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**Newsletter, Annual Edition #1
(November 2024 – October 2025)**

A New European Alliance for advancing the Circular Economy through Digital Industrial Symbiosis

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From Vision to Action

"The European Alliance for advancing the Circular Economy through Digital Industrial Symbiosis (**SymbioTech**)" project, funded by the **Erasmus+ Programme** (Alliances for Education and Enterprises), brings together **11 partners from 11 European countries** to accelerate the transition to a circular economy through **Digital Industrial Symbiosis (DIS)** — where waste or surplus resources from one company become valuable inputs for another.

Led by **AGH University of Krakow** (Poland), the consortium connects universities, VET providers, SMEs, and public agencies to cultivate a new generation of professionals – the **SymbioTech Managers** – capable of driving the twin green and digital transformations across Europe's industrial landscape.

"SymbioTech is more than a project – it's a collaborative ecosystem for rethinking how industries can share resources, create value, and innovate sustainably."

— Prof. Dagmara Lewicka, Project Coordinator, AGH University of Krakow

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Why Industrial Symbiosis Matters

Industrial Symbiosis (IS) represents a proven mechanism for achieving circularity by turning one company's by-products or waste into another's valuable input.

Digital Industrial Symbiosis (DIS) enhances this mechanism through the use of **AI, IoT, blockchain, and data analytics**, allowing partners to identify and manage resource synergies in real time.

Despite its potential, the European uptake of DIS remains fragmented. **SymbioTech** responds by developing the competences, tools, and networks required to make IS adoption easier, smarter, and more widespread across regions and sectors.

Did you know?

- Only 12% of materials in the EU economy come from recycled sources.

- Digital Industrial Symbiosis could save up to €600 billion annually in resource costs (EU Commission data).

- Every 1 tonne of reused materials reduces up to 2 tonnes of CO_2 emissions.

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How SymbioTech Makes the Transition Seamless

While the potential of Industrial **Symbiosis** is widely recognised, many regions and SMEs still face barriers — from lack of technical know-how and digital tools to limited coordination among stakeholders.

SymbioTech addresses these challenges by:

- Developing a **Digital Industrial Symbiosis platform** that uses data and AI to match resource exchanges between companies;

- Creating a new **curriculum and training programme** to equip professionals with the skills to design, manage, and monitor symbiotic industrial networks;

- Establishing **Knowledge Committees** in 11 partner countries to connect academia, policymakers, and industry;

- Promoting **gender inclusion and youth participation** in green innovation and circular economy sectors.

The project's ultimate goal is to make the **transition to Digital Industrial Symbiosis seamless, practical, and scalable** — turning abstract sustainability goals into concrete economic opportunities for European SMEs.

Through these actions, the project will foster employability, strengthen innovation ecosystems, and contribute to the implementation of the **EU Green Deal** and **Circular Economy Action Plan**.

Meet the Consortium

SymbioTech unites **11 partner organisations from 11 countries** from across Europe:

- ◼ **HEIs:** AGH University of Krakow (Poland), University of Patras (Greece), IMC Krems University of Applied Sciences (Austria), VSB–Technical University of Ostrava (Czech Republic)

- ◼ **VET providers:** In Dialogue Denmark (Denmark), Chamber of Commerce and Industry Vratsa (Bulgaria)

- ◼ **SMEs:** Dermol Svetovanje (Slovenia), Exeo Lab (Italy), Lidi Smart Solutions (The Netherlands), Prios Kompetanse (Norway)

- ◼ **Public authority:** Slovak Innovation and Energy Agency – SIEA (Slovakia)

Together, we represent a **strong transnational alliance** linking education, research, and industry for sustainable innovation in circular and digital transformation.

Project Launch Events

Online Pre-Kick-off Meeting
29 November 2024

Hosted by AGH University of Krakow, the online session gathered all partners to introduce the project's structure, objectives, and work package cooperation plan. The agenda included presentations by all teams and discussion on management tools and communication procedures.

Kick-off Meeting in Krakow, Poland
20–21 January 2025

The in-person kick-off brought all 11 partners together to set the project in motion. Discussions focused on the project management plan, financial procedures, reporting system, and establishment of the **Steering Committee, Technical Management Team, and Quality Monitoring Committee.**

"This meeting set the tone for strong cooperation and a shared ambition to scale Digital Industrial Symbiosis across Europe." – Prof. Dagmara Lewicka, AGH

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Stakeholder Engagement at the Core of SymbioTech

During the **first project year**, engagement followed a progressive methodology:

1. Awareness and orientation – introducing Industrial Symbiosis (IS) and Digital Industrial Symbiosis (DIS) concepts;

2. Validation and feedback – discussing needs, barriers, and early findings;

3. Early co-creation – shaping curricula, tools, and learning pathways;

Between November 2024 and October 2025:

- **22 stakeholder workshops** were organised across partner countries;

- **395+ stakeholders** were directly engaged;

- stakeholders included **SMEs, HEIs, VET providers, public authorities, innovation agencies, researchers, students, and policy actors.**

Stakeholder Workshops

AGH University of Science and Technology, Poland

Two academic-focused stakeholder workshops were organised, introducing the SymbioTech project, Industrial Symbiosis concepts, and preliminary research findings, and presenting the role of the Knowledge Committee.
Read more **here**.

University of Patras, Greece

Two workshops were organised: an online introductory workshop and an in-person thematic workshop focused on Industrial Symbiosis in the agri-food sector, including a scenario-based group exercise. Read more **here**.

EXEO Lab, Italy

Two regional stakeholder workshops in Potenza combining awareness-raising and discussion of local circular economy challenges. Read more **here**.

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Stakeholder Workshops

VSB – Technical University of Ostrava, Czech Republic

Two on-site workshops held during academic and international events, focusing on needs-mapping results, Knowledge Committees, and training implementation requirements. Read more **here**.

IMC Krems University of Applied Sciences, Austria

imc University of Applied Sciences

Two online national stakeholder workshops introducing the project, Digital Industrial Symbiosis concepts, and preliminary research findings. Read more **here**.

Chamber of Commerce and Industry Vratsa, Bulgaria

Two regional stakeholder workshops embedded SymbioTech in local SME and policy ecosystems: the first introduced the project and core concepts, and the second presented cross-country needs mapping results and upcoming training and digital tools. Read more **here**.

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Stakeholder Workshops

PRIOS Kompentanse, Norway

Stakeholder workshops embedded in cluster events and Chamber of Commerce meetings, linked to real industrial symbiosis initiatives. Read more **here**.

Dermol d.o.o., Slovenia

Two international stakeholder events, including a large-scale online workshop and a hybrid Project Opportunities Forum linked to an international conference. Read more **here**.

In Dialogue Denmark (IDDK) Denmark

Two national workshops (June 2025 online; August 2025 in-person) focusing on project introduction, progress, and stakeholder participation opportunities. Read more **here**.

in Dialogue
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development & growth

Stakeholder Workshops and Second Partner Meeting in Roskilde, Denmark

Lidi Smart Solutions, The Netherlands

Two national workshops following a validation and co-design trajectory focused on needs-mapping results, learning pathways, and training implementation requirements. Read more **here**.

Slovak Innovation and Energy Agency (SIEA), Slovakia

Two national online workshops focusing on project introduction and digital IS tools.
Read more **here**.

Second Partner Meeting in Roskilde, Denmark 21-22 October 2025

The meeting was hosted by IDDK and brought together representatives of all partner organisations from 11 European countries to review the progress of ongoing activities and set the course for the next implementation phase of the project. Read more **here**.

Knowledge Committees:
Anchoring SymbioTech Locally

To ensure long-term relevance and territorial anchoring, **Knowledge Committees** have been established in **all partner countries**. These permanent dialogue platforms connect education and training providers, industry and SME representatives, policymakers and public authorities.

Across all partner countries, early discussions revealed the following common challenges:

- many SMEs already exchange resources informally, without structured support;

- digital tools are perceived as essential but difficult to access;

- there is a clear skills gap at the intersection of sustainability, digitalisation, and business.

Insights and feedback from the Knowledge Committees directly inform the project's training and digital outputs.

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What the Data Shows: Mapping Europe's Needs

A **European survey** on **Industrial Symbiosis**, conducted during the reporting period, confirmed that:

- most **responding companies** are already **involved** in some form of **resource exchange**;

- **SMEs** are central actors but face capacity constraints;

- key drivers are **cost reduction** and **environmental performance**;

- **exchanged resources** include materials, by-products, energy, and water;

- key barriers remain **lack of digital tools, specialised expertise, and coordination mechanisms.**

The findings validate SymbioTech's core assumption: the challenge is not awareness, but capability and scalability.

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From Insights to Solutions

A New Professional Profile

SymbioTech is developing the profile of the **SymbioTech Manager** — a professional able to:

- **identify** and **design** symbiotic opportunities,

- **coordinate** diverse stakeholders,

- **use** digital tools to **manage** resource flows,

- **align** economic, environmental, and regulatory perspectives.

Education and Training

- higher education,

- vocational education and training,

- lifelong learning contexts.

The curriculum is grounded in real-world needs identified through workshops and surveys.

Digital Tools   In parallel, the **consortium** is developing:

- a **Digital Industrial Symbiosis Platform** for data-driven matching of resource flows;

- **complementary tools** supporting energy and resource optimisation.

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Inclusion and the Human Dimension

SymbioTech actively promotes **gender equality, youth participation, and inclusion.** Women, students, and young professionals are systematically engaged across workshops, surveys, and dissemination activities.

The project recognises that the **green and digital transitions must also be social transitions.**

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Looking Ahead

The next phase will focus on developing the **SymbioTech Manager modules** for EQF5 and EQF6 levels, the SymbioTech **AI Collaborative Platform**, the **SymbioEnergy tool**, and more.

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