

Putting theory into practice:

Circular Economy Business Models in the EU



**A policy brief from the Policy Learning
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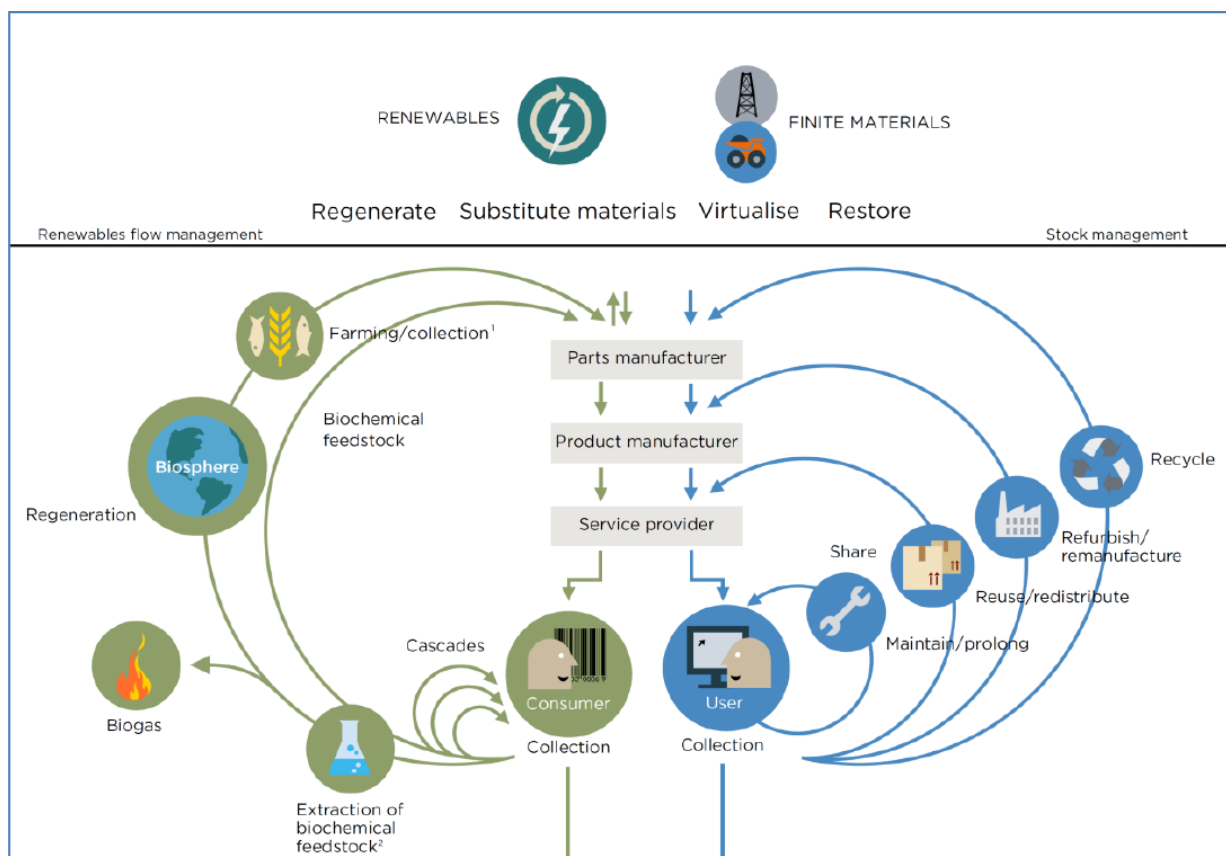
Summary

The policy brief discusses **Circular Economy Business Models** (CBM), gives several examples and considers the challenges and solutions facing policymakers. It makes a number of recommendations to regions to speed up the development of CBMs – something this brief argues regions are in a good position to do – and shares several good practices from Interreg Europe projects. It should be read in conjunction with the Interreg webinar on CBMs [webinar on Circular Economy Business Models](#). It also briefly sketches EU policies in this area and offers some practical funding and networking tips.

I. Introduction: What are Circular Economy Business Models?

While it has many facets, the **Circular Economy (CE)** is a sustainable economic model that eliminates all or most waste, or recycles it, thus reducing the use of virgin resources as well as reducing energy consumption, which in turn reduces the environmental impact of the consumer society. The main ideas are illustrated in Fig.1 below, which was developed by the [Ellen MacArthur Foundation](#) a leading proponent of the circular economy.

Figure 1 Outline of a circular economy



Source: Ellen MacArthur Foundation

Circular Economy Business Models (CBM) are business models that **put circular economy principles into practice**. Every dimension of economic activity is concerned: business-to-business (B2B), business-to-consumer (B2C) and consumer-to-consumer (C2C). CBMs offer new opportunities for companies and transform the relation between producers and consumers.

Examples of CBM

CBM can come in different forms. Some of the main approaches include:

Industrial symbiosis (IS) (featured on the cover) is a B2B systems approach for a more integrated industrial system, and one that is more sustainable because it identifies business opportunities that optimise industrial processes and use underutilised resources (such as materials, energy, water, capacity, expertise, assets, or other by-products, etc¹). This often involves finding innovative solutions that capture and exploit hitherto untapped synergies. Simple examples include the use of food waste from the catering sector to feed farm animals, or the use of non-toxic industrial waste to produce energy through incineration². Industrial Symbiosis seeks to maintain the highest (reuse) value of materials and products.

The **sharing economy**³ is rapidly emerging across Europe. It is a new way of marketing and using products and services, commonly achieved through online platforms. Transactions usually involve three parties: the product/service provider, the online platform and the customer. It covers a great variety of sectors, from sharing houses and domestic services to car journeys or power tools – and it often encompasses the development of new business models.

Circular/sustainable design is also gaining ground in Europe and beyond. Design is central if products are to be resource efficient, long-lasting, easily repairable and recyclable. For example, the [UK Centre for Sustainable Design](#) is an active promoter of the concept. The UK Agency of Design has developed a [Circular Economy Design Tool offering a good basis for exploring circular economy design opportunities](#). The agency developed a product – the Optimist Toaster – which embodies circular economy ideas such as prolonging the life of the product; choosing an easily recyclable material – aluminium; and using very few parts that can break.

¹ Lombardi & Laybourn, 2012

² https://ec.europa.eu/environment/ecoap/about-eco-innovation/experts-interviews/20140127_industrial-symbiosis-realising-the-circular-economy_en

³ Also known as collaborative economy in the EU context.



Source: Agency of Design

Other CBM include **reverse logistics**, which **refers to** managing the return flows of materials in a circular economy and mainly driven by Extended Producer Responsibility (EPR) and **remanufacturing** in which a used product is brought to at least the quality level of a new product through a process consisting of, for example: dismantling, cleaning, testing, processing and remounting collected used parts⁴.

II. The EU and national policy context

The circular economy and associated business models moved to centre stage in EU policymaking in the last decade partly because of the increase of commodity prices. They build on existing resource efficiency policies, especially Europe's **Roadmap to a Resource Efficient Europe** (EC, 2011) – which is a core instrument of the **Resource Efficient Europe Flagship Initiative** of the Europe 2020 Strategy and which promotes smart, sustainable and inclusive growth.

The **EU Circular Economy Action Plan**⁵ (or CEAP), provides the backbone of **Europe's Circular Economy Package**. It outlines a series of measures and actions to “stimulate Europe's transition towards a circular economy”. The package mentions the high hopes associated with circular economy, namely: ‘boosting global competitiveness, fostering sustainable economic growth and generating new jobs’. The CEAP was completed in 2018 and the Final Circular Economy Package⁶ can be consulted [here](#).

The circular economy has also gained momentum in the policies of **Members States**, largely due to the political priority given to it by the EU in recent years. Some MS have developed dedicated circular economy strategies and roadmaps (France, Netherlands, Finland, etc.). A growing number of regions (Flanders, the Basque country, etc.) are now acting to develop a circular economy and they have been joined by a number of cities (Amsterdam, London, etc.). Some have adopted circular economy strategies, while others have introduced the circular economy in their sectoral policies (waste, economy, agriculture, bio-economy, construction etc.), as well as in their Smart Specialisation Strategies (RIS3). This is now triggering the deployment of various types of CBM.

Regions and cities are and will continue to be instrumental in creating the conditions and incentives for CBM to flourish yet it will be business, both existing and new, that will turn theory into practice. In this

⁴ VDI ZRE 2017

⁵ EC, 2015

⁶ http://ec.europa.eu/environment/circular-economy/index_en.htm

context, it is important to be aware of ideas and theoretical development being done by a wide spectrum of circular economy advocates from science, organisations such as the Ellen MacArthur Foundation and others.

III. Focus on Regions and Businesses. Challenges and Solutions for the uptake of CBM

Regions have an opportunity. They are the most suitable level for closing material loops and creating sustainable industrial ecosystems⁷. At the same time, regions, cities and companies face multiple obstacles to putting CBM into practice.

Challenges to regional and municipal authorities

One key challenge is estimating **profitability**, **CBM face an uphill battle without a value creation proposal**. In this regard, both companies and regional authorities lack information on **material flow data** and on scientific and **technological issues**. This was confirmed by participants via an online poll taken during the Policy Learning Platform's [webinar](#) in which 'estimating profitability' polled as the most pressing obstacle. Consequently, in order to overcome this constraint, the business case needs to be demonstrated – and public authorities have resources to help with this – including through demonstrator projects and the publication of analysis on the prospects for particular sectors and markets.

Another challenge is **market conditions**. On top of infrastructure development, procurement rules and tax (or other financial instruments) can be recalibrated to incentivise CBM. Such mainstreaming holds significant potential. For example, Sweden has tax rules that incentivise repair and longer product life spans, thereby reducing the number of new products. These incentives are helping to steer the Swedish economy from a linear to a circular model. and to redeploy parts of the workforce from production to repair and maintenance. There are many ways incentives can support CBM. The German state of Baden-Württemberg for example is promoting car-sharing by allocating a number of parking spaces to car-share vehicles instead of private cars.

Challenges to companies

Companies face challenges too, not least due to a lack of information, which keeps opportunities hidden, and of finance, and so investors may continue to stay away as long as the business case remains unmade or undeveloped. In certain cases (sharing economy, remanufacturing, etc.), manufacturers risk undermining their own product sales, and consequently the profits of their production plants⁸. Manufacturers also need to establish a reverse logistics system for collecting products at the end of a service agreement, otherwise reuse, repair or remanufacture are not feasible⁹.

⁷ Sterr & Ott, 2004

⁸ EEA, 2017 and Zils et al., 2016

⁹ EEA, 2017

In summary, CBM are work-in-progress, framework conditions, incentives, market information, etc. remain incomplete and CBM are often disruptive models. Awareness raising and capacity building are therefore needed on all levels including in universities through courses in circular design, material science and circular business models.

Knowledge support and funding for CBM

An excellent example of how policy can tackle some of the obstacles mentioned above is [Zero Waste Scotland](#). This initiative manages an £18m Circular Economy Investment Fund for SME development and the adoption of innovative business models for new circular economy products and services. The Fund is in line with Scotland's Smart Specialisation Strategy (RIS3) as well as Scotland's Circular Economy Strategy, 'Making Things Last'. Zero Waste Scotland is one of the good practices identified by the Interreg Europe [RETRACE](#) project (discussed further later in this Brief).

Cooperation between – stakeholders on the regional level

Circular Economy Business Models (CBM) are collaborative business models in their majority. While collaboration often happens spontaneously, in many cases there is a need for external facilitation before collaboration kicks in. Industrial symbiosis networks, with facilitation support in place, as well as clusters and eco-industrial parks, with their concentration of research and business and tradition of collaboration, are all suitable breeding grounds for CBM. The [Green Deals in the Netherlands](#) are multi-stakeholder initiatives in which all types of barriers can be addressed simultaneously; they provide an essential cooperative mechanism to nurture and catalyse change towards systemic economic approaches.

Market pull for CBM through Green Public Procurement

Green Public Procurement also holds tremendous potential and can boost the uptake of CBM if regions and cities apply appropriate criteria in Public Procurement contracts. The demand for remanufactured products through [Green Public Procurement](#) may, for example, stimulate remanufacturing in the region. Several Interreg Europe projects ([GPP4Growth](#), [CircPro](#) and [GPP-STREAM](#)) address the use of Green Public Procurement.

As several of the Interreg Europe projects are addressing CBM, we provide below a number of examples of interregional cooperation (policy learning) coming from these projects. Such interregional learning is a practical vector for spreading the adoption of good practices in all Europe's regions.

IV. Zoom on Interreg Europe

The Interreg Europe programme is currently supporting a number of eco-innovation / circular economy related projects, mainly under its Environment and Resource Efficiency Topic.

[RETRACE](#) (2016 – 2020) promotes the **systemic design approach (SDA)**. The SDA creates a set of relationships in which a system output (waste) becomes the input for another system in order to obtain zero emissions (waste). Besides a link to industrial symbiosis RETRACE also explores how eco-

innovation can improve product design to reduce the weight of products, extend their useful life or make them easier to repair, reuse and recycle.

[CESME](#) (2016 – 2020) and [CircE](#) (2017 – 2021) explores how regional and local authorities and business development agencies can best **improve policy instruments** and design support packages to assist SMEs to enter the circular economy.

[SYMBI](#) (2016 – 2020) and [TRIS](#) (2016 – 2020) have a clear focus on **industrial symbiosis** as an opportunity for more sustainable regional company ecosystems.¹⁰

Four examples of ongoing Interreg Europe projects, illustrated by some of the good practices they are promoting, are described in more detail below:

Thematic objective: ENVIRONMENT & RESOURCE EFFICIENCY

[SYMBI](#)

Good practice: [FRUSH - Circular Economy Event for Start-ups and Growth Enterprises](#)

The SYMBI project supports industrial symbiosis in European regions. Some 17 good practices demonstrating the benefits of industrial symbiosis to SMEs and budding entrepreneurs have been identified and shared.

Problems solved: The **FRUSH Circular Economy event**, promoted by SYMBI as a good practice, aims to boost growth and start-up enterprises and create and promote new business opportunities around circular economy.

FRUSH is an annual circular economy (business) expertise sharing and funding event held in September in the city of Forssa, Finland. It is organised by Häme University of Applied Sciences, HAMK and Forssa Business Development Ltd, FYKKI (owned by City of Forssa). FRUSH sprang from the SYMBI project, which had flagged up **a general lack of knowledge on Circular Economy (CE) and Industrial Symbiosis (IS)**. In addition, other projects have shown that new innovations and start-ups have struggled to find investors to get their ideas and/or products launched.

To overcome these problems, Häme University of Applied Sciences (HAMK) and Forssa Business Development Ltd (FYKKI) initiated a series of thematic stakeholder-based events... the FRUSH model. There are similar types of matchmaking events for start-ups and SME's existing elsewhere but FRUSH is the only one concentrating on CE and IS.

¹⁰ https://ec.europa.eu/environment/ecoap/about-eco-innovation/experts-interviews/20140127_industrial-symbiosis-realising-the-circular-economy_en

The FRUSH model includes speeches by respected professionals, decision makers and innovators; workshops etc. for students to encourage them to develop CE and IS; a pitching competition for start-ups to find investors; B2B matchmaking meetings; exhibitions of new innovations and products based on CE; international events for exchanging experiences and to develop collaboration.

FRUSH has been organised with **minimum resources** by HAMK and FYKKI (around EUR 15,000). FRUSH2019 will be free of charge for participants but from 2020 onwards the goal is to cover all expenses through participation fees and co-operation with companies.

FRUSH has been arranged twice so far and the feedback has been encouraging: the number of participants in 2018 increased fourfold from 2017 and numerous participants announced their interest in joining the event in 2019 as well. The event is becoming more international too. The pitching competition has helped start-ups and growth enterprises to secure funding and recognition. The competition has also helped some businesses to launch their products.

Arranging a large-scale event requires a lot of work and human resources but it can be done on a relatively low budget. Established companies can offer their experience to early-stage start-ups. Meanwhile, start-ups can put questions and get advice and feedback on business development issues that are of current importance to them. Business developers have networks, which are necessary not only for promoting but for arranging an attractive programme for the event as well. A professional event organiser is useful to avoid problems in practical arrangements.

The FRUSH event can easily be transferred to other regions. FRUSH's programme and agenda is flexible so that it can address current needs and issues. The agenda can also be tailored to local/regional needs and circumstances. In addition, the presence of university students should be encouraged, as also they may be the innovators waiting in the wing, as long as they are encouraged in their efforts. In the very first FRUSH event, students and entrepreneurs needed no encouragement to start to work together in the Design-up workshops, in which digital solutions, among others, were found. Start-ups and SME's lack investors to launch their innovations and matchmaking should be the main objective for this type of event.

Thematic objective: ENVIRONMENT & RESOURCE EFFICIENCY

RETRACE

Good practice: Circular Valley

The RETRACE project aims to provide citizens and SMEs with the skills and knowledge they need to be more eco-innovative. It promotes the 'systemic design' method as a means to transition to a circular economy. It addresses the role of government authorities, in particular in providing physical spaces and guidance for collaboration and dialogue between companies.

Problems solved: **Circular Valley is an innovation hub where businesses in the Circular Economy can develop and grow through dialogue and coordination.**

Circular Valley is a well-known Dutch strategy to make the Netherlands a globally significant Circular Hotspot. RETRACE promotes it as a good practice. Its core strategy is to ensure dialogue between different stakeholders – designers, NGOs, start-ups, SMEs, corporate and governmental organisations – in order to boost and support circular economy-related activities, especially innovation.

Policy support is not only in terms of space, but also in terms of business guidance. Other hubs and co-working services usually provide working space and indirect access to one type of organisation (mostly start-ups), but rarely provide access to a full-spectrum economic stakeholders, capital, tools and methods. Since circular processes require cross-sector collaboration, Circular Valley provides physical working spaces with innovation labs – as a cross-sector resource – as well as proven circular tools and methods, and access to capital.

The good practice was funded with 90 million EUR from a diverse group of stakeholders, such as Reggeborgh Group, Volker Wessels and the Delta Development Group.

Even though it is a very young initiative, **its success** is demonstrated by the fact that 6 innovative organisations have already been hosted and supported:

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Potential for replication or adaptation: The key feature of the good practice is the ability of the project to bring together, link and build synergies between different stakeholders who are involved in the transition towards a Circular Economy at different levels.

Thematic objective: ENVIRONMENT & RESOURCE EFFICIENCY

BIOREGIO

Good practice: Social enterprise in composting and organic farming

The BIOREGIO project is a bio-based circular economy project that organises the transfer of expertise on the best available technologies and cooperation models. It identified Bio&Co as a good practice.

The social enterprise Bio&Co collects food waste and crop residues to make compost, which is used in organic farming.

Problems solved: Bio&Co is led by a Romanian NGO, Ateliere Fara Frontiere, which promotes: the social and workforce integration of extremely disadvantaged people, responsible waste management and environmental protection, and solidarity and responsibility for sustainable development.

Huge amounts of food are wasted even before reaching consumers and are discarded by supermarkets, usually going to landfills. Also, a large proportion of domestic waste is made up of bio-degradable materials, which could be recycled through composting.

The Bio&Co good practice started in 2015 in Ciocanari, Dambovită county, with technical support from Réseau Cocagne, France. Bio&Co collects waste food from supermarkets, hotels and restaurants on a 1000 m² composting platform. The compost is used in the Bio&Co's organic farm and greenhouse and the produce is delivered via a short supply chain to customers, mainly in Bucharest.

The organic farm is an example of how the circular economy applies to biological flows, because all the waste is recycled at the composting platform together with food waste from supermarkets. Considering the large amounts of food waste discarded by supermarkets and restaurants, there is sufficient potential scale for a viable business model.

The project's stakeholders are Ateliere Fara Frontiere NGO, the Carrefour supermarket chain, and Accor Hotels. The Beneficiaries are the employees of the Bio&Co organic farm and its customers.

As a non-profit enterprise, it currently relies on sponsorships, grants and 30% generated revenues, but there is potential to cover up to 70% of its operating costs from generated revenues.

The project can boast:

- the creation of 20 green jobs for people at risk of poverty and exclusion;
- 1,023 t waste food collected in 2016-2018;
- over 4,783 vegetable baskets delivered to over 200 subscribers in 2016-2018;
- 27,253 kg of food diverted from waste and reused / donated to social canteens;

- construction of a 1000 m² composting platform;
- 4,000 m² greenhouses and 4 ha agricultural land used for organic farming, where compost from the platform is used;
- over 80 varieties grown;
- organic certification.

The major barrier to the project model is the fact that it is cheaper for waste producers and waste disposal services to landfill than to reuse or recycle, as Romania has no tax for disposal as of 2018.

Considering the similarly large amounts of food discarded from supermarkets and restaurants across the rest of Europe, there is **huge potential for replication or adaptation of this good practice**. Such social enterprises could be established close to large cities in order to reduce waste and promote the circular flow of organic materials. Composting can also create green jobs for unemployed people in these areas.

Ateliere Fara Frontiere plans to develop an educational organic farm, where children can learn about healthy food, waste prevention and sound management, and environmental protection.

Thematic objective: ENVIRONMENT & RESOURCE EFFICIENCY

[RETRACE](#)

Good practice: [Zero waste Scotland](#)

Interreg Europe's RETRACE project supports the circular economy by promoting good practices that give citizens and businesses **the skills and information they need to adopt more eco-innovative behaviour**. In particular it promotes good practices that focus on 'systemic design' to businesses as a means to transition to a circular economy or the role of local authorities in providing space and guidance for collaboration and dialogue between companies.

Problems solved: RETRACE identified Zero Waste Scotland (ZWS) as a good practice as it provides leadership and practical support to grow the circular economy in Scotland. ZWS encourages behavioural change among businesses and the population through different programmes and funding opportunities.

ZWS depends on grants from the Scottish Government with additional funding from the European Regional Development Fund (ERDF). The Scottish Government Grant is awarded annually to ZWS to support the delivery of Scottish Government's Circular Economy strategy and other resource efficiency policies. ZWS also contributes to the Scottish government's target of reducing Scotland's greenhouse gas emissions by 42% by 2020 by:

- encouraging Circular Economy (CE) opportunities for companies and citizens;
- developing solutions to tackle everyday challenges and which support the CE transition;
- identifying innovative ways to keep materials and products in use longer.

In practical terms, this good practice provides companies with advice on practical, technical and financial support, thereby encouraging them to implement a CE strategy. It seeks to trigger a change in behaviour through a joint commitment with manufacturers and by encouraging the resource management sector to work in partnership in order to establish re-use and repair as a social norm.

And Zero Waste Scotland also supports other Scottish government objectives, including:

A Greener Scotland: “Improving Scotland’s natural and built environment and the sustainable use and enjoyment of it.”

A Wealthier and Fairer Scotland: “Enabling businesses and people to increase their wealth and more people to share fairly in that wealth.”

One of ZWS’s main achievements, again with the Scottish government’s support, is its “**Making Things Last**” programme, which is helping to develop a Manufacturing Action Plan for Scotland, raising awareness among the general public about the CE and has launched a Circular Economy Investment Fund to develop related business.

Zero Waste’s achievements include:

- Almost 900 one-to-one resource efficiency projects progressed, with savings of £13.7 million identified;
- #makethingslast campaign reached nearly 1M people;
- business development support on CE to 78 businesses provided;
- over 200 procurement professionals trained on CE;
- the first major city-region approach to develop the CE in Scotland with Glasgow Chamber of Commerce initiated;
- 2 pilot re-use and repair hubs supported: Blythswood Care superstore (Dingwall) and Edinburgh

This good practice has a **high potential for replication or adaptation in other regions**. A key aspect of the good practice that could usefully be transferred is the nature of ZWS itself, as a dedicated organisation created with the support of the Scottish Government and devoted specifically to implementing the Zero Waste Strategy. Another crucial element is ZWS’s ability to attract funds and to offer funding schemes that are tailored to the diverse range of stakeholders they work with.

Lastly, the combination of financial, educational and technical support provided works because it addresses the challenge of transitioning towards a CE in an integrated way.

V. WHAT COULD REGIONS DO NEXT?

Regions can support the uptake of CBM. Below are several examples of what they can do:

- Industrial symbiosis has considerable potential for accelerating the development of CBM. Regions and cities wanting to support Industrial Symbiosis are in the position to act as facilitators. However, this approach should be based on assessing the potential for IS synergies in the region and good practices in other countries. In addition, as Lida Holck from the SYMBI project highlighted during the [webinar on Circular Economy Business Models \(CBM\)](#), regions should have regional organisers (practitioners) in charge of raising awareness among the companies, exchanging information and networking. The Frush Circular Economy Event for Start-ups presented above illustrates one way to do this in practice.
- **Where regional and local authorities have power to deploy fiscal, financial, economic and regulatory instruments these** can drive industrial symbiosis indirectly, through favouring state-of-the-art waste management (such as waste prevention and/or re-use) and penalising undesirable waste management options (such as landfilling). Examples include relatively high landfill and incineration taxes, pay-as-you-throw schemes, local landfill bans of various waste streams (e.g. for organic waste), targeted economic incentives. In addition, actions such as promoting Green public procurement (GPP) or supply chain approaches that provide collective solutions to logistical difficulties in Industrial Symbiosis (e.g. treatment and recovery facilities shared by a number of companies or a circular supply chains voluntary protocol) can also be helpful.
- Regions and cities should work on strengthening their local **circular economy ecosystem**, by supporting the local organisations involved, and informing citizens of what services are available. Future Cohesion funds are likely to continue to support this sector. The Circular Valley project illustrates how this can be done.
- While the uptake of new products and services in the **sharing economy** is often initiated by businesses, territories often have a role to play. For instance, local governments can create conditions that are conducive to the development of car-pooling, by creating dedicated areas for travellers to meet or by developing specific platforms. Regions and cities can also develop a suitable ecosystem for the emergence and growth of start-ups, which are often at the source of the collaborative/sharing economy.
- With regards to **collaborative consumption**, policymakers should focus on reinforcing the supply and demand sides of this new market, which is based on access to a product (sharing, leasing) rather than ownership. The development of the IoT (Internet of Things) and all kinds of tracking devices is a huge opportunity for boosting product-service systems and organising reverse logistics and remanufacturing systems.

- Among the most urgent policy actions that need to be taken at regional level, the panellists (participating in the Interreg webinar) highlighted growing the **market for secondary raw materials** (from recycled waste), improving the **regulatory framework**, and **supporting SMEs** to enter the circular economy. Regional authorities can play a crucial role in facilitating the **cooperation between research and the business sector** as exemplified by the presentation from the ERDF-funded [Food crossing district](#). And on the potential of different industrial sectors to adopt the circular economy, **agri-food** was outlined as one of the most promising.
- The Availability of additional **funding for the circular economy** is a pre-condition for speeding up transition. The EU Cohesion Policy and the Horizon 2020 funding for research are two of the biggest financial streams available in the EU. However, the uptake and mainstreaming of circular economy funding in other financial instruments and in the activity of smaller providers would provide a much bigger leverage effect. A key step in the process is to create incentives for private financing to follow public financing. This would require devising a specific set of policy measures to develop an environment that is conducive to the deployment of private-to-private finance mechanisms. In particular, in the initial stages, publicly leveraged private financing mechanisms and targets for finance institutions may be needed.

Tell us what you think

We would like your feedback on this important emerging policy area. Interreg's PLP would like to hear from you, as representatives from regional and municipal authorities, on the aspects of circular economy we should investigate further and support you with by sharing expertise and experience from across Europe. Can you offer a good practice, a case study, a current challenge you are tackling? A solution to a challenge? We look forward to receiving your feedback, which could be the basis for a follow-up Brief!

Find out more

🌀 For funding opportunities, create your own list of search words and check the EC's search tool:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/funding-updates;freeTextSearchKeyword=;programCode=null;sortQuery=approvalDate>

🌀 For networking opportunities, you can visit the following websites:

- [European Industrial Symbiosis Association \(EUR-ISA\)](#)
- [European Remanufacturing Council](#)
- [European Circular Economy Stakeholder Platform](#)

- [European Resource Efficiency Knowledge Centre](#)
- [Circular Europe Network](#)

Sources of further information

- Policy Learning Platform, Policy brief on [food waste](#)
- Policy Learning Platform, Policy brief on [industrial symbiosis](#)
- Policy Learning Platform, Policy brief on [sustainable management of bio-waste](#)
- Policy Learning Platform, Policy brief on [green public procurement](#)
- Policy Learning Platform, Policy brief on [resource efficiency](#)
- Policy Learning Platform, Article on [circular procurement](#)
- <https://www.ellenmacarthurfoundation.org/>
- ESPON, Interact, Interreg Europe and URBACT, [Pathways to a circular economy in regions and cities](#), Policy brief, 2016
- CEPS Task Force (2018), The Role of Business in the Circular Economy (Report of a CEPS Task Force)
- [Eco-Innovation Observatory](#)
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- EEA (2015), [More from less – material resource efficiency in Europe](#)
- EIB (2018), The EIB Circular Economy Guide, Supporting the Circular Transition (available [here](#))
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- Korhonen and al, 2018, Circular Economy: The Concept and its Limitations
- Lombardi, D. R., & Laybourn, P. (2012). Redefining Industrial Symbiosis: Crossing Academic-Practitioner Boundaries. *Journal of Industrial Ecology*, 16(1), 28–37.
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- Sterr and Ott (2004), The industrial region as a promising unit for eco-industrial development—reflections, practical experience and establishment of innovative instruments to support industrial ecology (*Journal of Cleaner Production*)
- Technopolis Group (2018), Study to Monitor the Economic Development of the Collaborative Economy at sector level in the 28 EU Member States
- Zero Waste Scotland [resources](#)
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