LIAISE | Cooperation, development and cross-border transfer of industrial symbiosis

D3.4. Report about the collaborative section set up on LIAISE website for enhancing IS awareness

Author: Aneesa Reeve

Created 20/03/2024 Rev 0

cost EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

Funded by the European Union

TABLE OF CONTENT

Project Action Context

In the context of addressing climate change, industrial sectors play a significant role as major contributors to carbon dioxide emissions, energy consumption, and waste generation. To combat these challenges, adopting a Circular Economy strategy is imperative. The Circular Economy model diverges from the traditional linear approach by promoting sustainable production and consumption practices while considering societal, environmental, and economic factors in a balanced manner.

Industrial Symbiosis (IS) emerges as a practical solution within this framework. In IS, waste or by-products generated by one industry are repurposed as resources for another, presenting opportunities for environmental sustainability and economic efficiency. Despite its potential, many companies and industrial actors lack awareness of IS, and its development is hindered by various barriers, including environmental, economic, technical, regulatory, organizational, social, and cultural challenges.

To address these issues, the LIAISE COST Action seeks to foster an inclusive and holistic IS approach. By fostering synergies among stakeholders from diverse sectors and laying the groundwork for knowledge enhancement, LIAISE COST Action aims to bridge the gap between theory and practice. This initiative will involve developing a participatory approach to support cross-sector collaborations and establishing Key Performance Indicators (KPIs) for assessing the effectiveness of IS business models in industry.

The LIAISE COST Action represents a collective effort to make the Industrial Symbiosis a reality across Europe, fostering collaboration among researchers, practitioners, and policymakers. To achieve these objectives, LIAISE COST Action will leverage the expertise of four interdisciplinary Working Groups (WGs) and integrate their findings through a reference framework. This holistic approach aims to drive meaningful progress towards sustainable industrial practices and contribute to a more Circular Economy.

1. Executive Summary

This deliverable D3.4is focused into the development and impact of a collaborative section on the LIAISE COST Action's website, aimed at enhancing Industrial Symbiosis (IS) awareness. This collaborative platform is designed as a central hub for sharing knowledge, strategies, and success stories, engaging a wide range of stakeholders including academia, industry, policymakers, and the general public. Key elements discussed include the structure and content of the website, the development process, stakeholder engagement, and feedback mechanisms. The report also presents challenges identified through LIAISE CA members' survey on the issue and proposes strategies for continuous improvement.

2. Introduction

Industrial Symbiosis (IS) plays a crucial role in fostering sustainable economic practices by promoting the use of waste as a resource. The LIAISE COST Action's initiative aims to create a collaborative section within its website serves as a pivotal tool in increasing IS awareness and engagement across Europe. The objective of this report is to detail the development and content of the collaborative section within the LIAISE COST Action's website. This section aims to enhance IS awareness by mapping existing concepts, strategies, best practices, case studies, projects, and success stories worldwide. The collaborative section is a crucial part of Work Group 3 (WG3) efforts to promote IS and engage various stakeholders including academia, industry, policymakers, and the general public.

3. Objectives and Goals

The primary goals of the collaborative section are:

- To raise awareness and acceptance of IS by providing comprehensive resources and information.
- To facilitate the exchange of knowledge and best practices among stakeholders.
- To support the implementation of IS by sharing success stories and case studies.
- To promote collaborative projects and strategies that enhance IS adoption.

4. Literature review

The latest research on IS and digital collaboration platforms highlights several key findings:

Digital platforms can help address barriers to industrial symbiosis implementation. Studies show that IS platform developers are designing solutions to overcome cooperation, technical, and data confidentiality challenges [1,2].

Platforms facilitate workshops for companies to explore synergies, provide tools and expert knowledge to identify and implement IS exchanges, and quantify the economic and environmental benefits to motivate participation [1].

However, platforms still face the "chicken-and-egg" problem of building a critical mass of both supply and demand users. Strategies like collaborating with industrial park organizations or being

open to all interested companies are used to recruit more participants, though platforms often still require government subsidies to operate [1].

The IS toolkit highlights the broad applicability of IS across sectors, with examples ranging from heat/energy exchange to equipment reuse [3]. But barriers like high transportation costs, dispersed production, and suboptimal economies of scale can hinder IS adoption in some cases [3].

Overall, the research indicates that digital platforms are a promising approach to enable industrial symbiosis, but significant challenges around user engagement and self-sustaining operations remain. Continued innovation in platform design and governance is needed to drive wider uptake of circular economy practices through IS [1,2].

5. Methodology

This section outlines the methods employed to gather insights from the COST Action (CA) members through a structured survey. The aim was to harness collective expertise and preferences to tailor the collaborative platform to the needs and expectations of the stakeholders involved in promoting IS.

The primary objective of the survey was to collect actionable feedback from CA members on various aspects of the proposed collaborative platform, including desired content, features, usability, and engagement strategies.

The survey consisted of a mix of multiple questions and ended and open-end questions.

The survey was distributed electronically to all CA members, The total number of responses received was 44, which provides a robust basis for analysis.

WG3 core group used the descriptive statistics to summarize the data and inferential statistics to draw conclusions about the broader CA member population. Survey results were directly used to inform the development phases of the collaborative platform. Specific features and content areas highlighted by respondents were prioritized. The results also helped in shaping a stakeholder engagement plan, ensuring that the platform aligns with the needs and preferences of its primary users.

6. Content and structure

The collaborative section is suggested (based on the survey result- Q2.1, See Annex I) to follow the following structure with the respective key components as:

1. Existing Concepts and Theories

A comprehensive overview of the current state of IS theories and concepts, including definitions, frameworks, and academic research.

2. Strategies and Best Practices

Detailed descriptions of successful IS strategies implemented globally, focusing on policy instruments, governance models, and economic incentives.

3. Case Studies

A curated collection of case studies that highlight successful IS projects, showcasing the challenges faced and the solutions implemented.

4. Projects and Initiatives

Information on ongoing and completed projects related to IS, including project goals, methodologies, outcomes, and lessons learned.

5. Success Stories

Anecdotal accounts and testimonials from organizations and communities that have benefited from IS practices, emphasizing the environmental, economic, and social impacts

The survey results underscore the need for a strategically planned collaborative section that addresses the identified challenges while capitalizing on the strengths and opportunities presented by the COST Action network. Effective stakeholder engagement, clear communication, and meticulous content management emerge as key areas requiring focused efforts.

Key Challenges Identified: Several challenges were highlighted by the respondents (results of open questions: Q3.2, Q4.1, Q4.2) that could potentially impact the creation and sustained success of the collaborative section:

- Time Constraints and Resource Availability: A significant concern among members was the availability of time and resources, both in terms of content creation and ongoing engagement.
- Stakeholder Engagement and Coordination: Engaging a diverse group of stakeholders effectively and coordinating their contributions were seen as major challenges. Respondents emphasized the need for clearly defined value propositions to maintain stakeholder interest and participation.
- Content Relevance and Management: The challenge of compiling, categorizing, and maintaining up-to-date and relevant content was frequently noted. There was a specific call for a robust system to manage the wide variety of materials and information that would be shared on the platform.

All these conclusions were agreed by WG3 Core Group and transferred to the website developer to create this new section.

7. Development, visualization and accessibility of the collaborative section

Based on the survey results as below, the Development of the collaborative section involves several key activities:

1. Data Collection and Analysis

- Gathering information from various sources, including academic publications, industry reports, and government documents.

- Analysing the data to identify common themes, successful strategies, and key challenges in IS implementation.

2. Stakeholder Engagement

- Engaging with stakeholders through workshops, webinars, and virtual meetings to gather insights and feedback on the collaborative section content.

- Involving stakeholders in the content creation process to ensure relevance and accuracy.

3. Content Creation and Curation

- Creating and curating content for each section, ensuring it is accessible and informative for a wide audience.

- Utilising multimedia elements such as videos, infographics, and interactive tools to enhance user engagement.

4. Technical Development

- Developing the technical infrastructure of the collaborative section, ensuring it is user-friendly and easily navigable.

- Implementing features that allow users to contribute content, share feedback, and engage in discussions.

Visualization and Accessibility: Content is designed to be visually appealing and accessible to a diverse audience. Infographics, videos, and interactive visuals are used to explain complex concepts and data. Accessibility features, such as text-to-speech and high-contrast modes, ensure that the platform is inclusive for all users, regardless of their physical abilities or technical proficiency.

8. Evaluation and continuous improvement

To ensure the platform remains relevant and effective, a robust content management and update strategy is in place:

- Regular Reviews and Updates: The content is going to be reviewed on a bi-annual basis to ensure accuracy and relevancy. Updates are made to reflect new insights, emerging trends, and community feedback.
- Stakeholder Contributions: Members are encouraged to contribute to the content, whether through submitting case studies, participating in expert interviews, or providing updates on recent IS projects. This collaborative approach helps to diversify the content and ensure it meets the needs of all user groups.
- Feedback Mechanisms: User feedback is continuously solicited and analysed to identify areas for improvement. Surveys, comment sections, and usability tests provide valuable insights that guide content updates and platform enhancements.

9. Conclusions

The collaborative section within the LIAISE COST Action's website is a vital tool for enhancing IS awareness and promoting best practices worldwide.

By providing a comprehensive resource hub, the section supports the goals of WG3 to increase the acceptance and implementation of IS, ultimately contributing to a more sustainable and circular economy.

For further details and to access the collaborative section, visit the LIAISE COST Action website at https://www.liaise-action.eu/collaborativesection/

10. References

[1] Krom, P., Piscicelli, L. & Frenken, K. (2022). Digital Platforms for Industrial Symbiosis. Journal of Innovation Economics & Management, 39, 215-240. https://doi.org/10.3917/jie.pr1.0124

[2] Gonçalves Silva. M, De Carvalho. T , Gehrke Castagna. A, et al. (2022). The role of online platforms to enable the process of industrial symbiosis: An analysis of tools available in the market. Cleaner Production Letters. Volume3. 100021. https://doi.org/10.1016/j.clpl.2022.100021.

[3] https://clustercollaboration.eu/green/knowledge-base/industrial-symbiosis-toolkit

[4] Raabe, B., Sze Choong Low, J., Juraschek, M., et al (2017). Collaboration Platform for Enabling Industrial Symbiosis: Application of the By-product Exchange Network Model. Procedia CIRP. Volume 61. https://doi.org/10.1016/j.procir.2016.11.22