CircLean Open Innovation Workshop

8 September 2022

Rotterdam, the Netherlands

The workshop was organised by Trinomics B.V. and Arctik with support from International Synergies Limited and Technopolis. The event served as an opportunity to learn about the CircLean network and tools supporting Industrial Symbiosis transactions, share experiences and knowledge regarding industrial symbiosis (IS) transactions in the Netherlands and 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 circular 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 targeted at 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.

Examples of industrial symbiosis in the Netherlands

Symbioses for Growth (S4G) - Wouter de Buck (Rewin)

- Collaboration platform generating and stimulating industrial symbiosis cases between companies in the regions of Midden-Brabant, West-Brabant and Zeeland.
- Currently in database: 200+ companies, 1.200+ haves and wants (resources), 425+ potential matches.
- Simple matches are realised by companies themselves, potentially supported by project leaders; Complex matches are further supported by project leaders.
- Lessons learnt: Companies have limited time/capacity, need to be inspired and supported; 'Brokers' are vital in realising successful matches; Successful realisation starts with broad support + a good plan; Synergie 4.0 methodology and database (which the CircLean tools have used as basis) proved useful; Don't overcomplicate things or theorise too much, just start calling and organising! Also, one should start small (regional) and expand from there.

ULTIMATE Water Smart Industrial Symbiosis - Joep van den Broeke (KWR)

- Horizon 2020 project (https://ultimatewater.eu/) on "Water Smart Industrial Symbiosis" (WSIS) which contains a Dutch case study on greenhouse horticulture where water residues from sugar beets will be used to water tomatoes.

- IS in the waster sector means 1) reusing water as well as 2) reclaiming materials of value found in water.
- A challenge in reusing water lies in that it is not allowed to purify and use water directly, without having to bring the water to a water body first.
- ULTIMATE success factors for circular transitions: 1) Enabling technologies, 2) Digital support tools, 3) Exploitation/valorisation schemes; 4) Stakeholder engagement; 5) Socio-political and governance context

Port of Rotterdam, Towards a more circular port hub – Janneke Pors (Port of Rotterdam)

- The Port of Rotterdam aims to reduce it's CO2 footprint by 55% by 2030 and to be CO2-neutral in 2050.
- In 2018 they made an analysis of waste flows of the port (and found out there are over 2000 waste flows), to be able to develop a database of potential circular feedstocks and to identify waste valorisation opportunities. With this, they gained valuable insights on waste volumes and treatment routes.
- Example IS projects include among others CO2 used in agriculture, construction materials used for the construction of a tidal park for seals, residential heating produced with heat from horticulture activities.
- What is needed to advance IS developments: A clear integrated policy framework for climate, energy and circular economy; financial incentives to create a positive waste-to-value case; and market demand for circular feedstocks and products.
- Other insights: projects need to be economically viable in order to be realised; financial incentives are essential (most IS projects have obtained some kind of funding)

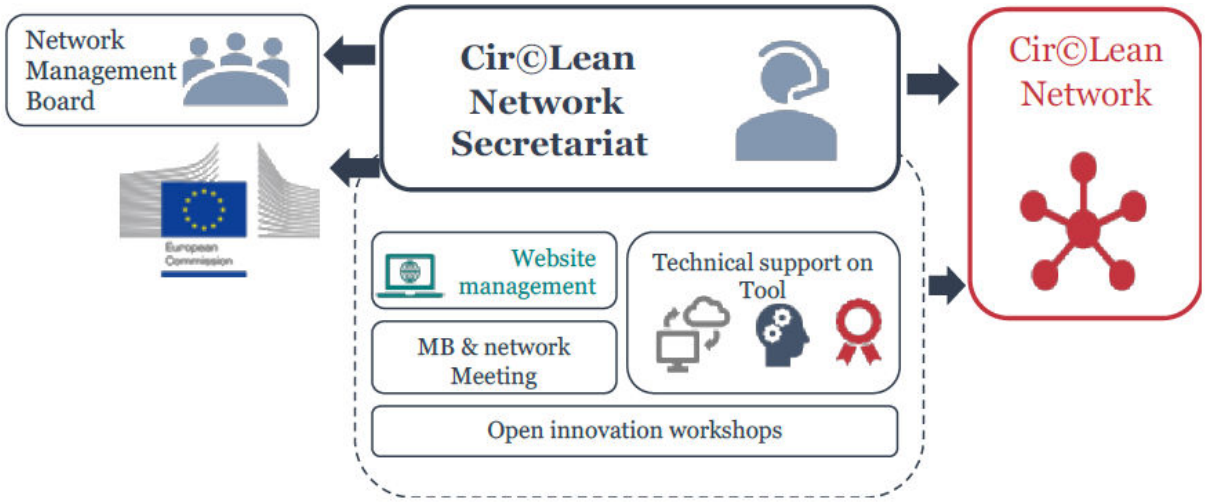
Facilitated industrial symbiosis programmes across the world – James Woodcock (International Synergies Ltd)

- Public sector supported facilitated industrial symbiosis is best model to address market failures; There is no evidence of operative fully commercial facilitation (of industrial symbiosis) in Europe;
- Studies conclude that that there is a very strong economic case for public investment in facilitated industrial symbiosis; the NISP in the UK shows this in practice.
- Industrial Synergies Ltd provides IS facilitation which consists of 1) practitioners (Industrial expertise, Long term relationship building & facilitation, Marrying data & expert knowledge; 2) Engagement Model (Extensive, diverse network; Business opportunity programme; History of exemplary performance; Demand pull on innovation); 3) Data (SYNERGie®4.0, Quality NISP® data & access to regulatory data); 4) Legal Framework & Regulatory Liaison.

Roundtable 'opportunities and challenges for the uptake of industrial symbiosis' - Moderated by Irati Artola (Trinomics)

- One of the main challenges / barriers for advancing IS in the Netherlands is the diversity of waste. Another challenge is the lack of habit of having to work together with other sectors.
- Opportunities for IS in the Netherlands: utilities-funded projects, linking IS to climate policy (as climate is a major driver in the Netherlands).
- What the European Commission can do to further stimulate IS in the Netherlands is to fund / subsidise initiatives, in particular infrastructure which tends to be very costly.

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

- **Register details and resources in the CircLean match-making tool** and contribute to the "Network" of resources shared online

Active membership

- **Register details and resources in the CircLean match-making tool** and contribute to the "Network" of resources shared online
- **Involvement in the Management Board and in specific network meetings** playing a 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.

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 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

Event agenda

Time	Sessions	Speaker
10:00 – 10:05	**Introduction**	Irati Artola, Consultant, Trinomics
10:05 – 10:20	***Online* speech from European Commission (DG GROW)**	Anestis Filopoulos, European Commission (DG GROW)
10:20 – 10:30	**CircLean network and how to join**	Irati Artola, Consultant, Trinomics
10:30 – 11:00	**The CircLean toolbox: Self-assessment module and Matching tool**	James Woodcock, International Manager, International Synergies Ltd
11:00 – 11:15 Coffee break		
11:15 - 11:40	**Symbioses for Growth (S4G)**	Wouter de Buck (Rewin)
11:40 - 12:05	**ULTIMATE – Water Smart Industrial Symbiosis**	Joep van den Broeke (KWR)
12:05 – 12:30	**Port of Rotterdam – Towards a more circular port hub**	Janneke Pors (Port of Rotterdam)
12:30 – 13:15 Lunch break		
13:15 – 13:45	**Facilitated industrial symbiosis programmes across the world**	James Woodcock, International Manager, International Synergies Ltd
13:45 – 14:30	**Roundtable 'opportunities and challenges for the uptake of industrial symbiosis'**	Moderator(s): Irati Artola, Consultant, Trinomics Panelists: Anestis Filopoulos, European Commission (DG GROW) Wouter de Buck (Rewin) Joep van den Broeke (KWR) Janneke Pors (Port of Rotterdam) James Woodcock (International Synergies Ltd)
14:30	**Wrap up and closing**	Irati Artola, Consultant, Trinomics