Shaping symbiosis in bio-based industrial ecosystems based on circular by-design supply chains

MEET YOUR SUSTAINABILITY TARGET

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SERN-Start up Europe regions network

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SYMBIO project in a nutshell

The SYMBIO project provides:

- **Tools** and **methodological approaches** to **building bio-based business models** based on circularity by design and industrial symbiosis
- **Symbiotic business models** with high-profitability sustainability replicable at the EU level, **tested and validated in 12 EU pilot regions** (Italy, Austria, Flanders, Spain, Slovenia, Croatia)
- **System measuring** and **monitoring symbiosis** and its social, economic and environmental impacts
- **Approach** involving all **supply chain actors** in participatory pathways to the green transition

Topic: **HORIZON-CL6-2023-CircBio-01-7**
Type of action: HORIZON Coordination and Support Actions
Grant amount: 1.301.000€
Project duration: 36 months (1/1/2024 – 31/12/2026)
Project coordinator: **Lombardy Green Chemistry Association – LGCA (Italy)**
Project partners:

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Specific objectives

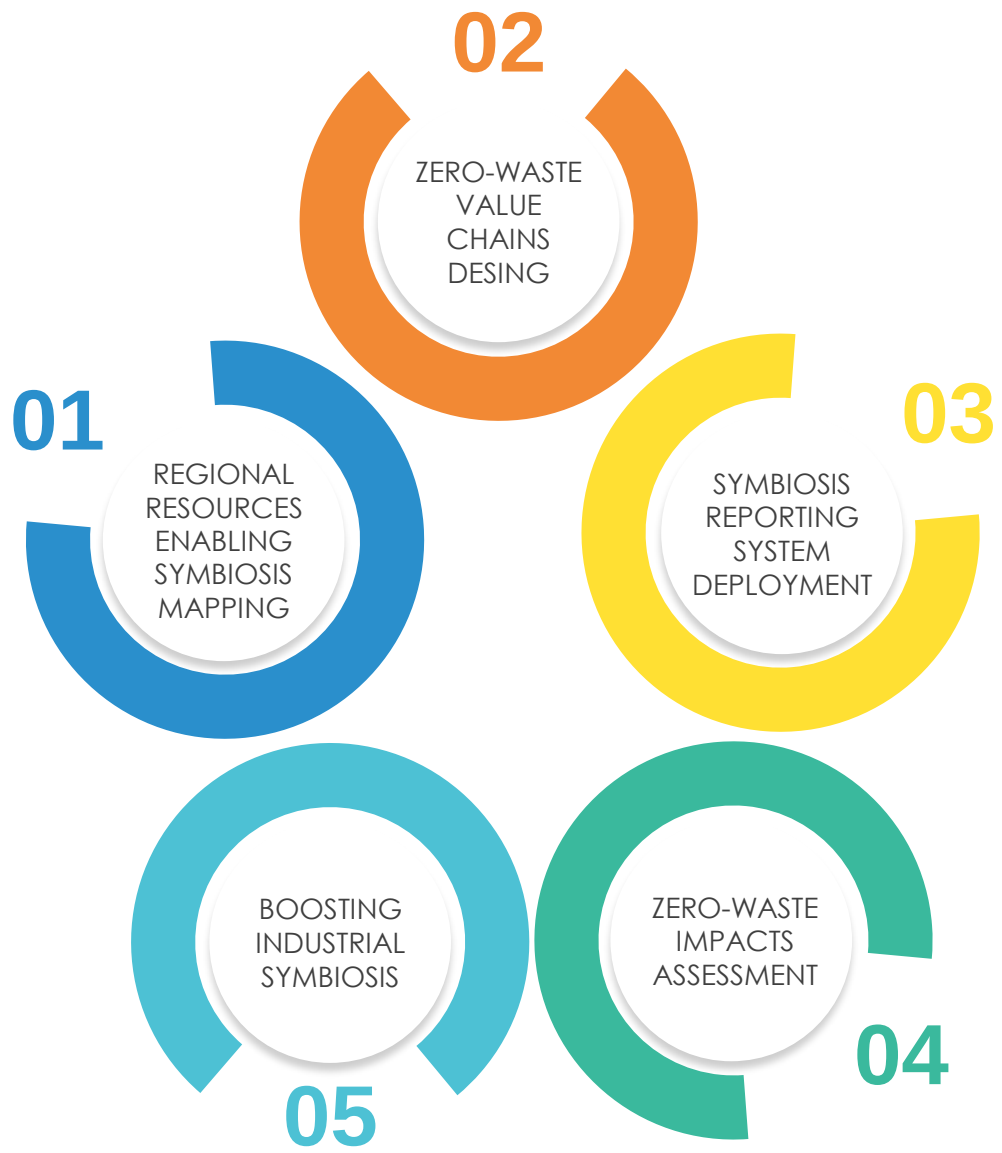
01 Evaluating **bio-based resources** and **solutions** enabling industrial **symbiosis** and circularity by design

02 Shaping symbiotic **value chains** using a **zero-waste** approach through big data and AI tools

03 Designing a **reporting system** of **10 industrial symbiosis models** based on multi-stakeholder engagement

04 Demonstrating zero waste's **economic**, **social** and **environmental impacts** of industrial symbiosis models

05 Engaging **multi-stakeholder** in accelerating local **industrial symbiosis** and training of circular practitioners



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Pilot regions

Methodology designed, tested and validated in **12 EU pilot regions** selected based on their biological resources, infrastructure and potential for developing close-to-market CBE supply chains.

Austria

Carinthia

Belgium

Brussels Capital, Wallonia, Flanders

Croatia

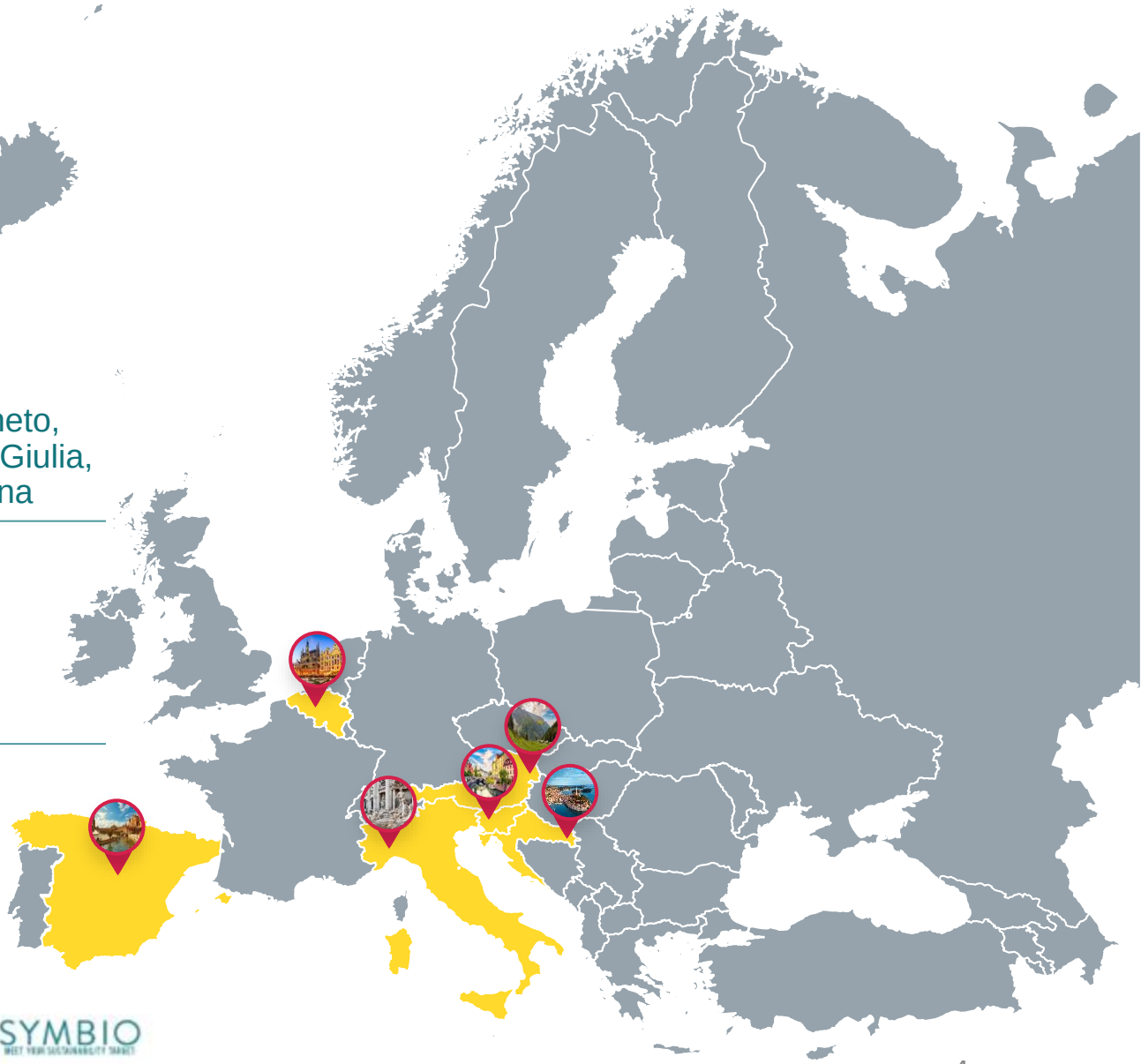
Italy

Lombardy, Piedmont, Veneto, Friuli-Venezia Giulia, Emilia-Romagna

Spain

Andalusia

Slovenia



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Methodology and results

DATA-HUB BUILDING

Explore and analyze regional resources that trigger symbiotic activities close to the market.

- Inventory of regional inputs/outputs
- Ranking factors enabling circularity by design

- 12 pilot regions involved
- 10 main gaps selected

VALUE-CHAIN DESIGN

Connecting companies in circular value chains based on their specific material flows and available technologies

- 150+ technologies available to cluster/business networks thanks to tailor-made training
- Prioritisation of circular by-design value chains

50 cross-sectional value chains based on zero-waste supply chains modelled

BUSINESS MODELLING

Development of a circularity index and reporting system to support companies in building a circular business model

- Selecting high-potential industrial symbiosis models by MCDA
- Reporting system fully integrated into the corporate Sustainability Reporting Standards.

- 10 symbiosis business models
- 3 dimensions of sustainability
- 6 multi-stakeholder workshops

BUSINESS DEPLOY

Accelerate business case development by measuring social, economic and environmental impact

- LCC, LCA, social and sociological benefits assessment
- Synergies with EU projects, networks, initiatives Exploitation routes

- 1,000 subjects reached
- 3 thematic events organised
- Policy recommendations

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Expected outcomes

Ensuring biomass security through supply chain diversification and economies of scale.

Identifying circular infrastructure gaps and accelerate the implementation of net-zero emissions technologies.

Creating a regional stakeholder community for symbiotic business models.

Supporting corporate decision-making processes to be integrated into sustainability reports to increase circularity performance.

Leveraging EU networks, projects and initiatives to embed circularity indicators/measurements.

Measuring the level of integration of **renewable energy** and **raw materials** through eco-design of high added value biobased products.

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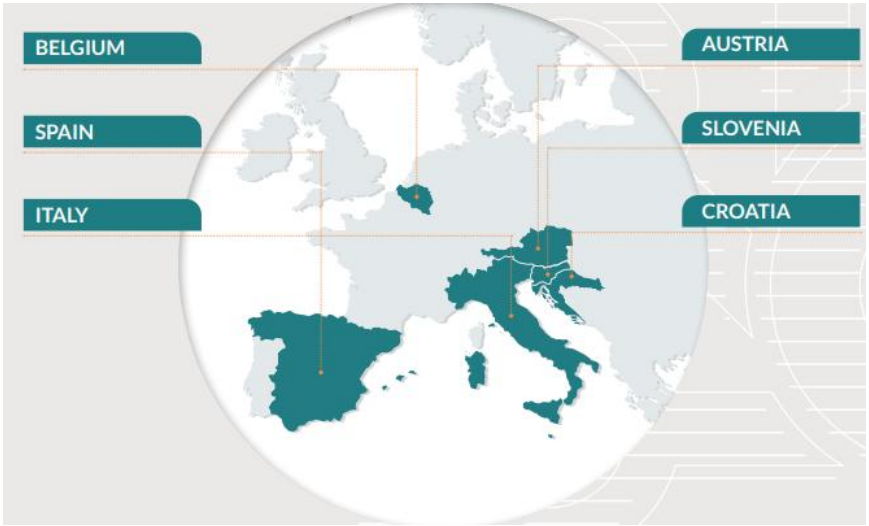
Regional resources enhabling industrial symbiosis

The SYMBIO Regional Hub handbook and Data-Hub inventory

01 It **selects and analyses** 12 promising **biobased products**

02 It provides a comprehensive **analysis of biobased raw materials, technologies and business models** present in the pilot regions.

03 It assesses the **innovation ecosystem actors** in the pilot regions, identifying those with the potential to act as catalysts for industrial symbiosis.



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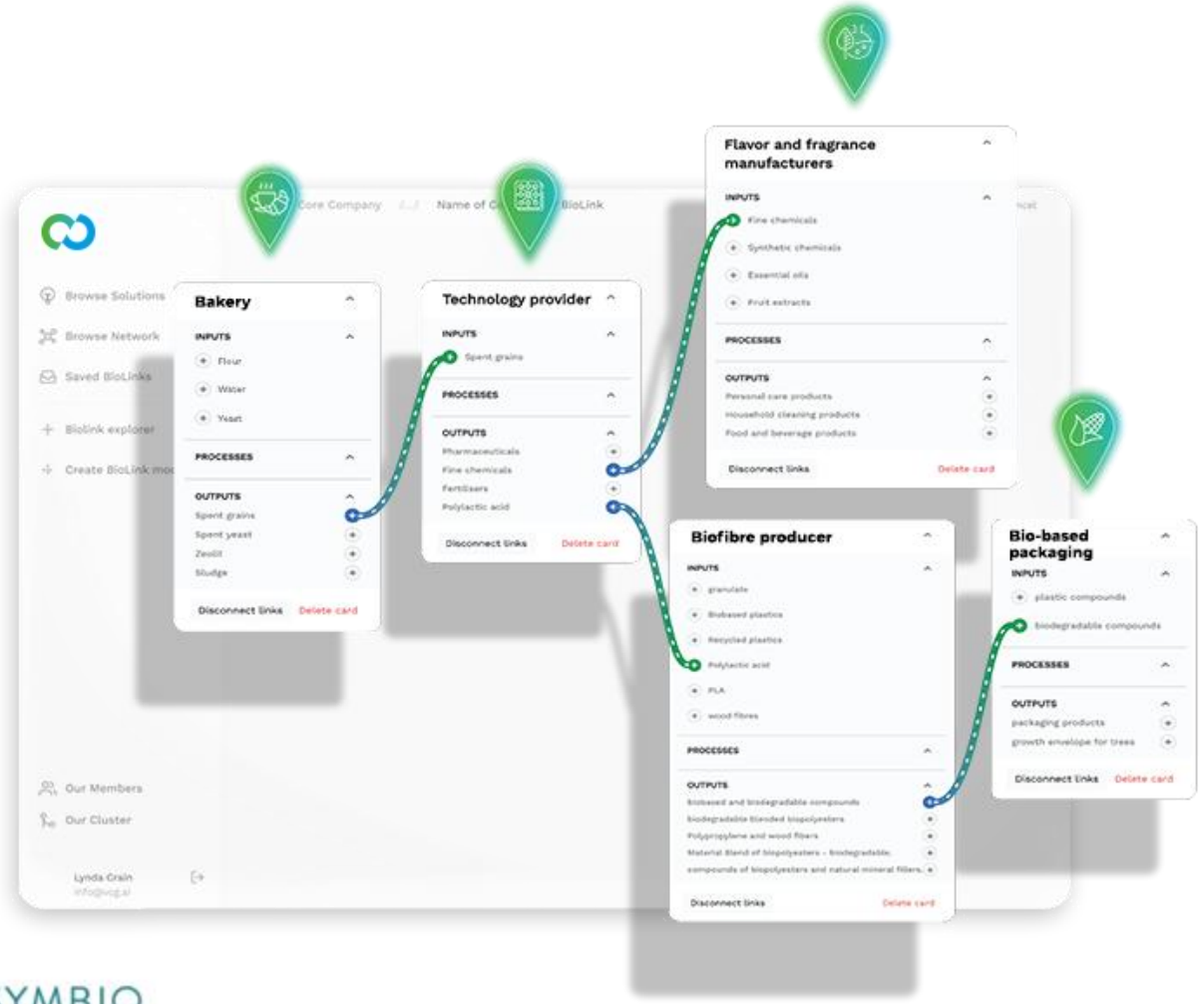
Zero-waste value chains desing

Value Chain Generator®

01 It **detects** the **organic residuals** most suitable for a value-adding transformation across all **supply chains** and **regions**.

02 It **evaluates** and **de-risks** each circular **opportunity**, leveraging global techno-economic and climate intelligence for over **400 conversion technologies** and business models.

03 It also matches you with the right supply chain **partners** and **technology** providers to ensure the successful execution of the circular business model.



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AGENDA

SYMBIO second online technical workshop

3 April 2025 / 9:30-12:45

Register here

Driving SME Sustainability and Circular Innovation: Strategies, Tools, and Advocacy for a Resilient Future

PROGRAMME:

5 min	**Welcome and objectives of the workshop**
	SERN-Start up Europe regions network
1:30 h	**Empowering Circular Value Chains with the Value Chain Generator tool (VGA.AI)**
	ANTEJA ECG – Project partner
5 min	**Q&A Session**
1:30 h	**Empowering SMEs for Sustainability: Advocacy, Mentoring, and Strategic Transition**
	LGCA- Lombardy Green Chemistry Association -Project partner
5 min	**Q&A Session**

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Stay up to date on SYMBIO activities!

https://www.symbioproject.eu/index.html

https://www.linkedin.com/company/symbio-project/posts/?feedView=all

https://www.youtube.com/@SYMBIOprojectEU

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Thank you

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