

## Regional project development assistance for the uptake of an Aragonese circular economy

# Mapping of Successful Circular Economy Projects across Europe

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Abstract	This mapping for the RESOURCE project offers a concise overview of impactful circular economy projects and SNE practices across Europe. It showcases diverse initiatives and projects, their strategies, and key success factors, providing valuable insights for stakeholders interested in sustainability and circularity practices.
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## EXECUTIVE SUMMARY

The report, "Mapping Successful Circular Economy Projects across Europe," is aimed at providing an overview of successful circular economy initiatives across various European countries and within European projects. Its primary objective is to enhance the Project Development Assistance (PDA) solution, specifically designed and tested with the Aragon regional ecosystem.

This report highlights the diversity of approaches, strategies, and initiatives that have effectively contributed to the transition from a linear economy to a circular one. It also examines approaches to raising funds for SMEs and startups. The mapping encompasses a review of circular economy projects, initiatives from support organizations, case studies of startups and SMEs operating in the circular economy sector, all of which have received funding across Europe. This report is in no way all-encompassing and particularly considers the CCRI network and the EBN network.

The process involved in compiling this report was thorough, including desk research, analysis of academic papers, industry publications, and databases dedicated to circular economy projects. To gather valuable insights, a targeted questionnaire was developed and administered to project implementers, startups, and SMEs. Additionally, one-to-one meetings were conducted to enrich the data collection process.

The collected data facilitated the creation of concise profiles for noteworthy initiatives within the Resource framework. Furthermore, a cross-analysis of startups, SMEs, Business Support Organizations, and regional projects led to the identification of key pillars for the success of circular projects. These pillars encompass:

- **Access to Funding Components:** ensuring that financial resources and funding opportunities are readily accessible.
- **Capacity Building and Training:** providing comprehensive education and training to enhance the skills and knowledge of stakeholders.
- **Networking and Collaboration:** encouraging and fostering partnerships and collaborations among various stakeholders within the circular economy ecosystem.
- **Technical Support to SMEs:** offering essential technical assistance and guidance to SMEs to facilitate their growth and success.
- **Policy, Advocacy, and Regulatory Frameworks:** advocating for favourable policies and regulations that support and promote circular economy initiatives.

These five pillars will serve as guiding principles for the subsequent activities of the Resource project, facilitating the development of effective strategies and solutions to support circular economy SMEs.

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## ABBREVIATIONS

<b>CE</b>	Circular Economy
<b>BP</b>	Business Plan
<b>EU BIC</b>	Quality-certified organisations that use business and innovation as a force for regional (economic, sustainable, and social) development.
<b>BSO</b>	Business Support Organization
<b>SME</b>	Small & Medium Enterprise
<b>PDA</b>	Project Development Assistance
<b>SIG</b>	Special Interest Group
<b>LCA</b>	Life Cycle Assessment
<b>CoP</b>	Community of Practice

# 1 Introduction and overall strategy

## 1.1 Context and background

Circularity is an essential aspect of the industry transformation towards resource-efficiency, climate neutrality and long-term competitiveness.

The RESOURCE project will study the private funding opportunities needed in circular projects and facilitate their development.

RESOURCE overarching objective is to develop new Project Development Assistance (PDA) services to fund regional circular economy investment projects. More precisely RESOURCE will:

- build an integrated expertise pool to support technically, economically, and legally the regional circular economy pilots SMEs,
- develop innovative financing schemes and business models.
- launch concrete investments.

The project is designed to ensure a high degree of replicability of the PDA and related services. Results will be disseminated to maximize the project's impact in Aragon and beyond.

Circular economy is a priority for the Region of Aragon. The Region has launched a manifestation of interest and identified a portfolio of circular projects in need of funding. Nine of these projects will serve as pilots in the RESOURCE project.

The methodology, that will be developed for the RESOURCE project, will ensure the sustainability of those circular economy projects by potentially completing their private funding, with other sources of financing (European, national, regional public funds).

The RESOURCE methodology consists of seven steps:

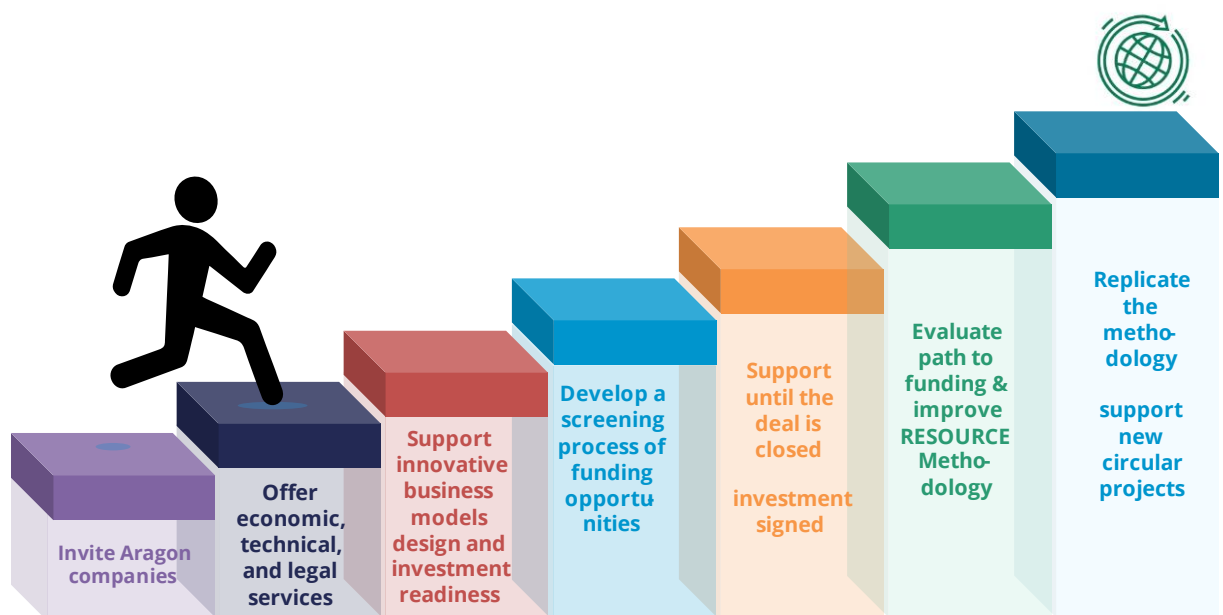


Figure 1: The RESOURCE methodology in 7 steps

## 1.2 Purpose and scope of the report

RESOURCE aims at co-creating a Project Development Assistance (PDA) solution which reinforces Circular Economy projects, supports innovative business models and investment schemes, to help them raise funds from the private market in Aragon.

In RESOURCE, pilot projects will seek funds for an investment of 20M€. The approach developed aims at feeding from European best practices and replicated in other regions. The RESOURCE project is part of the Circular Cities and Regions Initiative (CCRI). It is an initiative of the European Commission, launched by the Directorate-General for Research and Innovation as part of the EU Circular Economy Action Plan 2020. It contributes to the policy objectives of the EU Green Deal, including the 2050 climate neutrality target, and the EU Bioeconomy Strategy. The CCRI is funded by Horizon 2020 and Horizon Europe, the EU's research, and innovation framework programmes. Combining knowledge sharing, technical and financial support, the initiative assists stakeholders across Europe's cities and regions, including regional and local authorities, industry representatives, research and technology organisations and civil society. It provides comprehensive support over the whole life cycle of local and regional circular economy initiatives.

The objective of the mapping is to identify 25 best practices to be benchmarked with the RESOURCE selected projects through the organization of five sessions in five different European countries where best practices will be presented in depth and analysed. Project partners will then select one best practice per session. Those main outcomes: the identification of five best practices will represent the benchmark for the RESOURCE project.

The report's scope will encompass:

- **Project identification and selection.** The report would identify and select a range of successful circular economy projects and SMEs from different sectors.
- **Geographical coverage.** The report will cover projects from various European countries, or within European projects highlighting the geographical distribution of successful initiatives and demonstrating the potential for circular economy adoption.
- **Project profiles.** Each selected project was profiled; outlining the projects or SME's objectives, strategies, key stakeholders, implementation processes, challenges faced, and achieved outcomes and impacts.
- **Best practices and lessons learned.** starting with this mapping report to identify the best practices and following subsequent activities – the organization of five best practice knowledge sharing sessions – the project partners will extract common best practices, innovative approaches, and valuable lessons learned from the featured initiatives.
- **Challenges.** the report will address some challenges, but they will be covered in depth in the best practice knowledge sharing sessions. They will address challenges faced during project implementation, regulatory obstacles, market barriers, and how these were overcome.

## 1.3 Methodology

### 1.3.1 Data collection sources

A comprehensive analysis of various sources was conducted to compile data and develop this report. The mapping started with desk research where project partners shared different sources of their research activities that allowed to identify potential projects. These sources included government reports, academic papers, industry publications, and databases specific to circular economy projects. The data collection process involved gathering information on projects related to circular economy across EU countries.

A questionnaire was developed that was targeted at projects implementers and startups and SMEs operating in the circular economy field.

Projects/initiatives were identified and selected by the consortium based on:

- desk research carried out by partners on similar projects and initiatives;
- an online questionnaire sent out to EBN members, with a particular focus on the Eco-Innovation Special Interest Group (SIG). It was disseminated through regular communication channels to identify players in the circular economy, social media, newsletter, SIG newsletters, etc;
- online/face to face one-to-one meetings. The objective of this task was to ensure that the consortium has a tank of CE projects investment implemented across Europe (both for subsidies received, participation in European projects, private funding, etc.) all the while by guaranteeing a balanced geographical coverage.

Given the lack of responses on the online survey, its format was amended to include more practical details and administered on a one-to-one basis following direct referrals and recommendations. The survey was modified to target not only projects but also startups and SMEs. The online one-to-one meetings were conducted from May to September 2023. In June 2023, EBN held its annual congress during which EBN team members were able to conduct several first meetings to identify projects with best practices to be benchmarked with the RESOURCE selected projects.

The data and information collected through desk research, interviews and questionnaires enabled to draw up a short profile for each initiative identified as interesting in the Resource framework. These files are available in annex of this report.

In the meantime, and after further analysis, main pillars of support were identified. The cross-analysis of the individual initiatives or regional projects allowed to identify main pillars for the success of circular projects. They are described in this report and illustrated with good practices from the individual initiatives and projects.



## 1.3.2 Learnings from preliminary work

Numerous insights have emerged from our preliminary work, offering valuable lessons that can be applied to future project methodologies. These insights primarily pertain to information gathering and encompass the following key observations:

- Low response rate in online surveys: response rates to online surveys tend to be relatively low. Participants may hesitate to engage with online surveys due to perceived time constraints.
- Target initial contact: to establish a solid link to the project, it is desirable to adopt a targeted approach for the initial contact. Participants can be reached through referrals and email introductions, which fosters a stronger connection.
- Effectiveness of referrals: It has been evident that referrals are an effective strategy. Participants are more inclined to refer the right contacts and leverage their networks for collaboration. In the context of our mapping exercise, several referrals have been made, highlighting their value.
- Preference for one-on-one meetings: participants demonstrate a strong preference for one-on-one meetings to gain a comprehensive understanding of the assignment's objectives, processes, and methodologies.
- Preparation time: allowing participants to receive the questionnaire ahead of meetings proves beneficial. This practice provides them with ample time for preparation and allows for a 10-day window after the meeting to complete the questionnaire.

These considerations have had certain implications on the consistency of the collected data. It's important to note that the mapping presented in this report is not exhaustive for several reasons.

- Scope orientation: the mapping was originally intended with specific objectives related to its scope, such as geographical considerations. Particularly, several best practices emerged from EBN members in Portugal, France, and Italy. It does not prevent to engage other organizations in the best practice sessions and enlarge that scope.
- Data availability challenges: while the majority of received data is complete, some surveys and questionnaires shared missing data. The best practice sessions will allow a better understanding of those practices and an in-depth analysis that will be added to the mapping report.
- Dynamic nature of the mapping: as a mapping is inherently dynamic, it is recommended that as the best practice sharing sessions occur and new data becomes available, and further analysis takes place, the mapping is updated into a new version. This approach ensures that the mapping evolves into a living document.

In conclusion, it is important to acknowledge the mapping's limitations while emphasizing its value within the defined scope. It serves as a valuable starting point for ongoing research and refinement throughout the RESOURCE project, providing a foundation for future activities.

## 2 Overview of Circular Economy Projects in Europe

### 2.1 Transition to a circular economy

The transition to a circular economy has gained significant momentum in recent years as a response to environmental challenges and the need for sustainable development. By redefining traditional linear approaches of production and consumption, circular economy proposes a more sustainable alternative by emphasizing the principles of design for longevity, reuse and repair, remanufacturing, recycling, resource efficiency, sharing and collaborative consumption and digital innovation.

The circular economy aims to dissociate economic growth from resource consumption and environmental degradation. It seeks to create a regenerative system where products, materials, and resources are kept in use for as long as possible, and their value is maximized through continuous loops of reuse, remanufacturing, and recycling. By adopting circular principles, businesses and societies can transition towards more sustainable, resilient, and environmentally friendly practices.

Since 2015 and the adoption of the first [circular economy action plan](#) by the European Commission, circular economy projects in Europe are rapidly gaining momentum across various sectors and industries as per the "[Circular economy strategies and roadmaps in Europe](#)" report. To support the transition to a circular economy, the EU has implemented a range of policies and initiatives.

National, regional, and local governments and authorities increasingly encourage the transition towards a circular economy. Strategies to reduce waste, increase recycling, and promote sustainable product design have been set out. For example, the EU has adopted measures to tackle plastic waste, including the Single-Use Plastics Directive and the Plastics Strategy part of the circular economy action plan, and builds on existing measures to reduce plastic waste. These policies aimed to reduce single-use plastics, promote recycling, and encourage the use of sustainable alternatives.

### 2.2 Key sectors and industries embracing circularity.

Many [sectors and industries](#) in Europe have been actively embracing circularity principles to reduce their environmental impact and create a more sustainable future:

- **Manufacturing and Industry.** Various manufacturing sectors are adopting circular principles by designing products for durability, ease of disassembly, and recycling. For example, the automotive industry is exploring remanufacturing processes, where used parts are refurbished to extend their life cycle. The steel industry is also embracing circularity through recycling and closed-loop processes.
- **Textiles and Fashion.** The fashion industry is notorious for its high resource consumption and waste generation. However, many European fashion brands are now incorporating circular practices, such as producing clothing from recycled materials, offering repair services, and promoting clothing rental or resale platforms.

- **Electronics and Technology.** Electronics manufacturers are focusing on designing products with easily replaceable components, encouraging repairability, and recycling e-waste. The European Union's Waste Electrical and Electronic Equipment (WEEE) Directive is driving efforts to recover valuable materials from discarded electronics.
- **Construction and Building.** The construction industry is adopting circularity principles by using recycled or repurposed materials, designing buildings for disassembly, and considering the entire lifecycle of structures. Modular construction and deconstruction strategies are gaining traction.
- **Food and Agriculture.** Circular practices in the food industry include reducing food waste, promoting local and seasonal consumption, and utilizing food waste for energy production or composting. Initiatives like food sharing platforms and community gardens contribute to circularity.
- **Packaging and Plastics.** Packaging is a significant source of waste, but many companies are adopting circular packaging solutions, such as using recyclable or biodegradable materials and designing packaging that can be easily returned, refilled, or repurposed.
- **Energy.** The energy sector is exploring circularity through renewable energy sources and efficient energy management. Strategies like using waste heat from industrial processes for district heating or incorporating energy storage systems contribute to a circular energy model.
- **Chemicals and Plastics.** The plastics industry is moving towards more sustainable practices by developing bio-based and biodegradable materials, promoting recycling and reuse, and reducing single-use plastics. The European Union's Single-Use Plastics Directive is driving significant changes in this sector.
- **Transportation.** Besides the automotive industry, other transportation sectors, such as aviation and shipping, are exploring circular strategies. This includes improving fuel efficiency, exploring alternative fuels, and implementing recycling processes for end-of-life vehicles.
- **Organic material and Biowaste, Waste Management.** The waste management sector itself is embracing circularity by focusing on resource recovery, recycling, and waste-to-energy technologies. Advanced sorting and recycling technologies help recover valuable materials from waste streams.

## 3 Best practices

### 3.1 Best practices within CCRI projects

As RESOURCE is part of CCRI, our mapping efforts have included projects within the CCRI network. Partners are committed to fostering robust collaboration with CCRI projects through various means, including online sessions, events, and active participation in Community of Practice (CoP) meetings. Furthermore, sister projects will actively engage in Best Practice sessions, offering a platform for them to showcase their successful practices and engage in meaningful exchanges with RESOURCE project partners. This collaborative approach ensures a dynamic and productive synergy within the CCRI ecosystem.

#### CircularInvest

Considering that CircularInvest does not provide financial resources to the selected CE projects and offer support and networking opportunities, it is foreseen that great synergies can be created between RESOURCE and CircularInvest through the CCRI meetings and CoP's knowledge exchange. Best practices identified in CircularInvest are related to capacity building, building networks, access to a network of investors and knowledge sharing and will be studied during the workshop sessions in the coming months.

#### HOOP project

The HOOP project supports 8 lighthouse cities and regions in developing large-scale urban circular bioeconomy initiatives that will focus on making bio-based products from urban biowaste and wastewater. The HOOP Urban Circular Bioeconomy Hub created an online platform to foster knowledge exchange and replication in cities and regions across Europe. HOOP will provide PDA to a number of cities in Europe. Several tools developed in HOOP project can be of great value to RESOURCE, such as the matchmaking platform for experts as well as the pool of investors interested in CE.

#### InvestCEC

The InvestCEC project will develop a replicable model for implementing circular economy projects in cities and regions. A model for the initiation of CE projects based on several stages:

- Understanding the local conditions in a city or region and defining priority industries or areas for the implementation of circular economy projects
- Selection of entrepreneurs that can deliver effective solutions.
- Coaching of the selected entrepreneurs to increase their investment readiness.
- Launch of an investment programme including the establishment of a venture capital alternative investment fund.
- A tailored stakeholder platform will be developed to streamline communication and collaboration between all the involved parties.

The effectiveness of the model will be tested in Klagenfurt am Wörthersee, Austria. The largest city in southern Austria, Klagenfurt is constantly seeking new ways to make the city more sustainable. It is represented in the project by Stadtwerke Klagenfurt, the municipal service provider. As well as fostering the circular economy in Klagenfurt, InvestCEC aims to have a Europe-wide impact. A number of activities – including the creation of openly accessible guidelines, tools and materials – will be implemented to foster replication of the InvestCEC model in other cities and regions.

## 3.2 Best practices within EU | BICs

The EBN network, also known as the European Business and Innovation Centre (EU|BIC) network, is a European-wide network of organizations dedicated to supporting innovation, entrepreneurship, and the growth of startups and small and medium-sized enterprises (SMEs). These centres play a pivotal role in promoting economic development, job creation, and innovation within the European Union and beyond. Several EU|BICs were considered for the mapping as well as the SMEs that are beneficiaries of their programs.

Berytech, Beirut based incubator, a member of EBN since 2006, manages and implements several European projects. Such projects include GIMED, STAND UP! etc. and will be considered for this mapping.

### **GIMED, Berytech, Lebanon**

The Green Impact MED Project – Positive Investments for Positive Impacts (GIMED) is an EU-funded project under the ENI-CBC Med Programme aiming at supporting green entrepreneurs in six Mediterranean countries to better access finance and market in the Mediterranean and creating jobs and helping to stimulate the region's green economy.

The project provided trainings, coaching sessions, capacity building workshops and sub-grants to consolidate green business creation and green business development to startups. See also **Toolkit for Green and Circular Entrepreneurship in Annex.**

### **STAND UP! Berytech, Lebanon**

STAND UP! is an initiative aimed at supporting eco-innovative businesses and textile entrepreneurs in five Mediterranean countries in pursuing commercial prospects. The project components include technology transfer, training, financial assistance, market stimulation, and IPR protection. Its aim is to strengthen the value chain and build new cross-border links, making SMEs in the textile and apparel sector more competitive. It also includes proposals for circular textile policy and ecosystem, an online platform for open invention, a soft-landing voucher program, eco-innovation challenges, and marketing assistance for twenty textile business owners.

### **Tagus Valley, Portugal**

TAGUSVALLEY is a Science and Technology Park located in Portugal, that provides services to entrepreneurs, startups, SME's and Municipalities in different areas from incubation, Technology Transfer and applied research in different sectors such as education, Digital

Literacy and Circular Economy. TAGUSVALLEY is strongly connected to the local, regional and national innovation ecosystems and they manage a number of projects in circular economy, EdTech through the ATEGINA serious game for circular economy education and many projects in bioeconomy and on agro-industrial by-products.

### **FILSE, Italy**

FILSE is lead partner of [EcoeFISHent project](#). It is a project funded by H2020 that aims at demonstrating a replicable regional cluster for deploying climate-neutral, circular economy solutions. The project aims at interconnecting Blue Economy and Green Economy to reconcile human activities with marine ecosystems and Protected Areas. It will also pursue eco-efficient valorization of fishing and fish industries side-streams. The EcoeFISHent innovative technologies will enable sustainable and efficient exploitation of fish processing side-streams for food supplements and skin care products, biodegradable and compostable barrier layer for food packaging, soil fertilizer, oil for biodiesel and chitin for cosmetic applications. The project aims to create a territorial cluster in Northwest Italy, for the development of new supply chains based on principles of circular economy and valorization of industrial waste, in the fish sector.

### **FIBRENAMICS, Portugal**

CIMPA (which belongs to [Fibrenamics](#) project). It is part of EBN member, Nonagon - Parque de Ciência e Tecnologia de S.Miguel in Portugal. Fibrenamics Association – Institute for Innovation in Fiber and Composites Materials, operates in several sectors with an emphasis on architecture, construction, sport, medicine, protection, and transport. It is currently recognized by the European Commission as an example of transferring scientific and technological knowledge in the field of advanced materials and nanotechnology, having more than 300 international partner entities.

Fibrenamics is a platform dedicated to advancing materials science and technology, with a particular focus on developing innovative and sustainable materials for various industries. Its collaborative approach and commitment to sustainability make it a valuable resource for businesses and researchers seeking to push the boundaries of materials innovation.

It originated in Portugal and has gained international recognition for its work in the field of materials science and technology. Fibrenamics primarily concentrates on the development and exploration of high-performance and sustainable materials for various industries, including textiles, construction, automotive, aerospace, and more.

### **Q-Plan, Greece**

Q-Plan, a Greek consultancy firm, specializes in services for Northern European countries and actively participates in EU and international projects. Their expertise lies in supporting national business development, investment readiness, and investment schemes. Their recent project, "Maker Movement and Circular Maker Spaces," is distinctive for its circular acceleration approach, helping businesses prepare for investment through pitching sessions and webinars. What sets this project apart is its unique inclusion of investment days hosted by various cities, involving municipalities and private organizations. "Pop Machina," the

project's name, was part of the H2020 program and involved 23 partners over four years, starting in 2018. It achieved success in diverse sectors, fostering collaboration and innovation, with policy recommendations emphasizing soft loans, tax incentives, and the removal of VAT for circular economy projects. A comprehensive handbook is available for further insights into their circular maker accelerator approach.

### 3.3 Best practices within SMEs and Startups

The mapping includes SMEs that are part of the EU|BIC network as well as SMEs that were referred by project partners. The SMEs associated with the EU|BIC network typically bring with them a wealth of resources, expertise, and innovation capabilities, given their connection to this network. At the same time, initiatives referred by project partners allowed to tap into a broader spectrum of organizations, potentially uncovering unique insights, practices, and perspectives.

#### **Ecorbio, Cyprus, CyRIC EU-BIC**

Ecorbio Ltd. is developing an innovative biopolyol production process to produce high-quality biopolyols from waste and biomass by-products. They provide specialized biopolyols for direct use in bio-polyurethane synthesis for various end-user products like foams, adhesives, and coatings. Ecorbio aims to accelerate the creation of circular economy-friendly goods and solutions. They established a pilot facility in Cyprus under the CRUDYOL project, conducting tests to produce waste-derived biopolyols for the polyurethane sector.

In the case of Ecorbio, the startup identified that it was difficult to test the products with established industrial stakeholders. Despite expressed demand, few were willing to take the risk and invest in R&D – testing, formulating to discover appropriate applications. Through the BSO, they could experience with technology at bench scale, get the support from engineering know-how and capabilities from supporting local EU-BIC and have a strong collaboration with knowledgeable and resourceful partners.

CyRIC EU-BIC, EBN member and its incubator GRAVITY VENTURES provided Business and Innovation support services, infrastructure and provided a conducive environment for a new company to be formed.

#### **CIRCUL'EGG, France, WACANO EU|BIC**

Circul'Egg is a sustainable circular economy company that recycles eggshells into biowaste to produce biomolecules like calcium carbonate, hyaluronic acid, and collagen. They have developed multiple patents and have opened their first factory in Britany in 2023. They have developed a process to recycle the eggshells through multiple patents, finding multiple application and markets to sell the new components to.

Circul'Egg was supported by WACANO an EBN member, they had access to small grants, several key stakeholders, potential clients, and potential partners. They had access to government representatives from their region. They were able to exchange best practices with other alumni from the network and visited their factories.

### **Tchaomegot, France, Beauvaisis**

TchaoMegot is a start-up offering an ecological technology for cleaning up cigarette butts in France. They collect, decontaminate, and recycle cigarette butts without water or toxic solvents to transform them into thermal insulation for buildings or textiles. Their aim: to collect and recycle the 25,000 tonnes of cigarette ends thrown away in France every year. Their participation to the mapping was recommended as a best practice from EU|BIC Beauvaisis in France.

### **Ritleng, France**

Ritleng, a company based in France's Alsace region, is a leader in construction waste recycling and the circular economy. Founded by the Ritleng family, the company specializes in treating complex plaster and is expanding with a second site in Beauvaisis. Their mixed economic model combines environmental responsibility and business acumen, recycling previously landfill-bound construction waste. This approach not only aligns with environmental goals but also offers economic benefits. Established 12 years ago, Ritleng has developed innovative recycling processes, transforming the waste industry. Support from Beauvaisis and Hauts-de-France has been pivotal, aiding in investor identification, financial backing, and political access. With 30 employees and plans to double the workforce, Ritleng's success hinges on technical expertise, efficient resource management, continuous improvement, and political support for circular economy initiatives.

## **3.4 Best practices within region and cities**

As regions and cities are great contributors to the global effort of creating a more circular and sustainable future. It is essential to identify the best practices coming out and creating economic opportunities from cities and regions. In this section we have identified several initiatives within Europe and European projects.

### **Circular Flanders, Belgium**

Circular Flanders is the hub for the Flemish circular economy. Their role is the promotion of Circular Economy dedicated to promoting and supporting the transition from a linear economy to a circular economy. They support businesses by offering support and guidance to help them adopt circular economy practices. They also advocate for policy changes and initiatives at regional, national, and European levels to create a more conducive environment for the circular economy.

### **Green Innovation Intellectual Property Rights Guidebook, Berytech, Lebanon**

The development of the “Green Innovation Intellectual Property Rights Guidebook” to empower the local ecosystem and public bodies to raise the profile of innovation in the green entrepreneurship sector and support innovators in building green IP innovations. The Green Innovation Intellectual Property Rights Guidebook that was developed focuses on the environment and circular economy-related innovations.



### **The EcoSwitch Coalition, Lebanon**

The EcoSwitch Coalition was created in Lebanon to support the circular economy through partnerships with corporate and academia. It is a network of organisations that support eco-entrepreneurs in Lebanon as well as a partnership of well-established institutions, NGOs and companies. It has been created to strengthen the support to eco-entrepreneurs in Lebanon, within the framework of the Lebanese Switchers Support National Partnership, as part of the SwitchMed Green Entrepreneurship Programme. The coalition aims to help local green entrepreneurs thrive and grow their positive environmental impact by providing them with a variety of support mechanisms based on their needs.

### **STAND UP! Berytech, Lebanon**

Stand Up! Has a strong contribution to policymaking as policymaking is very much integrated in STAND Up! and this is mainly due to a dedicated set of activities. From one side, the project will work with stakeholders to develop national policy recommendations and sustainable textile and clothing roadmaps for Lebanon, Egypt and Tunisia, and, from the other side, it will work with public authorities and intellectual property agencies to facilitate improved IPR to ventures. The commitment of decision-makers to use the project's strategic roadmaps and keep on improving IPR will maintain the shift towards a thriving green startup ecosystem, and better skilled to transition the textile and clothing sectors to an inclusive circular economy.

### **Hauts-de-France Rev'3, France**

"Hauts-de-France Rev'3" (short for Hauts-de-France Région à Énergie Positive, Économie circulaire et Bâtiment Durables) is a regional development strategy and initiative in the Hauts-de-France region of northern France. Rev'3 focuses on several key areas, including sustainable energy, circular economy, and sustainable building practices. Key aspects of how Hauts-de-France Rev'3 contribute to the regional policy are also through, Economic Development, Collaboration and Partnerships, and Innovation and Research.

### **The Basque Circular HUB**

The Basque Circular HUB is the Advanced Circular Economy Services Centre of the Basque Country, led by Ihobe, the Basque Environmental Agency. It is one of the key instruments of the Circular Economy Strategy of the Basque Country 2030. Its aim is to build capacities on circular economy for the Basque companies, mainly for SMEs. It is based on early intelligence, pilot projects and training to foster Basque competitiveness through circular economy.

RESOURCE will collaborate with this project as their tools and practices can be replicated in regions facing similar challenges. Their methodologies will support the project in building its capacities related to the lack of professionals trained in circular economy and life cycle thinking.

### **Agglomération du Beauvaisis**

The Agglomération du Beauvaisis, located in the Beauvais region of France, is a local government entity responsible for coordinating and managing various services and resources within its territory. Its primary role includes urban planning, economic development,

transportation, waste management, and promoting the overall well-being of its residents. The Agglomération du Beauvaisis plays a key part in enhancing the quality of life, supporting local businesses, and fostering sustainable development in the region.

## 4 Main Pillars

Supporting Circular Economy SMEs requires a comprehensive approach that considers the unique challenges and opportunities associated with the circular economy, but also common challenges related to operating and raising funds for any business. The main pillars identified must be integrated into a holistic support framework that considers the specific needs and contexts of Circular Economy SMEs, ensuring a coordinated and effective approach to promote sustainable and circular practices.

While conducting the mapping exercise - reviewing the different initiatives and conducting the interviews and questionnaires with the different projects, startups, and SMEs - it was identified that best practices could be grouped into five main pillars. Those five pillars will serve to group the Best Practices that should be used when supporting Circular Economy SMEs and will be considered for the Resource project. They are:

1. Access to funding components
2. Capacity Building and Training
3. Networking and Collaboration
4. Technical Support to SMEs
5. Policy, Advocacy and Regulatory Frameworks

Currently in the RESOURCE project, the following activities are foreseen and implemented by the partners, covering overall the 5 pillars. The project offers a comprehensive range of services aimed at guiding the pilot projects and SMEs. The knowledge exchange that will result from the best practice sessions in the coming months will allow to improve the support provided and develop tools and methodologies that could be replicated in other projects.

They are presented in the table below:

Pillar identified	Activity	Description	Status
Technical Support to SMEs	Environmental assessment	The environmental impact of projects is rigorously evaluated using Life Cycle Assessment (LCA), allowing for the identification of areas for improvement and the exploration of circularity strategies	Presentation of the LCA results to the companies through virtual sessions and reporting the LCA results in the confidential technical report
	Technical assessment	The technical assessment ensures that projects are technically sound and viable	On-going with ensuring the RESOURCE methodology and the projects supported are technically viable and unlock important technical challenges
Policy, Advocacy and Regulatory Frameworks	Legal and regulatory assessments	Legal and regulatory assessments help projects navigate complex legal landscapes	On-going with participation of actions devoted to policy alignment, and identification of synergies between both local and EU actors.
Access to funding components	Economic feasibility	Reviewing business plans and supporting business development efforts.	On-going and close coordination with projects to develop their business plans
	Fundraising strategy	Fundraising strategy and assisting in creating effective communication and funding strategies.	Activities related to identifying and attracting investors and matching with investors
Networking and Collaboration	Ecosystem relations	Partners are also responsible for providing an overview of CE projects and best practices and developing ecosystem relations that could support the projects	Activities related to the mapping and building ecosystem relations to support the network and projects
Capacity building	Transversal activities including training workshops, coaching and mentoring for legal, technical, business and access to funding activities.		

## 4.1 Access to Finance

Access to funding is essential for circular economy SMEs to innovate, scale, compete, and overcome the unique challenges associated with transitioning to circular business models. CE SMEs often require innovative technologies, materials, and processes. Funding allows them to invest in research and development, enabling them to create and refine their circular economy solutions. They also require sometimes heavy initial investments in infrastructure, equipment, and production capacity to scale-up their operations as well as funding for market entry, certification, and standards, etc.

BSO's or CE projects should ensure SMEs have facilitated access to funding sources specifically tailored for circular economy initiatives, including grants, low-interest loans, and venture capital. The subsequent actions of the project through the best practice sessions will cover the type of funding available, how to make it accessible to SMEs at different stages, the understanding of CE for investors, the right mix of public versus private funding, etc.

An essential component, not only for the organizational aspect but also the funding access is the team itself. It is an essential part of qualifying for funding opportunities, investors often consider the team as one of the most important factors if not the most important one when deciding whether to invest in a business. Components to consider are diverse skill sets, complementary roles, networking abilities to properly attract investors and bringing their own networks, which can be valuable for partnerships, funding, and gaining access to resources and opportunities. In the best practice sessions, SMEs founders and team will describe the actions they have implemented to secure funding and get the trust of their investors.

The mapping has allowed to identify several best practices related to access to funding and they will be presented during the best practice sessions. They stand as valuable lessons and strategies for entrepreneurs and organizations seeking financial support. They include but are not limited to:

- The importance of diverse funding sources, successful SMEs often tap into a combination of funding streams, including government grants, private investments, angel investors, venture capital, and crowdfunding. Relying on a single source of funding can be risky, and diversification enhances resilience.
- Strategic networking as an essential component to identify the key actors; in RESOURCE, meetings are organised with potential investors to understand their preferences and criteria to invest in CE SMEs and in parallel sessions are also organised to allow SMEs to understand the different funding sources available, both initiatives enabling entrepreneurs to tailor their pitches accordingly.
- Excellent pitching and communication skills; intensive pitching training and workshops are often cited as contributing to fundraising success.
- Access to professional guidance; seeking guidance from experts, consultants, or specialized advisors can significantly enhance the fundraising process and ensure alignment with investor's goals.

## 4.2 Capacity Building and Training

Capacity building and training are essential for circular economy SMEs as they empower these businesses with the knowledge, skills, and capabilities needed to successfully implement circular practices and remain competitive. CE Projects supporting CE SMEs should develop and provide training and capacity-building programs to help them acquire the necessary knowledge and skills for circular business models, including product design for longevity, material recycling, circular design principles and frameworks and identify a pool of experts and coaches who can support them in the transition to circularity. CE SMEs should also get the generic support provided to any business related to financial, access to markets, risk management, employee engagement and retention.

Throughout this mapping, several good practices were identified and will be covered in the best practice sessions. Business Support Organizations (BSOs) have invested time and efforts in developing innovative tools to support CE startups and SMEs such as SwitchMed green entrepreneurship methodology and Green Business Plan (GBP). They will be explored in the best practice sessions bringing together the BSOs as well as their startups and SMEs beneficiaries to explore how they were implemented, which formats and tool were used, shortcoming and potential improvements and how to best duplicate them.

## 4.3 Networking and Collaboration

As a principle, BSOs are key in developing networks and partnerships for their beneficiaries. CE Projects should foster collaboration and networking opportunities among Circular Economy SMEs, larger businesses, research institutions, and government agencies to share knowledge and resources. International collaboration and partnerships should be promoted to exchange best practices and enable SMEs to access global markets as well as assisting SMEs in obtaining certifications and labels that verify their circularity efforts, which can boost their market access and credibility.

In the mapping conducted, it was identified that joining networks, industry associations, and collaborative partnerships was essential for SMEs in the circular economy sector. Participation in these networks provided valuable opportunities for knowledge sharing, collaboration, and market access as with the example among others of RITLENG, the WACANO BSO and several examples within Berytech.

## 4.4 Technical Support to SMEs

Circular economy practices often require specialized technical knowledge and expertise in areas such as sustainable design, materials management, and recycling processes. Training programs, access to a pool of technical experts, mentors and coaches can equip SMEs and their employees with the necessary skills to implement circular strategies effectively.

During the best practice sessions, we will focus on how support programs can provide the technical knowhow needed for circularity (resource efficiency and waste reduction, reuse, and recycling to minimize environmental impacts, etc.). Technical support covers areas such as: focusing on the product itself with product design, supply chain optimization with the focus

on durability, reparability, and recyclability, considering the entire lifecycle of the product and helping SMEs to optimize their supply chains to reduce waste, improve transparency, and ensure the ethical sourcing of materials. Also facilitating the adoption of innovative technologies and digital tools that enable circular economy practices, such as blockchain for traceability or AI for resource optimization.

In the case of Ecorbio, the startup identified that it was difficult to test the products with established industrial stakeholders. Despite expressed demand, few were willing to take the risk and invest in R&D – testing, formulating to discover appropriate applications. Through the BSO, they could experience with technology at bench scale, get the support from engineering know-how and capabilities from supporting local EU-BIC and have a strong collaboration with knowledgeable and resourceful partners. This is of utmost importance as piloting and testing the project before seeking significant funding can be a strategic move.

## 4.5 Policy, Advocacy and Regulatory Frameworks

As a project or consortium of projects, efforts should be made to push for the development and implementation of supportive policies and regulations that incentivize circular practices, such as tax incentives, subsidies, etc. and advocating for the CE initiatives at the regional and national levels, raising awareness about its benefits and encouraging policymakers to prioritize it.

In the preparation of the mapping several initiatives were identified at the regional and local level. These initiatives serve as examples of circular economy practices, demonstrating the tangible benefits they bring to communities and economies. They will be introduced in the best practice sessions along with the BSO and SMEs from their region to see the value of the support in the region. Some of them are: Circular Flanders, the hub for the Flemish circular economy, the EcoSwitch Coalition, to support the circular economy in Lebanon through partnerships with corporate and academia, Hauts-de-France Rev'3, a regional development strategy and initiative in the Hauts-de-France region of northern France, the Basque Circular HUB, one of the key instruments of the circular Economy Strategy of the Basque Country.

## 5 Next Steps & Conclusion

The activities carried out in developing the report, "Mapping of Successful Circular Economy Projects across Europe," have produced valuable insights. They not only enrich the methodologies for Circular Economy projects but also shed light on the ongoing activities of the RESOURCE project. Our findings revealed a diverse array of approaches at various levels, be it regional, or within Business Support Organizations, or SMEs. It's evident that there's no universal formula for success in the CE landscape. These initiatives will be featured in the forthcoming best practice sessions, presenting opportunities for project stakeholders to identify models worthy of replication or integration into the RESOURCE methodology.

Several noteworthy best practices have already emerged. For instance, regions offering supportive regulatory frameworks and incentives provide a competitive edge to circular projects. Similarly, ecosystems that provide diverse funding options at different stages have proven to be advantageous. Or BSOs that have developed specialized tools and frameworks tailored to the needs of CE startups and SMEs.

As we look ahead, our partners are organizing activities focused on understanding the requirements of investors and SMEs seeking funding, with the aim of establishing meaningful connections. The upcoming best practice sessions will showcase projects and initiatives featured in this report, fostering the selection of models that align with our project's goals.

Moving forward, RESOURCE is committed to continual refinement and enhancement of its methodology, guided by the lessons drawn from mapping successful projects. This mapping report is envisioned as a living document, one that will track and document the evolution and impact of successful circular projects over time.

## 6 Annex: Best Practices Overview

The following section covers the different organisations and SMEs that were considered for the mapping and are organised in alphabetical order.

### Agglomération du Beauvaisis, France

The Agglomération du Beauvaisis, located in the Beauvais region of France, is a local government entity responsible for coordinating and managing various services and resources within its territory. Its primary role includes urban planning, economic development, transportation, waste management, and promoting the overall well-being of its residents. The Agglomération du Beauvaisis plays a key part in enhancing the quality of life, supporting local businesses, and fostering sustainable development in the region.

The Agglomération du Beauvaisis, supports SMEs at the policy level through various initiatives and policies aimed at promoting economic growth and entrepreneurship. They provide support through:

- business incubation and acceleration; access to resources, mentoring, and networking opportunities to SMEs
- access to finance; support in identifying funding sources available,
- support in local regulations and administrative processes
- training and education programs for SME owners and employees on business management, technology adoption, and market expansion
- access to participation in larger programs
- networking and collaboration

### Basque Circular HUB: Advanced Circular Economy Services Centre of the Basque Country

The [Basque Circular HUB](#) is the Advanced Circular Economy Services Centre of the Basque Country, led by Ihobe, the Basque Environmental Agency.

It is one of the key instruments of the Circular Economy Strategy of the Basque Country 2030. Its aim is to build capacities on circular economy for the Basque companies, mainly for SMEs. It is based on early intelligence, pilot projects and training to foster Basque competitiveness through circular economy. It responds to two barriers:

- Lack of professionals trained in circular economy and life cycle thinking.
- Lack of resources of SMEs to identify and anticipate to challenges related to circular economy.

It provides 4 different services:

- Learning: Educational activities for young people, teachers and in-house staff, consisting of specific courses in collaboration with enabler agents
- Working: Technical projects with companies, involving young people on placement and themed experts in each of the subjects addressed, where possible



- **Observatory:** It tracks all alerts of interest related to the implementation of instruments and concepts linked to the Circular Economy and draws up monitoring reports and market trends.
- **Tools:** Methodologies and tools for the application of Circular Economy principles. Mainly aimed at SMEs, they arise from the knowledge acquired in the development of pilot projects with large companies and pioneering actors in the Circular Economy.

### **Circular Flanders, Belgium**

In the Flanders region of Belgium, Circular Flanders is the hub for the Flemish circular economy. It is a partnership of governments, companies, civil society, and the knowledge community. The Government of Flanders has set the circular economy as one of the seven transition priorities and appointed the OVAM (the Public Waste Agency of Flanders) as the initiator of Circular Flanders.

The circular economy incubator of Circular Flanders supports SMEs in developing circular business models through collaboration and support programs. It is an initiative that focuses on promoting and advancing the principles of the circular economy. Circular Flanders is an integral part of the broader efforts within Flanders to transition to a more sustainable and circular economy.

Circular Flanders is the hub for the Flemish circular economy. Their role is the promotion of Circular Economy dedicated to promoting and supporting the transition from a linear economy to a circular economy. They support businesses by offering support and guidance to help them adopt circular economy practices. They also advocate for policy changes and initiatives at regional, national, and European levels to create a more conducive environment for the circular economy.

As per the report 'Circular Flanders Retrospective Report 2017-2019', OVAM, in coordination with Circular Flanders, takes the lead when the Circular Economy, among others, is on the CCIEP\* agenda. They work together to conduct international missions. These are both incoming (reception of delegations) and outgoing missions (accompanying Flemish or Belgian delegations abroad). They also regularly give lectures or presentation on Circular Flanders at European forums.

Best practices identified in Circular Flanders are related to the support at the policy level, capacity building, building networks, and knowledge sharing.

\*CCIEP: The Coordination Committee for International Environmental Policy (CCIEP) was created in 1995. This committee is the result of a cooperation agreement between the Federal State, the Flemish Region, the Walloon Region and the Brussels-Capital Region concerning international environmental policy.

### **CIRCUL'EGG, France (WACANO EU|BIC)**

Circul'Egg is a sustainable circular economy company that adds value to industrial by-products. Their ambition is to make sustainable use of industrial by-products and they started with eggshells. They value eggshells and membranes by transforming them into high value-added

ingredients for other industries. When they started in 2020, they wanted to give value to something that no longer had any: bio-waste.

More specifically, they recycle eggshells into biowaste to produce biomolecules like calcium carbonate, hyaluronic acid, and collagen.

They have developed multiple patents and have opened their first factory in Britany in 2023 and are planning to open new factories in the long term. They have developed a process to recycle the eggshells through multiple patents, finding multiple application and markets to sell the new components to.

Through the support organizations, EBN network and French network, they had access to small grants, several key stakeholders, potential clients, and potential partners. They had access to government representatives from their region through the support of Wacano. They were able to exchange best practices with other alumni from the network and visited their factories.

On the organization level, their strength lies also in the right team management and strong advisory board. They received strong media and press coverage as they had a strong PR strategy that allowed an active participation in fairs and conferences.

On the funding side, Circul'Egg faced challenges in securing private and public funding, due mainly to a lack of sector understanding from the investors. A challenge that was identified for other circular economy companies. They identified that private and public funding were not available for an industry startup at their stage. For private funding, they were challenged by VCs on their ability to capture the market. For public funding they identified a gap between the first stage of public funding in industry (1 million euros) to the second one of 15 million euros that is more adequate for SMEs rather than startups.

### **Circular Invest project**

RESOURCE project partners will work closely with other CCRI projects. One of them, CircularInvest project, is an initiative funded by the European Union (EU) under the Horizon Europe programme, it is one of the Project Development Assistance (PDA) projects operating under the Circular Cities and Regions Initiative (CCRI) of the EU.

CircularInvest closes the gap between project developers and investors by helping circular economy projects across Europe become investment-ready and increase their chances to secure financial resources. It helps promising circular economy projects develop by providing them an access to a large network of experts in multiple fields. The project mainly focuses on:

- Circularity Optimisation
- Fundraising
- Business Plan Development

More specifically, project holders will:

- Benefit from tailored mentoring sessions delivered by experts to improve circularity, develop a business plan and help secure funding,
- Participate in peer-to-peer online workshops with the other supported circular economy project promoters.

- Join online and live pitch sessions with potential investors
- Take part in knowledge transfer and networking events, as well as a Community of Practice.
- Promote their projects through CircularInvest channels.

As CircularInvest does not provide financial resources to the selected circular economy projects and will offer support and networking opportunities, there are great synergies that can be created between RESOURCE and CircularInvest. Through the CCRI meetings and CoP's knowledge exchange is encouraged to develop synergies.

Best practices identified in CircularInvest are related to capacity building, building networks, access to a network of investors and knowledge sharing.

### **Ecorbio, Cyprus**

Ecorbio Ltd. is developing an innovative biopolyol production process to produce high-quality biopolyols from waste and biomass by-products. They provide specialized biopolyols for direct use in bio-polyurethane synthesis for various end-user products like foams, adhesives, and coatings. Ecorbio aims to accelerate the creation of circular economy-friendly goods and solutions. They established a pilot facility in Cyprus under the CRUDYOL project, conducting tests to produce waste-derived biopolyols for the polyurethane sector.

A system has been developed to convert waste biomass and industrial byproducts into high-quality biopolyols, which can replace less environmentally friendly biochemicals in the polyurethane industry. The technology has progressed from bench size to commercially applicable scale, with validation efforts allowing for cost optimization and identifying major roadblocks. Local businesses have been engaged for testing, joint proposals, and services, while academic institutions have been engaged for grant applications and services. The project also seeks collaboration with local NGOs.

CyRIC EU-BIC and its incubator GRAVITY VENTURES provided Business and Innovation support services, infrastructure and provided a conducive environment for a new company to be formed.

Testing the products with established industrial stakeholders is difficult. Despite expressed demand, few are willing to take the risk and invest in R&D – testing, formulating to discover appropriate applications.

- Experience with technology at bench scale.
- Engineering know-how and capabilities from supporting local EU-BIC.
- Collaboration with knowledgeable and resourceful partners.

### **FIBRENAMICS, Portugal**

CIMPA (which belongs to [Fibrenamics](#) projet). It is part of EBN member, Nonagon - Parque de Ciência e Tecnologia de S.Miguel in Portugal. Fibrenamics Association – Institute for Innovation in Fiber and Composites Materials, operates in several sectors with an emphasis on architecture, construction, sport, medicine, protection, and transport. It is currently recognized by the European Commission as an example of transferring scientific and

technological knowledge in the field of advanced materials and nanotechnology, having more than 300 international partner entities.

Fibrenamics is a platform dedicated to advancing materials science and technology, with a particular focus on developing innovative and sustainable materials for various industries. Its collaborative approach and commitment to sustainability make it a valuable resource for businesses and researchers seeking to push the boundaries of materials innovation.

It originated in Portugal and has gained international recognition for its work in the field of materials science and technology. Fibrenamics primarily concentrates on the development and exploration of high-performance and sustainable materials for various industries, including textiles, construction, automotive, aerospace, and more.

Main areas to consider:

- **International Presence:** Over the years, Fibrenamics has expanded its presence internationally, collaborating with organizations and companies from around the world. This global network allows for greater opportunities for cross-border research and development initiatives. Example: Fibrenamics in the Portuguese delegation for the textile industry into China as part of the University of Minho's innovation ecosystem. Fibrenamics International Mission to Japan.
- **Collaborative Network:** Fibrenamics collaborates with academic institutions, research centers, businesses, and entrepreneurs to foster innovation and technology transfer. By connecting various stakeholders, the platform facilitates the development and commercialization of new materials and products.
- **Knowledge Transfer:** Fibrenamics serves as a hub for sharing knowledge and expertise in materials science and technology. It conducts workshops, seminars, and educational programs to disseminate information and promote best practices in the field.

## **GIMED, Lebanon**

Capacity building program & e-learning platform

The Green Impact MED Project – Positive Investments for Positive Impacts (GIMED) is an EU-funded project under the ENI-CBC Med Programme aiming at supporting green entrepreneurs in 6 Mediterranean countries to better access finance and market in the Mediterranean and creating jobs and helping to stimulate the region's green economy. It is implemented by EBN member, Berytech in Lebanon.

The project provided trainings, coaching sessions, capacity building workshops and sub-grants to consolidate green business creation and green business development to startups.

The program results in numbers:

Startups (200+) received capacity building training on green business practices, eco-innovation, and circular economy in all six partner countries, with 40 receiving training in Lebanon. 120 startups received coaching sessions on HR, operations, sales, marketing, and development. Networking events were held in all six countries, and 16 startups held cross-

border B2B meetings, with 8 from Lebanon. Eight sub-grants were also awarded to consolidate business creation and development in Lebanon.

The beneficiaries were able to raise prizes in grants and competition awards.

- Government grants/funding
- Private investments/Venture capital
- Crowdfunding
- Self-funded by the organization

This e-learning platform is developed to enhance the knowledge of sustainable businesses and targets the following groups: entrepreneurs, Business Support Organizations, GIMED partners and financial institutions.

### **Green IPR Guidebook, Lebanon**

#### GREEN INNOVATION INTELLECTUAL PROPERTY RIGHTS GUIDEBOOK

With the objective of growing the innovation capabilities in the green sector in Lebanon and the Mediterranean, Berytech launched a consultancy mission to create a “Green Innovation Intellectual Property Rights Guidebook” to empower the local ecosystem and public bodies to raise the profile of innovation in the green entrepreneurship sector and support innovators in building green IP innovations. The Green Innovation Intellectual Property Rights Guidebook that was developed focuses on the environment and circular economy-related innovations.

The Guidebook’s objectives were to:

- Guide local stakeholders and eco-innovative ventures on how to develop, commercialize and protect their IPR
- Improve green and circular market opportunities to support eco-innovative ventures
- Raise quality standards and opportunities by applying suggested frameworks to support and trade with future eco-entrepreneurs.

The green IPR handbook’s objective is to enable relevant public institutions and stakeholders (academia, entrepreneurship partners, support organizations, etc.) to better support eco-innovative entrepreneurs in their region. The guidebook covers:

- Developing Green IP Innovation Projects: Diagnosis of the IP-innovation market on the level of the environment and circular economy to guide innovators to develop green IP projects that apply to the market, including market opportunities and emerging trends in the sector applicable to Lebanon, industry, and value chain needs in the green sectors, green standards and regulatory/environmental indicators requirements to be compliant with regional markets, agenda 2030 related priorities.
- Protecting Green IPR in Lebanon: Steps needed and structures available to guide eco-innovators in protecting their green IPR in Lebanon.
- Commercializing Green IPR: Options available to commercialize green IP projects and develop successful collaborations with industrialists.

## HAUTS-DE-FRANCE REV'3, FRANCE

"Hauts-de-France Rev'3" (short for Hauts-de-France Région à Énergie Positive, Économie circulaire et Bâtiment Durables) is a regional development strategy and initiative in the Hauts-de-France region of northern France. Rev'3 focuses on several key areas, including sustainable energy, circular economy, and sustainable building practices. Key aspects of how Hauts-de-France Rev'3 contribute to the regional policy are:

- **Sustainable Energy (Énergie Positive):** The initiative aims to transition the region towards becoming a positive-energy region. This involves increasing the use of renewable energy sources, improving energy efficiency in various sectors, and reducing greenhouse gas emissions. The goal is to have the region produce more energy from renewable sources than it consumes.
- **Circular Economy (Économie Circulaire):** Hauts-de-France Rev'3 promotes circular economy principles, which involve reducing waste, reusing materials, and recycling or repurposing resources to minimize environmental impact and create economic opportunities. The initiative encourages businesses and industries in the region to adopt circular economy practices.
- **Sustainable Building (Bâtiment Durables):** Sustainable construction and building practices are a key component of Rev'3. This includes promoting energy-efficient building designs, green building materials, and sustainable urban planning. The goal is to create more environmentally friendly and energy-efficient buildings and infrastructure.
- **Economic Development:** Hauts-de-France Rev'3 is closely linked to economic development efforts in the region. By promoting sustainable practices in energy, the circular economy, and construction, the initiative aims to create new business opportunities, attract investments, and generate jobs.
- **Collaboration and Partnerships:** Rev'3 involves collaboration between various stakeholders, including regional authorities, businesses, research institutions, and local communities. Partnerships and cooperation are essential to achieving the goals of the initiative.
- **Innovation and Research:** The initiative often supports innovation and research projects related to sustainable energy, circular economy practices, and sustainable building technologies. These projects aim to develop new solutions and technologies.

## HOOP project

HUB OF CIRCULAR CITIES BOOSTING PLATFORM TO FOSTER INVESTMENTS FOR THE VALORISATION OF URBAN BIOWASTE AND WASTEWATER

The EU-funded HOOP project supports selected European cities to implement the most appropriate technologies for recycling biowaste. The overall goal is to help unlock bio-based investments and deploy local bio-economies in Europe.

In order to build the technical, economic, financial and legal expertise needed to develop concrete investments to valorise the organic fraction of municipal solid waste or the urban wastewater sludge, the project will set to work in eight lighthouse cities and city clusters.

The list includes cities in Germany, Greece, Spain, Finland, Italy and Portugal. HOOP will also work towards changing citizens' behaviour and acceptance regarding bio-based products.

The primary objectives of the project are to unlock at least 51.7 M Euros of investments in urban circular Bioeconomy projects in 8 cities or regions across Europe, called the Lighthouses. The project implements the following circular economy principles: production of high added value products from the valorisation of biowaste from households, HoReCA sector, gardens and parks and agrifood industry (e.g., waste reduction, resource efficiency, product lifecycle extension, reuse, recycling).

## Q-Plan, Greece

The consultancy company Q-Plan, based in Greece, specializes in serving Northern European countries and actively engages in EU and international projects. With a focus on ISO 9001 and quality systems, they offer services encompassing national business development, investment readiness, and investment schemes. Notably, their recent project, "Maker Movement and Circular Maker Spaces," deployed a circular acceleration scheme. Through this initiative, they prepared businesses for investment by conducting pitching sessions, webinars, and facilitating access to specific funding programs.

The uniqueness of this project lies in the investment days hosted by various cities involved, which aimed to solicit feedback, primarily addressing the question, "Why wouldn't I invest with you?" These cities, composed of municipalities and private organizations, played a pivotal role in this endeavour. The project, known as "Pop Machina," was part of the H2020 program, bringing together 23 partners over four years, starting in 2018. Interestingly, the project's initial design did not foresee any private funding, but some projects within it have since been approached for funding opportunities.

The project's scope was diverse, encompassing sectors such as food, plastics, textiles, construction, wood, metal, and electronics. In total, the team managed 40 projects and elaborated on 26 different business models, closely collaborating with eight of them to develop detailed business plans.

Their holistic approach includes circular makerspace business support, aiding in the creation of new products, and facilitating access to prototyping and product design. They foster a collaborative environment for startups to materialize their ideas, even for those without access to cumbersome equipment. Furthermore, their outreach extends to a wider audience, including individuals without prior knowledge of business practices, making it easier to instill a circular mindset by default.

"Pop Machina" achieved commendable results, with some projects yielding significant outcomes, reaching Technology Readiness Level (TRL) 8, though the projects varied in this regard. Importantly, the cities involved received funding to establish makerspaces and had the potential to secure grants. Their policy recommendations emphasize the need for soft loans without onerous constraints and tax incentives such as social vouchers from national authorities. They also advocate for the removal or reduction of Value Added Tax (VAT) for circular economy projects, as demonstrated in the example of Istanbul's two national programs.

- For more detailed insights into their circular maker accelerator handbook, you can refer to the following link: Pop Machina Circular Maker Accelerator Handbook. <https://pop-machina.eu/wp-content/uploads/2023/09/Pop-Machina-Circular-Maker-Accelerator-Handbook-v1.0.pdf>

## The Ritleng Company, France

Ritleng, a company based in the Alsace region of France, is at the forefront of a remarkable endeavour in the field of construction waste recycling and circular economy. This company,



founded by the Ritleng family, specializes in treating complex plaster and is currently in the process of expanding, with plans for a second industrial site in Beauvaisis. The company has a mixed economic model that combines environmental responsibility with business acumen.

One of the key aspects of Ritleng's success is its commitment to sustainable practices and circular economy principles. They are actively engaged in recycling construction waste that was previously disposed of in landfills, thus contributing to a more environmentally responsible construction industry. This approach not only aligns with environmental goals but also offers economic benefits, making it a promising model for other businesses to adopt. In the past, construction waste was often relegated to backfill, with minimal recycling efforts. Ritleng, established 12 years ago, has changed this paradigm by developing innovative processes for waste recycling. Their approach not only benefits the environment but also presents a lucrative business opportunity.

The support Ritleng received from the Beauvaisis site, and the Hauts-de-France region played a pivotal role in their journey. This support included identifying potential investors, providing financial backing, and granting access to influential political figures. Overcoming challenges such as an unproven business model, uncertainty among investors, and the gradual development of their recycling processes required dedication and perseverance.

Today, Ritleng has 30 employees, and with the opening of their second factory, they anticipate doubling their workforce to 60 employees. Their success is grounded in their commitment to mastering the technical recycling process, securing access to construction materials, and continuously refining their operations. They hold registered intellectual property rights for their innovations, making replication an exciting prospect, particularly at the European level.

Success factors for Ritleng include their technical expertise in achieving the required volume of recycled materials, efficient resource management, continuous improvement, and strong political support for circular economy initiatives. These factors are crucial in achieving profitability throughout the value chain, from material recovery to resale.

Ritleng's journey represents a shining example of how a traditional company can transform itself through innovation and sustainable practices. Their pioneering efforts in recycling construction waste have not only created a successful business but also contributed to the broader goals of environmental responsibility and circular economy adoption. As they look for investors and explore replication opportunities, Ritleng is prepared to make a lasting impact on the construction industry and beyond.

### **STAND UP! Berytech, Lebanon**

Sustainable Textile Action for Networking and Development of circular economy business ventures in the Mediterranean. Countries involved: Spain, Lebanon, Egypt, Tunisia, Italy

STAND UP! is an initiative aimed at supporting eco-innovative businesses and textile entrepreneurs in five Mediterranean countries in pursuing commercial prospects. It includes technology transfer, training, financial assistance, market stimulation, and IPR protection. The

initiative aims to strengthen the value chain and build new cross-border links, making SMEs in the textile and apparel sector more competitive. It also includes proposals for circular textile policy and ecosystem, an online platform for open invention, a soft-landing voucher program, eco-innovation challenges, and marketing assistance for twenty textile business owners. Tools used include:

- SwitchMed green entrepreneurship methodology
- Green Business Plan (GBP)

Expected achievements:

- 400 ideation stage entrepreneurs trained (at least 50% women and young people)
- Soft-landing voucher scheme of up to €9,000 granted to 50 early and growth stage entrepreneurs
- 1 online Open Innovation platform developed: <https://www.theswitchers.org/en/open-eco-innovation>
- Five partner nations have issued eco-innovation challenges on the open innovation platform.
- Eco-innovation voucher scheme granted to 20 entrepreneurs to fund technology, product and service innovations
- 3 national policy papers on sustainable textile and clothing national roadmaps drafted
- Prizes worth €50,000 awarded for solutions to textile manufacturing and clothing industry
- 70 practitioners and policy-makers engaged in a Virtual Community of Practice for Intellectual Property
- Trademark and patenting vouchers scheme granted to 40 ventures
- Twenty business owners in the textile sector are receiving marketing assistance from all five partner nations.

Contribution to policymaking: Policymaking is very much integrated in STAND Up! thanks to a dedicated set of activities. From one side, the project will work with stakeholders to develop national policy recommendations and sustainable textile and clothing roadmaps for Lebanon, Egypt and Tunisia, and, from the other side, it will work with public authorities and intellectual property agencies to facilitate improved IPR to ventures. The commitment of decision-makers to use the project's strategic roadmaps and keep on improving IPR will maintain the shift towards a thriving green startup ecosystem, and better skilled to transition the textile and clothing sectors to an inclusive circular economy.

### Tagus Valley, Portugal

TAGUSVALLEY is a Science and Technology Park located in Portugal, that provides services to entrepreneurs, startups, SME's and Municipalities in four different areas:

- Knowledge based, Creative or Innovative StartUps incubation;
- Agro-Industrial Technology Transfer and applied research;
- IoT, Industry 4.0 and Prototyping Technology Transfer and applied research;

- Education for Entrepreneurship, Digital Literacy and Circular Economy.

TAGUSVALLEY is strongly connected to the local, regional and national innovation ecosystems and they manage a number of projects such as:

- SUBPROMAIS (BioEconomy – use of agricultural residues to produce animal feed) : the aim of this project is to study agro-industrial by-products produced in the Ribatejo and Alentejo regions so that they can be used in animal feed.
- ATÉGINA: a serious games-based tool for Circular Economy Education. This project 's objective is to build a Circular Economy dissemination program in school communities, integrated with entrepreneurship modules, with a view to creating application models for the territory that can generate economic, environmental, and social value. The primary objective was to expose secondary education students to Circular Economy and challenge them to develop an application of its paradigm to real life situations where circularity is not yet present.
- 100% FIGO (BioEconomy – product development aimed at incorporating value from fruit and leaf);
- WINBIO (BioEconomy – product development aimed at creating vegetable alternatives to animal products like milk or meat)

### **Tchaomegot, France**

TchaoMegot is a start-up offering an ecological technology for cleaning up cigarette butts in France. They collect, decontaminate, and recycle cigarette butts without water or toxic solvents to transform them into thermal insulation for buildings or textiles. Their aim: to collect and recycle the 25,000 tonnes of cigarette ends thrown away in France every year.

It started as an innovative waste treatment for cigarette butts and works in waste collection, treatment, and recycling. It was founded in 2020 and has 20 employees. Their competitive advantages are the control they have over the process, an early entry into the market and the facilitating industrial environment. However, they encountered difficulties by regulatory forces that couldn't consider the circularity and therefore risked a disadvantage for the company. The company was quite active in lobbying at different levels, government, regional and local and were able to reach communication channels in TV, media, etc.

### **Toolkit for Green and Circular Entrepreneurship, Lebanon**

With the assistance of the European Union under the ENI CBC Mediterranean Sea Basin Programme, Berytech, in collaboration with Cewas and Eco-Consulting, developed the "Toolkit for Green and Circular Entrepreneurship" that covers every stage of development, from ideation to acceleration, and is designed to guide business support organizations to lead Green Entrepreneurs and SMEs, not only in Lebanon but across the entire Mediterranean region.

The Green Incubation and Acceleration Toolkit is a valuable resource for BSOs and entrepreneurs. It offers guidance, tools, and expertise to empower green startups. The toolkit, structured by stage of enterprise development, equips BSOs and entrepreneurs with the knowledge and networks needed to excel in green business. The BSOs play a vital role in

supporting local economies and industry sectors and nurturing green entrepreneurs. By providing advice and technical assistance throughout the ideation, incubation, and acceleration stages, BSOs can foster economic development and create new opportunities for communities.

This toolkit covers many green entrepreneurship topics, not just business aspects but also green and circular concepts, life cycle analysis, sustainable branding and marketing, financial projections, and more. It guides users through the various stages of the green entrepreneurship journey, offering practical tools, exercises, and examples for each phase through the Switchers Platform and Embrace Methodology among others. It encourages the integration of sustainability and circularity into the core of business models. It fosters collaboration and partnership among BSOs, stakeholders, and entrepreneurs and aims to drive innovation, enhance effectiveness, and deliver better outcomes for green enterprises.