



*“Industrial Symbiosis: business enablers and technology drivers”, EUSEW 2021, Hosted by CORALIS Project*

An Industrial Symbiosis Incubator for  
Maximizing Waste Heat/Cold Valorization in  
Industrial Parks and Districts



**INCUBIS**  
ENERGY SYMBIOSIS INCUBATOR

## Project Summary

**Presenter:** Nick Chapman, Inveniam Group

**Date:** 14-10-2021



This project is funded by the Horizon 2020 Framework Programme of the European Union under Grant Agreement Number **894800**



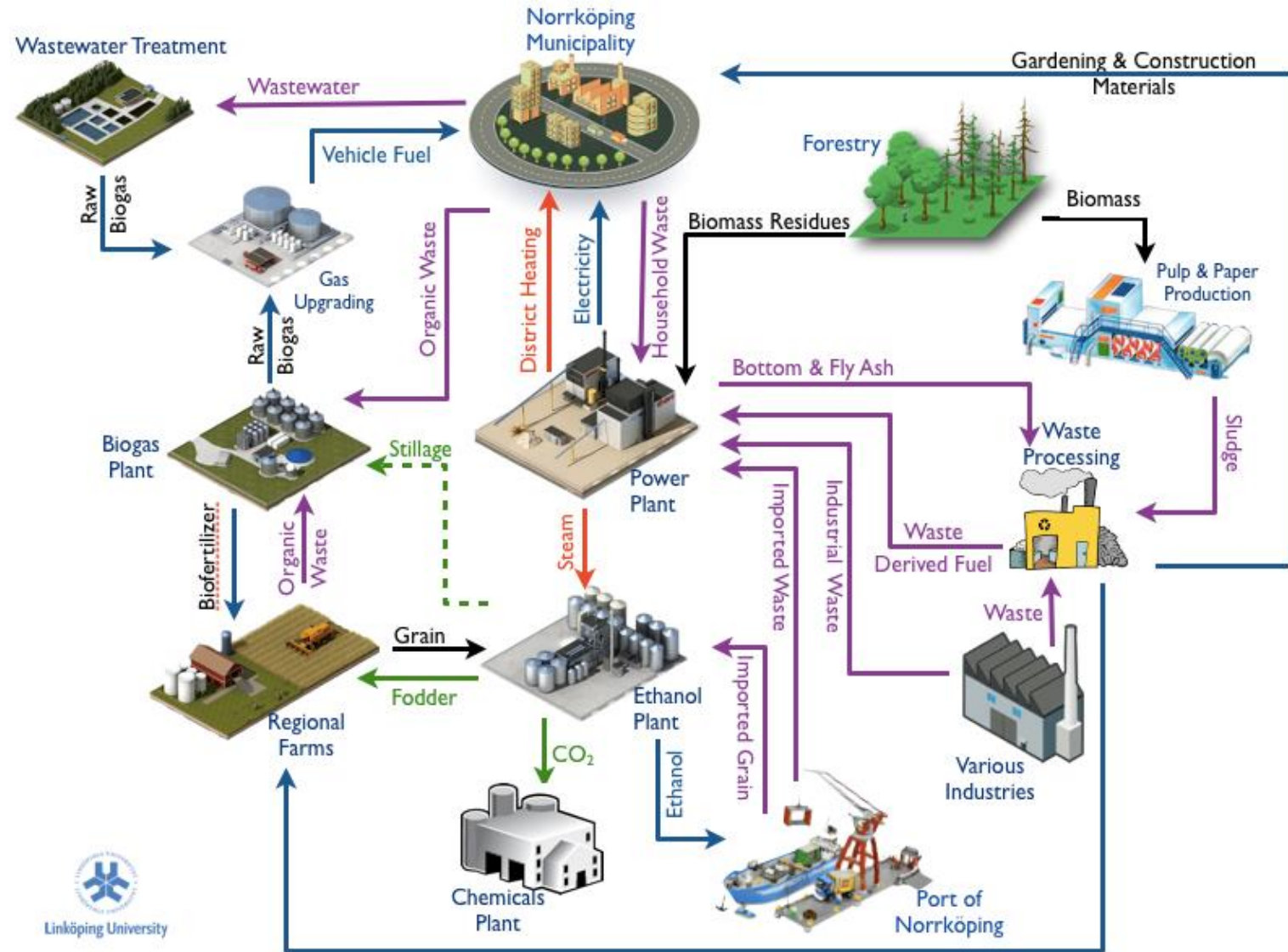
## Industrial Symbiosis:

Industrial symbiosis is the process by which **wastes** or **by-products** of one industry or industrial process become the raw materials for another.

## Energy Symbiosis:

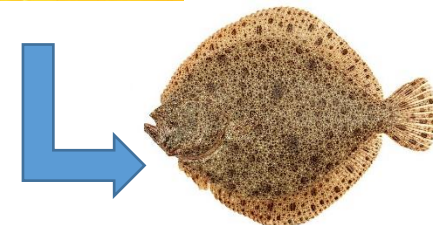
The exploitation of energy efficiency opportunities found across industrial sites and sectors:

- **Waste heat and cold recovery**
- Waste as fuel
- Bioenergy



Linköping University

- **Location:** Kvinesdal, South Norway
- **Resource valorized:** Excess Heat
- **Enabling Technology:** District Heating Network
- **Resource Provider:** Eramet Silicomanganese smelter
- **Product/Service Receiver:** On-shore fish-farm (Turbot fish) and 5 other companies
- **Operator:** Eramet
- **Success Factors:**
  - **Proximity:** low investment costs and heat losses.
  - **Collaboration:** to address variations in the energy flow.
  - **Personal relations:** a strong enabling factor for investing
  - **Progressive deployment:** Started with fish farm in 1986 and later expanded with 5 new participants by 2007



Call Details (EE-6-2019)	Topic	<b>H2020-LC-SC3-EE-6-2019 Business case for industrial waste heat/cold recovery</b>		
	Funding Scheme	<i>CSA - Coordination and Support Action</i>		
Project Details	Start date	May 1st, 2020		
	Duration	36 months (April 30th, 2023)		
	Project Budget	€2.000.000	Partners	8 (6 SMEs)
	Personnel Efforts	277 Personnel Efforts	Countries	6 (ES, UK, CH, PO, DE, NO)



<b>Fact</b>	<b>Energy Intensive Industries</b> have significant energy losses in the form of <b>industrial waste heat/cold (IWHC)</b> .
<b>Challenge</b>	IWHC recovery and reuse at the process and/or facility level is reaching its technical and financial limits. Efficiency margins are slimmer than ever.
<b>Opportunity</b>	The IWHC of one industry can be a valuable resource for other industries as well as District Heating and Cooling Operators.
<b>Goal</b>	To improve the energy efficiency of industrial agglomerations by unlocking the market potential of energy cooperation and joint energy services.

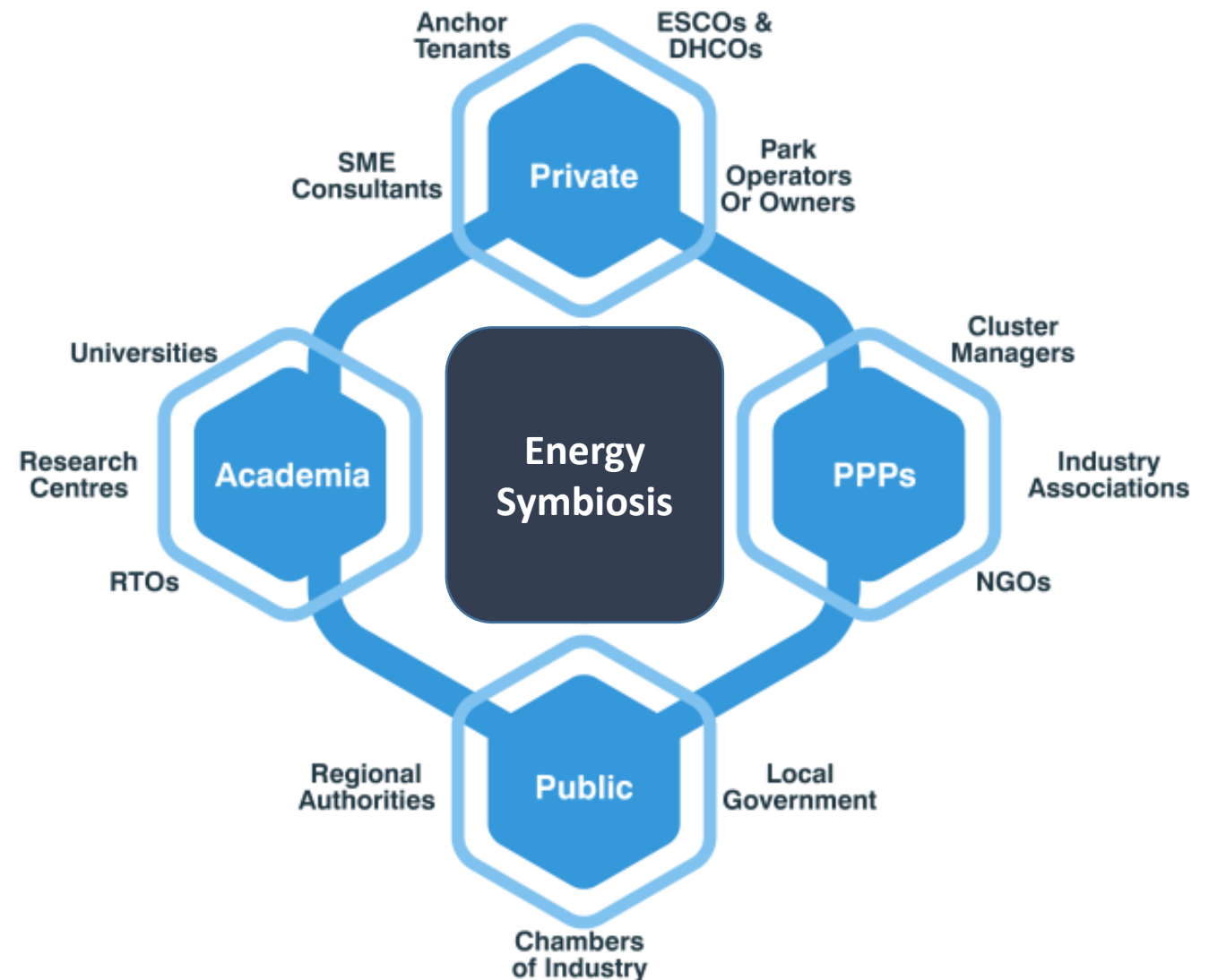


Barriers	Problem	Solution
High CAPEX and long payback periods.	Energy Symbiosis projects often get stuck and/or fail in the project development stage	An intermediary ( <b>facilitator</b> ) that can help to overcome barriers, manage risks, and deliver projects
Quantifying risk for investors		
Lack of skills, motivation and capacities within companies		
Access to data to identify and analysis opportunities		

*We need to generate facilitators by training and supporting organizations that are ideally positioned to systematically develop and deliver Energy Symbiosis projects*

## Motivation of the target audience for implementing Symbiosis

- Expanding service portfolio and increasing profit (e.g. ESCO and IPO)
- Minimizing vacant land rate (municipalities and IPOs)
- Improving and extending services down the synergy lifecycle (IS facilitators)
- Decreasing costs and increasing revenue (anchor tenants)
- Environmental and Social benefits (municipalities)
- CSR benefits (IPOs, Anchor Tenants, ESCOs)



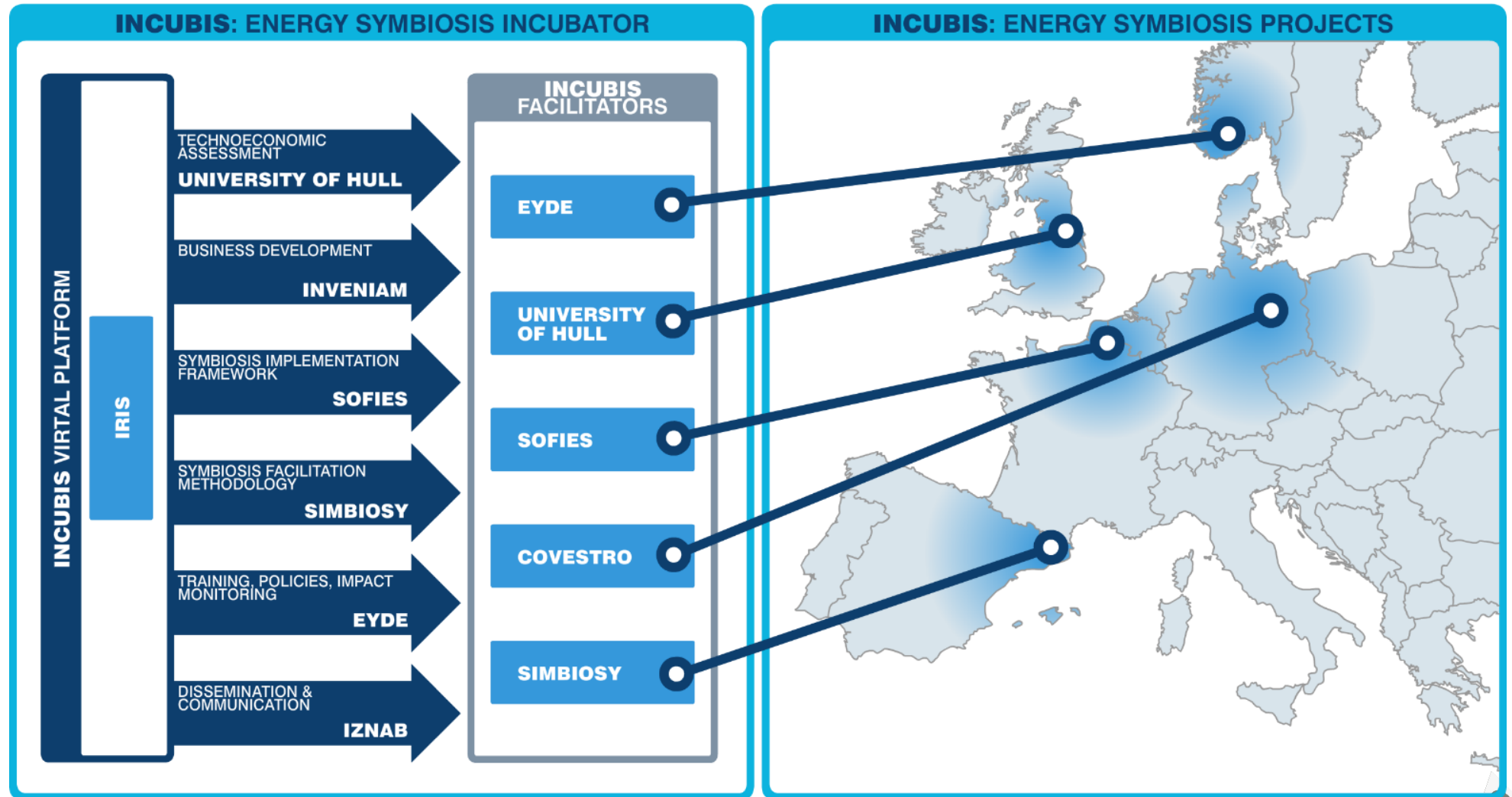


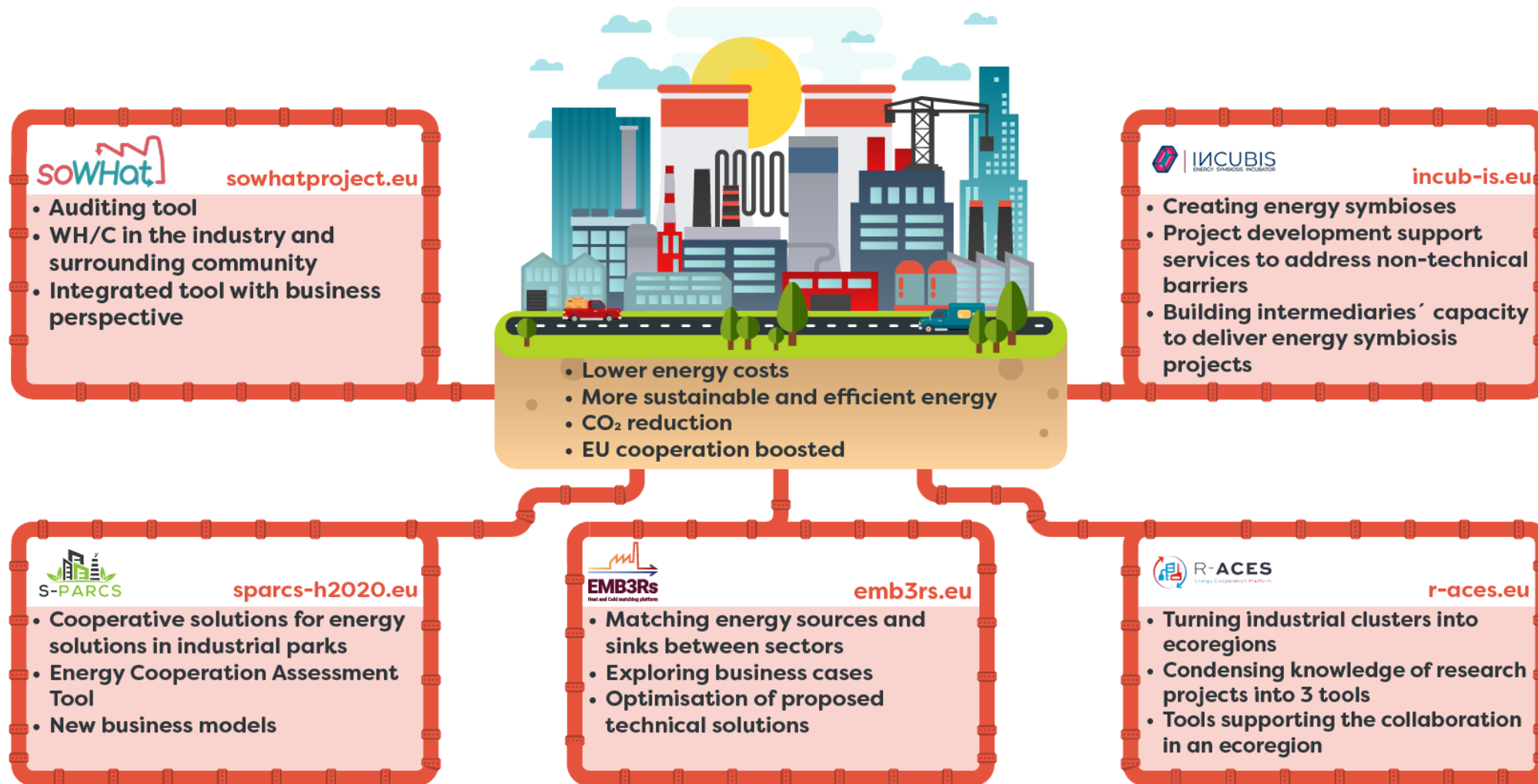
The **Energy Symbiosis Incubator** is an entity which provides support to organizations that can act as **facilitators** for Energy Symbiosis projects.

INCUBIS will deliver a range of **tools, methods and services** to candidate facilitators in order to:

- Support them in the identification, development and delivery of energy symbiosis opportunities.
- Train them and build capacity at all levels to achieve sustainable growth of energy symbiosis uptake.







1. Paris agreement and UN's sustainable development goals
2. EC's Energy efficiency directive (revised 2018)
3. "Clean Energy for all Europeans" package
4. "Accelerating Clean Energy Innovation" (COM (2016) 736)
5. Strategic Energy Technology Plan (SET-Plan): Action 6
6. Masterplan for the transformation of EU's Energy Intensive Industries
7. The European Green Deal & Circular Economy Action Plan
8. SPIRE cPPP 2050 Roadmap.