



CircLean Open Innovation Workshop

28 April 2022, Krakow

The workshop was held on 28 April 2022 at the Waste Thermal Treatment Plant, Ekospalarnia Krakow. The workshop provided the opportunity to share experiences and knowledge regarding industrial symbiosis (IS) transactions to ensure that the work of the CircLean network remains relevant to its members. The workshops also provided an opportunity to share views and suggestions for the European Commission to increase the uptake of IS in the EU.

It also included a tour around the [Ekospalarnia waste thermal treatment plant](#) and a presentation of the facilities.

Highlights

EU Strategic Landscape and CircLean Benefits

- The **European Green Deal** and the **EU Industrial Strategy** have emphasised the potential of industrial symbiosis (IS) as an innovative business model. One of the EU objectives on IS to be pursued through the CircLean project concerns the development of a European industry-led monitoring and reporting system for IS transactions.
- IS brings **twofold benefits** in terms of environmental protection and climate mitigation (decreased use of primary materials; decreased landfilling; reduction of GHG emissions; reduction of energy use, etc.) but also in terms of competitiveness and industrial innovation (decreased costs for primary raw materials; fostering innovation and R&D; improved sustainability image of the companies).
- **CircLean** is a network of businesses and SMEs for IS. The purpose is to set up a network of businesses to seize IS business opportunities. CircLean is suitable for industry actors; business associations; public authorities; and R&I stakeholders. CircLean is EU-wide, flexible, industry-led, sustainable, voluntary, and needs-centred.

CircLean Toolbox

- The CircLean Toolbox comprises a Self-assessment module and a Matching tool. The Self-assessment module which prepares businesses for engaging in industrial symbiosis, with a three-stage assessment process of their site, resources, and potential match opportunities. The user is guided through identifying waste streams and other under-utilised resources that can be repurposed by companies in different sectors, and how to gather evidence and data for these resources. Ideas are presented to help the user identify substitutes for inputs leading to a diversified and more robust supply chain. More information on the Self-assessment module is available [here](#). Companies that feel confident in these areas can move straight to the online Matching tool, which will offer them the opportunity to enter into regional or cross-border IS transactions.

Facilitation of Industrial Symbiosis

- Regions play a strategic role in IS and act as facilitators supporting the process of establishing IS synergies. Forerunner countries in IS initiatives such as Finland and Denmark have developed the operational environment for IS and **incorporated IS in their Smart Specialisation Strategies**.
- In some countries, there is experience in the implementation of **national facilitation programmes** at regional level (e.g. FISS Finland, Danish Green IS, the Hungarian NISP, etc.). The support has been mainly related to the organisation of matchmaking events, collection of data on resource streams and identification of IS potential. The programmes in Finland and Denmark also address the lack of expertise in the companies by providing technical assistance to assess potential for IS synergies. Building trust between facilitators and companies is crucial for IS synergies.
- **Universities are among the key IS stakeholders**. Sometimes they have links to industrial parks and a role in product development. In Greece, for instance, a national programme to facilitate joint work between universities and companies was established. **Clusters and chambers of commerce** also play a role as exemplified by the Waste Exchange Scheme good practice from Spain.

Success factors and enablers for stimulating IS in European regions

- Several **economic and regulatory instruments** can drive IS indirectly, through favouring higher and penalising lower waste hierarchy options. Examples include relatively high landfill and incineration taxes (e.g. in Finland), local landfill bans of various waste streams (e.g. biowaste), and targeted economic incentives. When low prices of primary raw materials compared to secondary materials deter further use of secondary materials, incentives for the use of secondary materials can be introduced. This can be done through economic instruments (e.g. the price of the secondary raw materials could be subsidised and should become lower than the primary ones), but also through regulatory instruments such as design standards that set minimum requirements for use of secondary materials.
- **Regulatory uncertainty related to the status of secondary materials** (waste versus product) has been one of the major issues discouraging companies from engaging in IS endeavours. Therefore, there is a need to harmonise interpretation of waste regulation and the application of the concepts of By-Product and 'End of Waste' across Member States. 'End of Waste' criteria specify when a given waste ceases to be considered waste and obtains the status of a secondary raw material.
- **Green Public Procurement (GPP)** is another possible instrument for stimulating IS and IS principles need to be added to GPP policies (particularly relevant for infrastructure projects). The Green label which companies could get is also a driver for them to engage in IS.



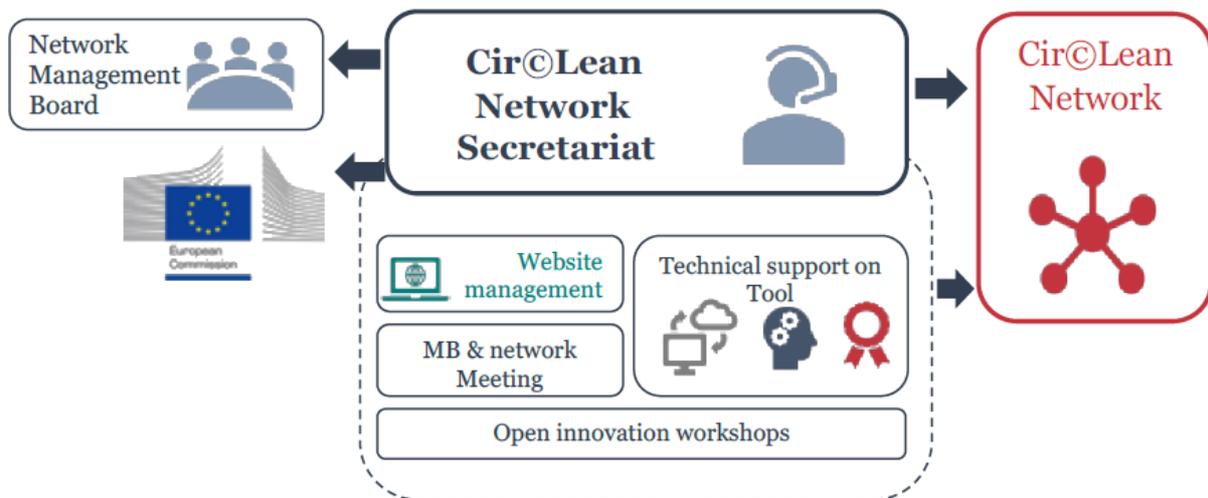
Study visit to the Ekospalarnia waste thermal treatment plant

To deepen the thematic exchange and learn from practitioners on the ground most workshop participants visited the Waste Thermal Treatment Plant, Ekospalarnia Krakow. The Ekospalarnia enables the conversion of 220,000 tonnes of municipal waste per year. Combustion produces electricity (approximately 65,000 MWh) and heat (280,000 MWh).



Source: Ekospalarnia Krakow

CircLean Governance



How to join CircLean in 3 easy steps

Step 1: Express your interest by sending a **signed Letter of Intent** to the CircLean Secretariat at circlean.project@technopolis-group.com

Step 2: Fill in the **Membership Application Form** including information on industrial symbiosis activities; experience with industrial symbiosis, etc. There is a basic and an active membership.

Basic membership

- Contribute to the development of the CircLean resource tool with their details and availability for matchmaking
- Contribute to the overall progress of the network
- Register details and resources in the CircLean tool and agree to contribute to the "Network" of resources shared online
- Active involvement in the more-advanced network activities (e.g. network meetings) is not compulsory

Active membership

- Register details and resources in the CircLean tool and contribute to the "Network" of resources shared online
- Involvement in the Management Board and in specific network meetings playing a more prominent role in the activities organised to develop the network, establish it as a sustainable hub for industrial symbiosis in the EU, and expand its membership base.

Step 3: Sign the **Network Charter/Code of Conduct** which includes mutual respect, integrity-based relationships among members, etc. More information is available [here](#).

Policy recommendations

During the discussions and working sessions of the event, the participants worked out the following policy recommendations for better IS policies, considering the different levels of IS development and experience across Europe:

For countries and regions more advanced in IS:

- Raise awareness of companies on the potential benefits of engaging in IS such as increased competitiveness, productivity and resource efficiency, enhanced innovation capacity and knowledge about alternative business models. Environmental and social benefits to be emphasized as well. Including the concept of circular economy in the curriculum and sharing of good examples can also contribute to improving knowledge, raising awareness of potential benefits and mind-set change in companies.
- Further exchange on information on the experiences with closed database vs. open database will be useful.

For countries and regions that are at an early stage with IS development:

- **Organise campaigns** that aim to raise awareness of companies about circular economy, and the benefits of IS.
- Start with small first steps such as **mapping the industrial ecosystem** and potential opportunities for IS synergies. Waste flow mapping could support in identifying areas of potential. Targeting the biggest emitters in a database is also important.
- **Map the most important stakeholders** that can support bringing companies together and facilitate IS synergies.
- **Mapping legislation:** it is important to make an inventory of legislation that could be an obstacle and communicate this to the respective authorities. The Green Deals example from the Netherlands can be helpful in this regard. Make efforts to include IS and circular economy activities in regional strategies.
- **Develop a simple waste exchange platform** (either open or closed) in the beginning and upgrade it on the way. You can use the CircLean platform for an inspiration.
- With regards to **matchmaking:** start small and scale up gradually contacting companies one by one. The question of building trust in IS is crucial for creating IS synergies and can be addressed by adopting an inclusive approach, promoting open data as well as an open-minded communication.

Frequently Asked Questions (FAQ)

- ✓ **What will happen to the CircLean network after the end of the funded coming from the European Commission in November 2022?**

The CircLean network was designed with the ambition to become self-sustainable after the three years of EU funding. There are ongoing discussions with the members of the network that will be intensified in the coming months regarding this aspect, as the continuation of the network depends on the engagement of its members. The European Commission and the consortium implementing the CircLean project are supporting this process. The CircLean website and toolbox will remain online for one year after project end.

- ✓ **What are the benefits for my company/organisation in joining the CircLean network?**

Getting free access to an EU endorsed industry-led community of peers equipped with robust tools to discover, engage in, monitor and report about industrial symbiosis transactions across the EU, i.e. a self-assessment module, a matching tool to identify suitable opportunities for IS transactions, a common reporting methodology, and a EU label.

Opportunity to share views and suggestions for the Commission to increase the uptake of industrial symbiosis in the EU.

✓ **What are the benefits for my company/organisation to engage in industrial symbiosis?**

Reducing cost: Decreasing costs associated with inputs to production and waste disposal improves profitability and competitiveness.

Fostering innovation: Industrial symbiosis produces a demand-pull on innovation as industry identifies novel uses for underutilised resources. The OECD and UNEP identify industrial symbiosis as supporting eco-innovation.

Increasing revenue and competitiveness through diversification: Creating new business opportunities to sell what used to be a 'waste', thus converting the cost of waste management and disposal into a revenue opportunity.

Mitigating resource risk: Finding alternatives to traditional inputs, often outside the usual sector boundaries, decreases reliance on critical materials.

Creating jobs and encouraging entrepreneurs and new business start-ups.

Reducing emissions and contributing to climate neutrality targets.

✓ **To what do I commit by agreeing to become a member of the CircLean network?**

CircLean is a voluntary network and by joining it you only commit to respecting the CircLean Charter/Code of Conduct. Your active participation and contribution will be appreciated. Membership is free of charges.

✓ **Will I have any benefit if I follow the CircLean voluntary reporting methodology? When will it be developed?**

The protocol for the voluntary reporting methodology is ready. The main benefit associated to its implementation is the award of the EU CircLean label. The label will not only help businesses to participate in communicating their sustainability efforts, but will also signal that they are trustworthy partners to other operators.

✓ **Who holds the copyright of the Self-assessment module and the Online matching tool?**

The European Commission holds those rights.

Other resources on IS

- [European Resource Efficiency Knowledge Centre](#)
- EC, [Cooperation fostering industrial symbiosis: market potential, good practice and policy actions, 2018](#)
- [Industrial Symbiosis in the Baltic Sea Region, Nordregio Policy Brief](#)
- [FISSAC Project](#)
- [Guidelines on how to capitalise GPP as an enabler of industrial symbiosis](#), SYMBI project
- Interreg Europe Policy Learning Platform, [Policy brief on industrial symbiosis](#)
- Interreg Europe Policy Learning Platform, [Policy brief on circular economy business models](#)

Agenda from the event

Time	Sessions	Additional details	Speaker
9:00-10:00	Registration and welcome coffee	Welcoming participants and assisting any participants joining online	
10:00-10:15	Introduction	<i>Presentation of the agenda</i>	Joanna Kulczycka , Professor at the AGH University of Science and Technology and head of Department of Strategic Research at MEERI Polish Academy of Sciences
10:15-10:30	Speech from the representative of the European Commission/Secretariat about the ambition underpinning CircLean		Anestis Filopoulos , Policy Officer - Sustainable Industrial Policy, Circular economy and Construction Unit, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs, DG GROW, European Commission
10:30-10:50	Presentation of the CircLean toolbox (i.e. Self-assessment module and Matching tool)	<i>A presentation about the use of the Self-assessment module and Matching tool.</i>	Mr. James Woodcock , International Synergies
10:50-11:50	Roundtable about the opportunities and challenges for the uptake of industrial symbiosis Moderator Dr. Agnieszka Szynek circular economy - Innowo - PolishCircularHotspot	<i>Industrial symbiosis in different branches</i>	<ul style="list-style-type: none"> • Prof. Andrzej Marcinkowski - Łódź Technical University (Eco-park) • Agnieszka Zdanowicz - VicePresident CKR Waste Management and Recycling Cluster • Prof. Marcin Furtak - eco-design in architecture Cracow Technical University • Prof. Agnieszka Generowicz - waste management Cracow Technical University • President Leszek Rozdzinski - Krakow Chamber of Commerce and Industry

			<ul style="list-style-type: none"> • Tomasz Rychły Senior Auditor Quality Austria
11.50-12.00	New IT tools supporting cooperation between science and business in Małopolska	<i>IATI and Woo agency</i>	Przemysław Machynia, Woo agency
12:00-12:15	Good examples of local industrial symbiosis initiatives and projects	<i>Krakowski Holding Komunalny SA as a good example of industrial symbiosis in Cracow City</i>	Jakub Bator - member of management board of KHK SA
12:15-12:45	Ecospalarnia Visit		
12:45-13:30	Lunch		
13.30-13:45	Good example of IS projects	<i>Monolythos will present their good example of recycling of spent automotive catalysts and challenges in industrial symbiosis in the framework of the Pheidias project</i>	Iakovos Yakoumis, Monolithos Catalysts & Recycling Ltd.
13:45-14:00	Presentation of the communication toolbox for CircLean Ambassadors	<i>A presentation of the communication toolbox for CircLean that can be used by CircLean members and other industrial symbiosis stakeholders.</i>	Anya Gregory, Arctik
14:00-14:30	Presentation on how to join the CircLean network	<i>A presentation of the CircLean project, how to join the network, and the opportunities offered as a CircLean member</i>	Margrethe Steinert, Technopolis Group
14:30-14:45	Q&A	<i>Open session for any remaining questions from the audience on-site and online</i>	
14:45-15:00	Wrap up and conclusions	<i>Takeaways messages and next steps</i>	Dr Agnieszka Sznyk, Prof. Joanna Kulczycka, and Przemysław Machynia