



ALMA MATER STUDIORUM
UNIVERSITÀ DI BOLOGNA

INDUSTRIAL SYMBIOSIS

Moving towards a more collaborative and integrated industrial ecosystem through an exchange of materials, water, energy stream, services and expertise.



Research at the University of Bologna covers a wide range of topics:

- Characterisation of the Italian and European industrial ecosystems such as the industrial district, EIP (Eco-industrial park) and APEA (Area produttiva ecologicamente attrezzata)
- Methodology and tools for the industrial symbiosis implementation
- Designing plants integration for energy efficiency
- Categorizing productive sectors and mapping industrial activities
- Supporting digital platforms through ICT and database tools for triggering data collection, stakeholders involvement and exchange opportunities
- Exploring the valorisation of the industrial waste as secondary raw material within the industrial ecosystem
- Exploring the opportunity to use by-products, debris and remains within the industrial ecosystem
- Designing potential synergies and matching among firms
- Developing new plants, processes and technologies for services, utilities and infrastructure sharing and process/products valorisation
- Assessing environmental and economic impact through LCA and LCC studies for alternative and more sustainable scenarios
- Policy and legislative recommendations for promoting the application of a circular economy approach among companies
- Designing new and competitive business models based on a circular economy approach

HIGHLIGHTS

The University of Bologna has established an extensive network of collaborations with multi-utilities, public authorities, SME and industries; it is also **participating in the Symbiosis Users Network (SUN)** and it is **partner of the EIT Raw Materials and the EIT Climate-KIC**.

The University of Bologna contributes to the European progress in research and innovation **taking part to several funded projects**, such as: **TRIS - Transition Regions Towards Industrial Symbiosis as member of the Industrial Symbiosis Lab - Emilia Romagna Region**; **the FLAGSHIP EIT CLIMATE KIC: Re-industrialise, e-Circular, INSIGH, Surplus mall**; **the POR-FESR 2014-2020 - GREEN CHARCUTERIE** aimed at innovating the pig industry through the valorisation of vegetable by-products and the use of advanced process technologies for the sustainable production of meat and cured meat having a positive impact on health; **VALSOVIT** for the sustainable valorisation of the wine industry waste in the chemical, cosmetics and nutraceutical sectors; **SOSTINNOVI** on sustainability and Innovation in the Wine Supply Chain.