste containing polyester and cotton is widely used in the textile industry. However, due to the fact it's blended it's often incinerated or landfilled at the end of its useful life, because it's difficult to separate and recycle using conventional methods.

The RECIMAP project, led by the Bespoke Factory Group, is endeavouring to find a solution to this problem which promotes a sustainable circular economy in this already large and growing sector.

Research is focusing primarily on an innovative recycling pathway that transforms this complex waste into high-quality recycled materials and lactic acid, used to make polylactic acid (PLA).

RECIMAP is working on the selective separation of cotton and polyester blends through the synthesis and use of ionic liquids - a more environmentally sustainable alternative to traditional solvents. The polyester fraction is recycled using mechanochemical techniques to obtain recycled polyester, while the cotton fraction is used in the production of lactic acid via a lactic acid fermentation process.

Main results

The RECIMAP project, which is receiving funding from the EU, has identified a new recycling approach that:

- recovers complex textile waste, and
- generates high-quality recycled materials with significant economic value.

This includes:

- recycled polyester, which has a lower carbon footprint than virgin polyester, and
- lactic acid, an essential component in PLA production.



The EDUCIRC project: The circular economy as a development model for the Republic of Serbia

Serbia, Educons University

Description

The transition towards the circular economy entails complex economic and social changes. Using a survey, the EDUCIRC project will provide policy recommendations on rural development, with particular emphasis on women and young people. It will devise a new methodology for assessing the capacity of rural areas to deliver this transition.

These are the project goals:

- Making Serbia's economy more self-sufficient, primarily as regards agriculture and the service sector in rural areas
- Acquiring data that will be presented to academic circles in the form of publications
- Creating a solid foundation for a systematic approach to rural development, which will empower women and support families in rural areas
- Creating a database that can be used for research and education purposes in the field of the circular economy.

Main results

The project has already produced five work packages that contain plenty of research relevant to the development of the circular economy in Serbia.

Work packages:

1. Global challenges and national economies
2. Circular economy, rural development and role of women
3. Defining Serbia's circular capacity
4. Dissemination, promotion, and exploitation of project results
5. Project management.

Long-term impact: by focusing on gathering data, knowledge and information, the project will contribute to the future Strategy for the Circular Transition in the Republic of Serbia.



e-SAFE: tackling the need to renovate the EU's housing stock

Italy, Austria, Greece, Netherlands, Turkey

Description

Houses need to be a lot more energy efficient than most of them are right now. Knocking down every house and block of flats which doesn't meet rigorous standards and building from scratch would do it. But that's a pipedream.

Firstly: it's totally impossible. People are living in those buildings, and most of them couldn't afford it.

Secondly: it's doubtful there would be enough resources. It would take vast amounts of wood, cement, bricks – and would generate mind-blowing amounts of waste.

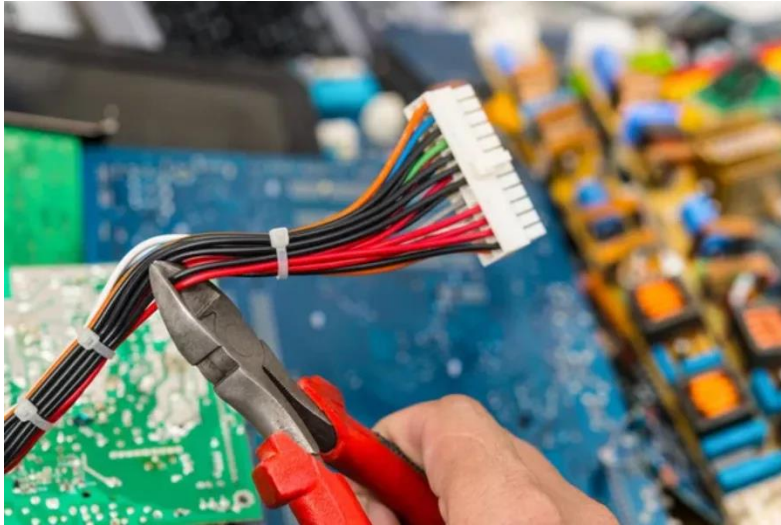
The Horizon 2020 e-SAFE project is trying to change the way we approach building retrofitting, with an emphasis on circularity and waste reduction. It combines energy efficiency, seismic resistance, financial feasibility and various social benefits.

e-SAFE's approach is rooted in curbing material consumption and avoiding demolition by promoting circular use and life extension of buildings and embracing a business model that minimises waste and maximises the longevity of existing structures.

The project opts for technical solutions with a low environmental impact: one example is outer wall panels made of a timber structure combined with local insulating bio-materials and the desired finishing.

Main results

e-SAFE is a groundbreaking initiative that goes beyond conventional retrofitting approaches. By addressing the importance of circularity in the building sector, especially in the context of older structures, the project contributes to environmental sustainability and seismic resilience and safety while also setting a new standard for socially and economically viable building solutions.



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Dutch Register of Electronic Equipment Repairers

Netherlands, Woerden

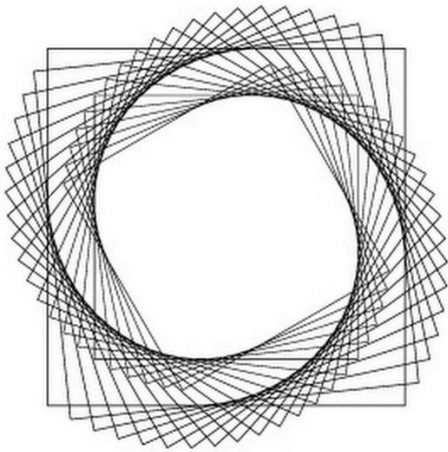
Description

The online Register of Electronic Equipment Repairers (Nationaal Reparatteursregister) was launched in the Netherlands in spring 2023. It enables **consumers and (retail) professionals to find professional and skilled independent repairers and refurbishers of electronic equipment who work nearby.**

Expert repair of electronic equipment will keep it working for longer, a key building block of a more circular and sustainable economy. The Register was set up by the industry organisation Techniek Nederland and the Ministry of Infrastructure and Water Management, in close cooperation with Centraal Register Techniek.

Main results

- Through the Register, the government and the electronics industry are ensuring that information is readily available, enabling consumers to opt for repairs with a view to extending their items' lifespan.
- The Register displays recognised repair companies that carry out repairs on product categories subject to the European Ecodesign Directives.



Circular Festivals

5

Green Deal Circular Festivals: striving for a circular and climate neutral festival industry

Netherlands, National authority, Public-private partnership

Description

The Green Deal Circular Festivals (GDCF) is a project run by the Dutch government and a growing community of European frontrunner festivals, who have pulled together to speed up the transition towards circular and climate neutral festivals.

So far, 49 festival organisations from 17 countries have signed this international Green Deal, and the community of front runners is growing. The GDCF stands for a future-proof and circular festival industry. By signing the GDCF, participating festival organisers have committed to strive for circularity and climate neutrality, to inspire visitors and set an example for other festivals.

Festivals can play a guiding role in inspiring a green movement and accelerate society's transition. **The GDCF is a model for regions, cities and other sectors in the circular and climate transition, striving for fully circular and climate-neutral festivals.**

Together, the GDCF partners have shaped a model for circular and climate-neutral festivals to clearly define just what a circular and climate-neutral festival is. Inspired by this model, the GDCF festivals establish their own priorities and plan how to become circular and climate neutral.

Main results

The GDCF's objectives:

- Model for a circular & climate-neutral festival: a joint future outlook for the sector
- Help festivals develop their own roadmaps / sustainability plans
- Online monitoring tool where festivals can measure their impact
- Sharing good practices and lessons: a dynamic toolbox
- Support collaboration to innovate, break barriers and scale up
- Involve visitors in order to inspire them
- Connect with other events, sectors, regions and cities.



6

KOMA Modular: Modular buildings which follow the Build, Refurbish, Dismantle, Rebuild concept

Czechia, Vizovice

Description

KOMA Modular s.r.o. is taking a circular approach to construction: it manufactures **modular buildings made up of individual prefabricated units**. It's an effective method which avoids the whole material-intensive issue of construction and demolition.

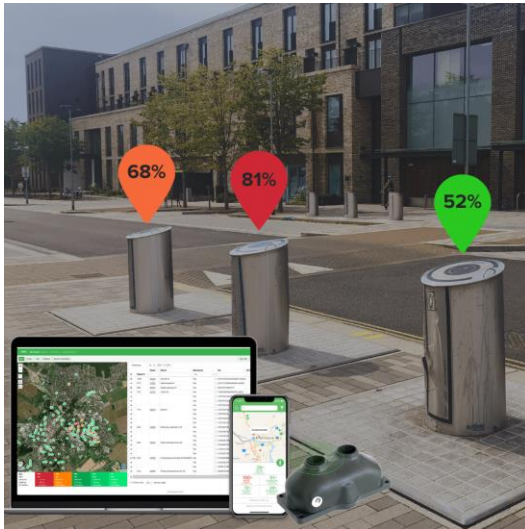
The method was effectively demonstrated by the Czech modular pavilion which was taken down and removed from the international exhibition EXPO in Milan and put up again elsewhere.

This Czech company **supplies modular school buildings which the company rents to towns and municipalities. All the clients require is a suitable site which can be linked up to the essential infrastructure. The company takes care of installation, servicing during operation and disassembly.**

When that particular school building is no longer required, it can be relocated.

Main results

- Municipalities can respond flexibly to the number of pupils currently attending the facilities they operate - which can otherwise be a major challenge. With modular buildings, whole floors can be added or removed.
- The school buildings can be set up very quickly, and do not entail the disruption of standard building sites.
- Since the units are prefabricated, buyers are spared the problem of price volatility.
- The company refurbishes and re-uses individual modules.



7

Sensoneo, smart and cost-effective waste management solutions from Slovakia

Slovakia, Bratislava

Description

Digitisation and streamlining of waste collection is Sensoneo's specialty. Ever since the beginning of their activity, their goal has been to help cities and businesses cope with the biggest challenges of waste management: **lack of efficiency and transparency.** Sensoneo's ambitions:

- Transparency of waste infrastructures
- Digitisation of the waste collection process
- Transparent waste streams
- Savings in kilometers travelled and emissions produced.

The electronic record of waste and waste containers is in accordance with the Strategy for managing municipal waste applied in the city of Bratislava in order to transition to a circular economy in the period 2021-2026. In Slovakia, only a limited number of companies are devoted to circular economy – Sensoneo, due to its large market share and popularity, is seen as a good example to persuade other stakeholders to adopt circularity-oriented entrepreneurship models.

Main results

Challenges: collection trucks in the town of Nitra (SK) pick up containers unnecessarily early, when they are still half empty; a sensor is needed to know how full containers are.

Sensoneo's suggestions: prototyping & adding functions to transmit data about each container (software for content analysis, optimisation of pickup routes and other functions).

Solutions: smart waste collection thanks to Sensoneo's sensors; optimisation of waste collection logistics in factories; deposit refund scheme.

Result: up to 30 % reduction of costs

Transferability: expanding on portfolio of services for 40 000 active users in 80 countries; waste and collection monitoring.



G E E S
R E C Y C L I N G



Gees Recycling: traceability of products made from fibre-reinforced composites

Italy, Budoia

Description

Since the early 1960s, fibreglass has been produced and used to a huge extent in various industrial sectors owing to its low production costs. The problem associated with these products is how to dispose of them: there is still no effective disposal system available.

Gees Recycling was one of the first companies in Europe to invest in technologies and plants for recycling fibre-reinforced thermosetting, plastic composites and rigid foams. Today, with its patented recovery process, Gees has acquired know-how in carbon-negative recycled material which meets both the growing demand for green materials and the objectives of the European Green Deal. Gees' Retracking project has taken up the challenge of developing a competitive management model which complies with European regulations on **recycling fibre-reinforced composite (FRC) waste**.

This project:

1. recycles, analyses, produces, identifies and tracks this secondary raw material, and
2. paves the way for a transition to a circular economy.

Main results

The Retracking project has developed: a technological infrastructure which, by inserting a RFID tag, makes it possible to track FRC products, and a cloud platform for managing and monitoring information relating to the various phases of recycling and transformation.

A pilot project has tested a new circular economy model to ensure: effective recovery management; treatment of FRC waste, and transformation of this waste into a secondary raw material that can be used to manufacture new products that are 100% recyclable.

The technologies developed in the project make it possible to: monitor new products made from recycled material, and enable reverse logistics.



Gruppo FOS: A Repair Centre to curb electronic waste

Italy, Caserta

Description

Reliance on electronics comes with steep environmental costs, from mining minerals to disposal of end-of-life devices. As the use of electronic products has grown, their average lifespan becomes shorter. This in turn results in an increased volume of discarded and obsolete electronic devices. Consumers cannot resist buying faster products, thus contributing to the growing global waste challenge. In 2019 alone, people discarded 53 million metric tons of electronic waste.

Gruppo FOS in Caserta (Italy) provides a T&G (technology and groupware) Repair Centre and Swap & Repair services for electronic devices, thus contributing to the circular economy concept.

The repair services supply chain includes the following:

- Test bench design
- Purchasing department
- Assembly and repair
- SWAP & fast repair
- Monitoring restored components
- Packaging & shipping

Main results

- The T&G Repair Centre has a 1 000 m² supply warehouse located in Caserta.
- The Centre deals with the commissioning and decommissioning of complete equipment, on-site intervention by specialised technicians and 3D printers for plastic items.
- It is sized to handle about 12 000 repairs per year, with peaks of 60 repairs per day.
- Its supply chain process is supported by an ad hoc software platform capable of managing all activities from the entry of materials to shipment.
- The platform monitors processes and activities, thus ensuring traceability of materials, measurement of crossing times, processes carried out, generation of test reports, high quality performance and compliance with delivery times.



10

FOOD-Y: giving NEETS skills and combating food waste

NGO, Italy, Sweden, Romania, Greece, Turkey

Description

FOOD-Y, an Erasmus+ Cooperation partnership in youth, brings together partners from five countries to combat food waste while equipping NEETs with valuable skills.

The current 24-month project is a pilot scheme: it will shape and test the programme. The programme itself aims to give young people who are neither in employment nor in education and training (NEET) the information they need to devise innovative solutions to food waste. The young people gain the skills and confidence to make them employable while coming up with innovative ways to get the local community involved in combating food waste.

The project prioritises sustainability and transferability, aiming to create a lasting impact on communities. **FOOD-Y empowers the next generation to drive positive change within a circular economy, addressing food waste and promoting a sustainable future.**

During the pilot stage, the partners will:

1. learn more about the circular economy as applied to the food sector.
2. share expertise and best practices on other youth-oriented initiatives in food waste sector.
3. create learning materials with information about circular economy and food waste.
4. enable young people to find solutions to their community food waste issues.
5. test the programme with young people, gaining active support from local stakeholders.
6. boost the sustainability and transferability of the results by actively informing and involving local and regional stakeholders during and after the project's lifetime.

Main results

- An educators' manual illustrating the circular economy as applied to the food sector, specifically, the food value chain and how to map key actors in it.
- The programme toolkit and digital contents that educators and youth workers can use with young people to prepare their project.



11

Swapp! – Buy the amount you actually need, in a reusable container

Poland, Lublin

Description

Single-use packaging and how to avoid it.

When you go shopping, it's hard to avoid single-use packaging - even if you're fully aware that it generates substantial waste and harms the environment. Consequently, there's **increasing demand for circular alternatives which don't happily generate mountains of waste**. Another disadvantage to the prevailing retail model is that it leads consumers to buy more than they need, resulting in food wastage and storage problems.

The Polish company Swapp! wants to tackle both of these problems: it encourages consumers to act sustainably by urging them to opt for reusable containers when they go shopping. Where feasible, the containers are paper (biodegradable, recyclable and renewable). Its ultimate goal is to enable customers to refill their containers at retail outlets, but there are a number of challenges to be addressed:

- Raising consumer awareness,
- Changing consumers' behaviour,
- Ensuring product variety.

Main results

- Pilot refill stations have been launched in Carrefour and subsequently in other major retail chains in the Polish cities of Warsaw, Wroclaw and Krakow. These refill stations have helped reduce single-use plastic waste significantly.
- Swapp! is currently engaged in talks with several retail chains across Europe. Swapp! aims to become the leading solution provider in this industry, providing the most efficient solution for both producers and retailers.



Eco Repair Score®: a solution for informed and environmentally friendly vehicle repair choices

Belgium, Production Consumption

Description

Eco Repair Score NV and VITO have developed the Eco Repair Score® to assess the environmental impact of a specific repair job. It does this using a single score, with categories from A to E and associated colour coding. This ground-breaking calculation method is based on a Life Cycle Assessment of the repair to the body damage. Factors that can influence the score:

- the repair method (replacement with a new or second-hand part, repair, spot repair, dent removal without painting, etc.),
- manufacturing of new parts or products and packaging them,
- transport of parts and products to the repair shop,
- painting of the parts,
- recycling of parts or products and packaging them after the repair, and
- the energy used by the repair workshop.

The Eco Repair Score® accounts for the climate change impact (expressed in CO₂-eq): it considers 18 environmental impact categories, including ozone formation, emissions of particulate matter, emissions of carcinogenic substances, acidification, consumption of fossil and mineral resources, and water consumption. To validate the accuracy of the results, an independent third-party critical LCA review has also been conducted.

Main results

As part of a pilot project carried out with two Belgian insurers, the Eco Repair Score® has been automated and is now compatible with software solutions used for repair estimates. Therefore, **companies such as repairers, insurers, fleet owners and lease companies can use the Eco Repair Score® to assess, improve and report on their overall environmental performance. Consumers can also use the free calculation tool on the Eco Repair Score® website to identify the most environmentally friendly repair option.**



13

CuCilento: turning by-products into shopping bags

Italy, Ceraso

Description

CuCilento (which can be understood to mean both "Sew slowly" and "Sew in Cilento", the region in Campania, Italy, where this activity is established) is an innovative business project designed by Sarah Khoudja as part of the EU's Empowering Women in Agrifood programme led by the Future Food Institute.

Set up in October 2022, CuCilento is an **upcycling workshop which processes agricultural by-products and other materials** (boat sails, factory scraps, etc.) **classified as waste and turns them into net or fabric bags that can be used for food packaging or shopping.**

Through upcycling, CuCilento reduces the amount of waste which ends up in landfills or incinerators and makes people think about the issues involved when they buy something.

CuCilento achieves this goal in two ways:

- it **provides a sustainable alternative** that limits or eliminates the plastics and bioplastics which are part and parcel of buying and storing food
- it **supports local economies through a widespread workshop model** where people who are isolated or in a difficult situation can work from home and become financially independent.

In future, CuCilento aims to expand its range of products and activities in order to limit textile and raw material waste, enable people to earn an income and develop skills by investing in the local community and its members.

Main results

- Setting up 4 small shops in Rome, Salerno and Naples
- About EUR 10 000 earned in 7 months of work.



14

BRILIAN: Promoting the transition to bio-based economies in rural areas

Spain, Production, Innovation and investments

Description

The BRILIAN project is **designed to support the adoption of sustainable and cooperative business models in rural areas, enabling a smoother transition to bio-based economies**. It plays a fundamental role in revitalising these regions and promoting sustainable economic and social development by transforming primary producers into active players in the supply chain, aligned with the goals outlined in the Common Agricultural Policy (CAP), the Green Deal and the European Bioeconomy Strategy.

With the aim of expanding the business model of agroindustries and harnessing their full potential, **the project will validate ten bio-based value chains** starting from cardoon, safflower and sunflower (in Italy), potato (in Spain) and rapeseed (in Denmark) as raw materials and develop sustainable business models encompassing a wide range of high-value-added bio-products, such as bioplastics, biolubricants, proteins, bioadhesives, bioherbicides and products for animal feed or the cosmetics sector. The project is supported by the Circular Bio-based Europe Joint Undertaking and its members under grant agreement N° 101112436.

Main results

- **Scientific & technological:** Development of circular business models to tap the full potential of all streams and reduce the generation of waste, adapted both to a macrolevel context and to the technologies / processes / feedstocks available at microlevel.
- **Environmental:** Transforming linear value chains into circular bio-based value chains will reduce the overall environmental impact.
- **Socio-economic:** The project will expand the product portfolio of primary production by making use of waste and by-products. This will enable primary producers to diversify their income while reducing risk, and create new jobs and economic opportunities in depressed rural areas.



15

RCA Engineering: Recycling composite materials in a circular plant

Spain, Production, Waste management, Innovation

Description

Composite materials: widely used but tricky to recycle. **Composite materials or polymer matrix composites** are commonly used in sectors such as aeronautics, the automotive and shipping industries, high-level sports equipment and construction due to their mechanical and chemical properties. **The RCA Engineering team has designed a sustainable and circular process for recycling and reusing composite materials (based on glass and carbon fibre) from any sector, and opted for modular plants.** RCA Engineering has designed three modular plants with varying mechanical capacity (production capacity in tons/hour). The modular system uses shipping containers, which can be put together quickly and at a reasonable cost. All models comprise two containers and one baseplate frame which provides a horizontal platform, meaning that the plant can operate on any type of surface. The containers are assembled on a modular steel structure, meaning that the bottom container which stores the shredded material can be replaced easily once it is full. The bottom container contains a vibrating hopper with a radar sensor. The container is equipped with two sliding gates: one for loading the hopper with the crushed and shredded material and the other for emptying it. The upper container houses the machinery needed to process the composite materials. The process can be tailored to the final specifications, which vary depending on what the recycled material will be used for.

Main results

Some of the advantages offered by this system:

- Low energy costs of the process
- Zero emissions and zero waste
- Limited noise pollution
- A one-stop shop solution supplied by a single company
- Optimisation of operations: modular design, implementation, start-up time are reduced
- Cost reduction: about 30% compared to the construction of a traditional plant
- Ideal for remote locations.



16

DiCE - Digital Health in the Circular Economy

Belgium, Waste management

Description

Electronic waste (e-waste) from digital health devices is a complex and growing problem requiring a holistic solution. E-waste from healthcare products may cause biological or chemical contamination, leading to its incineration, with or without energy recovery. This means that all items are destroyed.

Digital Health in the Circular Economy (DiCE) was created to bring key stakeholders together to address challenges associated with the growing use of digital healthcare products and increasing demand for raw materials to manufacture new electronic devices and other equipment.

Main results

- A central objective of DiCE is to extend product lifetime as far as possible.
- DiCE will be focusing on testing and piloting solutions (4 products) for a product's end-of-life.
- It will take into consideration circular design, state-of-the-art refurbishment, remanufacturing and recycling technology that could allow maximum recovery of the product, its components and, when reuse options are no longer available, its materials.
- Thus DiCE will support transition from a fragmented and linear "take-make-waste" business model towards a circular and sustainable one, allowing the reuse of products and recovery of components and raw materials.



17

RecycAl: recovering fabric waste to make heavy-duty bags

Albania, Social enterprise

Description

Circular solutions don't have to be complicated...

The Albanian social enterprise RecycAl is reusing textile waste such as leather scraps or heavyweight fabric like canvas by turning it into heavy-duty bags that can replace industrial polypropylene bags. These circular bags are suitable for industrial-scale manufacturing.

Recycling Albania (RecycAl LLC) was set up in 2022. It focuses on delivering environmental justice and promoting social and environmental projects. Its work is geared towards zero waste and reusing items rather than throwing them out.

The heavy-duty bag project is very much in tune with these values. The enterprise collects fabric waste and diverts it from landfills or incineration. The environmental benefits are obvious, as are the benefits of reusing secondary waste rather than using virgin raw materials to make yet more plastic items.

Main results

- RecycAl has come up with an innovative heavy-duty bag design suitable for industrial-scale manufacturing.
- Reusing textile waste reduces waste and avoids greenhouse gas emissions caused by incineration. It also decreases plastic pollution as plastic bags can be replaced by these bags made from recycled materials.



18

Gravity Wave: From ocean plastic to furniture and recycled raw materials

Spain, Calpe

Description

Not just sand and fish in the sea... sadly.

There's also a truly appalling amount of plastic. All oceans and seas are affected but unfortunately the Mediterranean is right up at the top in terms of sheer quantity. Not a ranking where you want to be number 1.

Gravity Wave is a **social start-up based in Spain**. It focuses on working with small-scale fishermen to collect as much as possible of the **plastic waste fouling the Mediterranean**, from water bottles to a whole load of discarded fishing nets.

It takes money to do this though, and the start-up has come up with a couple of ways to finance its operations. It works with companies, leveraging their need for genuine green credentials to attract customers. Gravity Wave offers a scheme whereby **companies can offset their own carbon footprint by collecting a given amount of plastic**.

The project also **makes designer furniture** from the plastic collected, and puts it up for sale.

Plastic waste and the resulting microplastic is a major environmental problem: Gravity Wave has **come up with a circular way to counter it while raising awareness about the issue**.

Main results

- In three years, 280 tons of plastic waste and fishing nets have been collected
- Gravity Wave works with over 4000 fishermen
- Gravity Wave has developed a unique material made from fishing nets and is engaged in an R&D project to obtain high-quality raw materials from PA, PE and PP nets
- Gravity Wave works with over 75 companies.



19

Knof Institute for Creative Development - a social enterprise

Slovenia, Krško

Description

Knof is a **social enterprise with a focus on circularity and sustainability**. It has now been in operation for 14 years and has developed into a business organisation with a wealth of knowledge and experience in the field of environmental, social and economic challenges, geared towards sustainable development. Knof has already opened five Stara Šola reuse boutiques, using a market model that has positive effects on the environment, the local economy and the community. Now, it is turning to a new project: establishing the first circular laboratory in Slovenia in the city of Krško.

The **circular laboratory** is a training ground for developing and testing circular business models and designing products and services to reduce waste generation. It also has a circular space of over 3000 m² in Krško's Mercator center; this provides space for the reuse boutique, a coworking space, a carpentry, sewing and machine workshop and a sales space. The laboratory has the personnel, know-how, technology and infrastructure to produce various prototypes from waste materials, such as textiles, wood and plastic.

Knof also runs a **programme aimed at individuals and entrepreneurs**. The programme offers a supportive environment for doing dry runs for companies before they open, mentoring for the development and launch of environmentally sustainable business ideas, and the use of FABLAB equipment (such as CNC router and laser cutter).

Main results

- The reuse boutiques offer beautifully preserved clothes, books, home products, obtained as donations from the local community and beyond. This has advantages for the local environment, as it reduces the amount of waste and enables people to shop sustainably.
- Reused furniture has the added benefit of preserving old crafts and skills.
- Knof's recycling boxes enable people to redirect good quality clothes that they no longer need.



20

Arteinborsa: upcycling old banners into fashion accessories, with a hint of history and culture

Italy, Lesignano de' Bagni (Parma)

Description

For years, the voluntary association La coperta di Linus [Linus' blanket] has been making blankets, bags and many other objects using a wide variety of raw materials. The purpose is to sell them and raise funds for the Pediatric Emergency Room and the new Pediatric Oncological Centre in Parma Hospital. For example, this year the association has financed 100% of the cost of a pediatric respirator for the **children's hospital in Parma**.

Parma Municipality, the Confederazione Nazionale dell'Artigianato e della Piccola e Media Impresa (National Confederation of Crafts and SMEs) and La coperta di Linus have launched a project called **Arteinborsa** (Art-in-a-Bag). This project uses old banners from local museums' exhibitions to create bags and accessories, a great example of upcycling. The collection will be available in the local museum shops.

Main results

- A line of accessories and bags made from the poster material of past art exhibitions held in Parma museums.
- The accessories and bags will be sold in museum shops.
- Old banners have been recycled rather than being thrown away.



21

Siptex: A pioneering textile sorting technology for increased circularity

Sweden, Malmö

Description

Textile waste is a growing concern around the world, with the fashion industry alone generating an estimated 92 million tonnes of textile waste each year. Innovative solutions are required to tackle this environmental problem. Consistent quality and large volumes are crucial for textile recycling on a large scale. Manual sorting of textiles cannot meet the market's need for quality-assured products, and this is where Siptex comes in. Located in Malmö, Siptex is the world's first large-scale facility of its kind, sorting textiles by colour and fibre composition through near-infrared light to handle large flows and produce textile fractions suited to different recycling processes. Automated sorting is currently the missing link between collection and high-quality textile recycling, and Siptex aims to bridge that gap. By contributing to increased circularity in the textile value chain, Siptex is strengthening Sweden's position as a pioneer in innovation and the circular economy. The textiles are illuminated, and the light is reflected differently depending on the material. Sensors detect and categorise the fibre type, and compressed air blows the fabric into the correct container. The plant can simultaneously sort three different flows. **This innovative solution is a significant step towards circular textile economy.**

Main results

Siptex handles three categories of textile material:

1. Textile from industry
2. Pre-sorted textiles, and
3. Residual textiles from consumers and industry.

The facility aims to offer a standardised range of quality-assured recycling products with guaranteed fibre composition and colour, adapted to various recycling processes. Examples of products include cotton, wool, polyester, viscose, polyamide, acrylic, and customised products tailored to customers' requirements. Siptex is a ground-breaking facility that uses advanced sorting technology to contribute to increased circularity in the textile value chain.



CircEULAR: understanding the dynamics and levers for societal transformation towards a net-zero emission circular economy

Austria, Waste management

Description

CircEULAR is a four-year European Research and Innovation Action aiming at understanding the dynamics and levers for a societal transformation towards a net-zero emissions circular economy. While there has been significant recent progress in research and theoretical development of the design and overall principles of a circular economy, such work has largely focused on the organisation of production/supply **while conceptual work on the required participation from consumption/demand remains largely underdeveloped**. CircEULAR will develop new modelling approaches for analysing circularity from a systems perspective accounting for:

1. **dematerialisation** and the transition to a service-based economy to limit material stock growth
2. **lifetime extension of material stocks** through repair, maintenance, reuse
3. **waste treatment and material recycling**.

The project takes a comprehensive approach, integrating new data and modeling to analyse economy-wide material stocks, flows, greenhouse gas (GHG) emissions, and interconnected industrial value chains. It also includes in-depth analysis of material-intensive demand sectors such as mobility and buildings.

Main results

CircEULAR intends to integrate new insights on circular economy potentials and impacts into EU and global modelling frameworks for:

- analysing alternative pathways to net-zero GHG emissions
- testing effective policy levers for both circular production and consumption
- assessing outcomes for climate, environment, economy and society, in line with European Green Deal objectives.

Circular Economy Platform: best practice

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