

CircLean Open Innovation Workshop

The workshop was held on 28 September 2022, co-organised by International Synergies Limited for the CircLean team and CircuEIRE, Irish Manufacturing Research Centre. The event served as an opportunity to share experiences and knowledge regarding industrial symbiosis (IS) transactions in Ireland and to exchange views for the European Commission to increase the uptake of IS in the EU.

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 (available [here](#)), which will offer them the opportunity to enter into regional or cross-border IS transactions.

Hubs4Circularity

- IS has the potential to bring a wide range of benefits to regions such as boosting economic growth, investments in innovation, cost-saving across industrial processes, etc. This is demonstrated by **Hub4Circularity** which are self-sustaining economic industrial ecosystems for full-scale Industrial-Urban Symbiosis (I-US) and Circular Economy, closing energy, resource and data loops. At a regional level Hub4Circularity have the potential to foster industry-society collaboration necessary to achieve a leap forward towards circularity and carbon neutrality. The H4Cs concept builds on the local contexts connecting various regional stakeholders (industry, SMEs, local authorities, educational institutions and civil society). The H4Cs are a key element of the [Processes4Planet Partnership Strategic Research and Innovation Agenda 2050](#) under [Horizon Europe](#).

Hindering factors for IS development

- Key barriers that industries are facing with regards their engagement in IS include investment costs, regulatory gaps, technological barriers and outdated infrastructure as well as lack of knowledge of resources and waste streams generated by others. The social factors relate to the capabilities and willingness of companies for collaboration in some cases even in industrial parks. The low capabilities to identify and assess the potential of synergies is linked to the need for better skills for IS.

- 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' (EoW) criteria specify when a given waste ceases to be considered waste and obtains the status of a secondary raw material.
- Permitting is problematic as in the absence of clear EoW criteria companies do not have the certainty that they would receive a permit for exchanging wastes.

Success factors and enablers for stimulating IS

- The role of facilitation in addressing barriers to IS is crucial. 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 smart industrial approach in Flanders is a positive example of facilitation with its key elements such as the online symbiosis platform, dedicated team and technical assistance provided to companies. Planned matchmaking workshops in focal sectors, upgrading the functionality and data integration with other platforms are also important steps for its future development.
- Developing IS is a complex process which depends on building **the right partnership**, i.e. bringing the right partners and expertise on board, as well as efficient management of various stakeholders participating in IS as showcased by the experience of the ECLUSE steam network. Building strong industrial partnership was also key for the symbiosis project in the port of Antwerp between industrial water producer, suppliers of re-use water and offtakers of produced industrial water.
- 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.
- 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, 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.
- 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 certain waste ceases to be considered waste and obtains the status of a product (or a secondary raw material).
- To **foster the participation of SMEs** in IS it is important to raise their awareness on the potential benefits 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. The targeted support provided by POM Limburg is a good example in this regard. Innovation support organisations at regional level have also the potential to offer competence exchange and technological advice to build an industrial symbiosis network.

Takeaways from discussion during the OIW

By-Products/End of Waste

Look first for by-products before going down the end of waste route. Can IS change the classification by creating a market, thus reclassifying what currently is a waste into a by-product? There is a need to

recognise that a single market outlet would not be able to create such a scenario, but as more IS markets are developed, the case becomes stronger.

Businesses need to show viability for the processes – taking into account ancillary savings, benefits and costs such as logistics, disposal and supply. Volumes are less important as these can be sourced from a single supplier or multiple supplier. What is important is the security of supply when considering alternative sources. Companies have to be sure that moving from a secure, virgin material based supplier contract to an IS based by-product contract will not place them in a more risky position, long term. But we should recognise that these are typical considerations that companies encounter in any contract negotiations when considering their supply chain.

There is a need to align national criteria and EU based criteria – which can often be mis-aligned or even at odds with each other. This can create confusion and uncertainty in markets and should thus be addressed going forward.

It is important for stakeholders to get involved and influence these areas. Government, producer, waste processor, consumer and regulator all have parts to play.

Data/information

Currently, data tends to be collected for regulation purposes such as reporting, rather than opportunity spotting. There are wide knowledge and information gaps, particularly between industry sectors – one sector does not appreciate what another sector may do with the same resource. By tying material flow analysis data to regulations, it becomes clear what is available, what the opportunities are and thus helps make resources more available. This also helps the case with regards to reclassification to by-products.

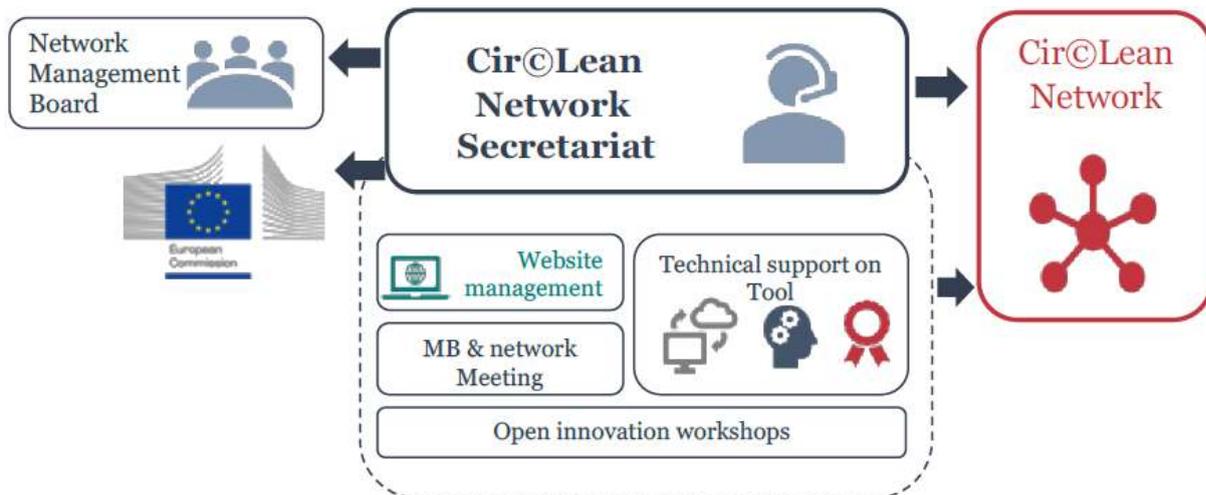
Companies need to know their resource and what they want to achieve.

Processing of waste

Segregation systems increase quality and consistency. This further aids in the case for by-products. Definite ideas and information such as type of resource, the planned route and the fate of the material would aid in finding the most appropriate route to regularisation.

Look to have more than one option or solution available. Early options may hit barriers, keep going to unlock the potential of a resource, especially if the volume is high.

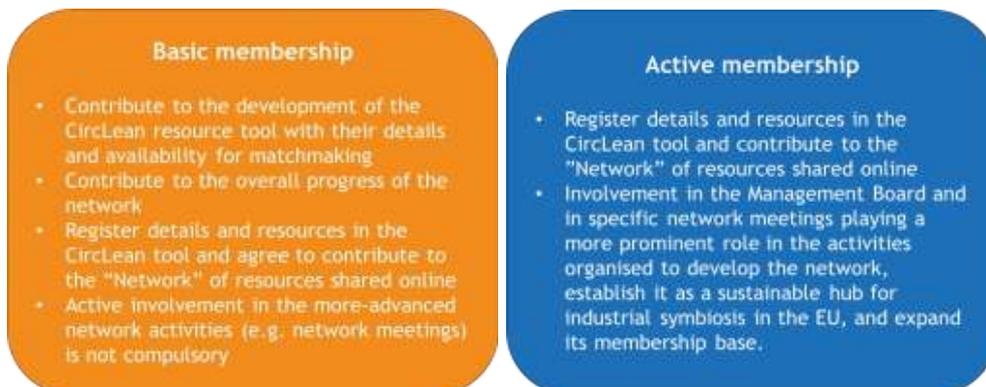
CircLean Governance



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.



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

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](#)
- Interreg Europe Policy Learning Platform's [webinar](#) on circular economy business models

Agenda from the event

Time	Sessions	Additional details	Speaker
13 :30 – 14 :00	Light lunch on arrival & Networking		
14 :00 – 14 :05	Introduction	<i>Presentation of the agenda</i>	Geraldine Brennan, CIRCULEIRE/IMR
14:05- 14:20	Speech from the representative of the European Commission about the ambition underpinning CircLean		Anestis Filopoulos, Policy Officer DG Grow, European Commission
14:20-14:35	Presentation of the CircLean toolbox (i.e., Self-assessment module and Matching tool)	<i>Overview of the use of the Self-assessment module and matching tool with Q&A</i>	James Woodcock, International Synergies Ltd
14:35-15:15	Good examples of local industrial symbiosis initiatives and projects	<i>Good examples of local industrial symbiosis initiatives and projects, followed by Q&A</i>	Moderator: Geraldine Brennan Chisom Ekamaru, Ecochem Rick Earley, Cirtex Cliona Costella, Meade Farm Group
15:15 – 15:45	Coffee Break		
15:45 – 16:30	Roundtable about the opportunities and challenges for the uptake of industrial symbiosis	<i>Discussion of the opportunities and challenges for the uptake of industrial symbiosis in Ireland</i>	Moderator: James Woodcock Speakers: Geraldine Brennan, CIRCULEIRE Catrina Collins, EPA Les Carberry, DECC Peter Laybourn, ISL
16:30 – 16:40	Presentation of the communication toolbox for CircLean Ambassadors	<i>Overview of the communication toolbox for CircLean that can be used by CircLean members and other industrial symbiosis stakeholders.</i>	Anya Gregory, Arctik
16:40 – 16:50	Presentation on how to join the CircLean network	<i>Overview on how to join the CircLean network and membership offerings</i>	James Woodcock, ISL
16:40 – 16:50	Wrap up and conclusions	<i>Takeaways messages and next steps</i>	Geraldine Brennan, CIRCULAIRE James Woodcock, ISL
	Workshop close		

