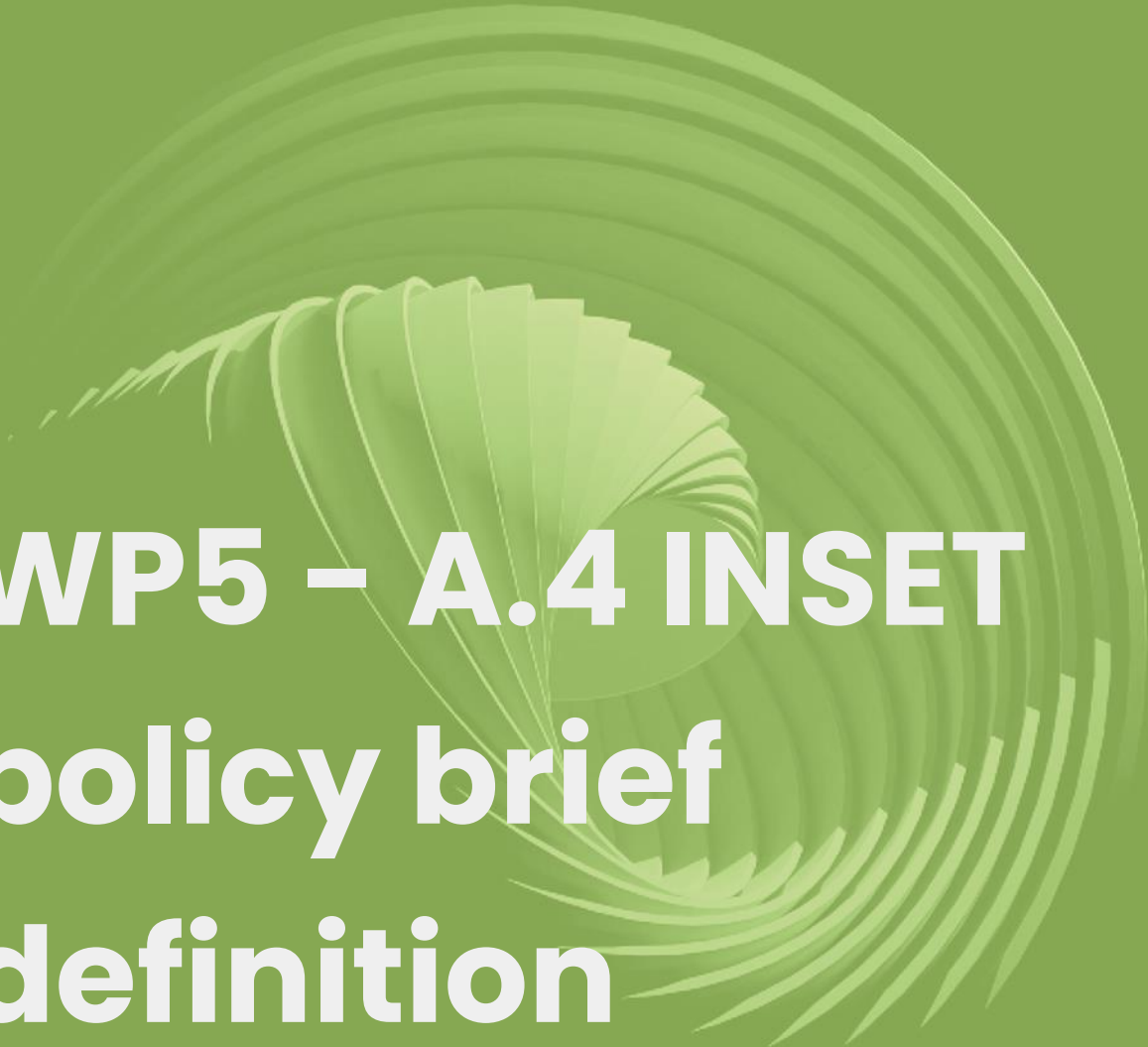




WP5 – A.4 INSET policy brief definition

October 2026

Table of Contents

1. Executive summary	3
2. Methodology.....	10
National IS landscape analysis: key findings (WP5-A2).....	14
EU Policy Mapping (WP5 A.3)	20
3. A dual-track approach to IS development.....	26
4. Policy message and recommendation framework.....	29
Key Policy Messages.....	29
Message 1 – Make Industrial Symbiosis professions visible and recognised.....	31
Message 2 –Use the Circular Economy Act window to improve legal certainty ..	33
Message 3 – Make Industrial Symbiosis measurable and visible	35
Message 4 –Adapt finance to the scale and collaborative nature of SME projects	37
5. Stakeholder consultation (WP5-A5)	39
Quality and usefulness of the document.....	Error! Bookmark not defined.
6. Recommendations validated by stakeholder group	45
7. INSET Tools as the connective links between both tracks	48

1. Executive summary

INSET, Industrial Symbiosis for Enterprises and Training, is an Erasmus+ project bringing together partners from France, Italy, Lithuania, Slovenia and Spain to strengthen professional capacity for the planning, facilitation and management of Industrial Symbiosis. Work Package 5 translates the project's analytical, training and implementation results into policy intelligence. This Policy Brief is addressed to national, regional and industry decision-makers in the five partner countries, and, through them, aims to contribute to the wider European policy debate on Industrial Symbiosis.

The Brief draws on two main evidence streams: the comparative analysis of the national IS context in the five INSET partner countries, developed under WP5-A2, and the review of the European regulatory and policy framework, prepared under WP5-A3. It also reflects knowledge generated in previous work packages and, in this final version, feedback collected through stakeholder consultations.

The evidence from both analyses points to the same overall conclusion: the main barriers to the wider development of IS are not primarily technological. They are systemic and arise from the interaction between regulatory uncertainty, fragmented governance, limited institutional capacity, insufficiently developed facilitation structures, weak data interoperability and financial instruments that are not always suited to collaborative projects involving several SMEs and sectors.

The Brief sets out four key policy messages and eleven recommendations. Each recommendation identifies the principal authority or organisation expected to act, the existing policy or implementation instrument through which action can be taken, and an indicative timeframe. The recommendations do not depend on the creation of a new institution or a new EU funding programme. Instead, they focus on adapting and coordinating existing occupational, regulatory, statistical and financial instruments, so that IS can move from isolated, project-based initiatives towards more stable, recognised and scalable implementation models.

The draft Policy Brief, prepared by 31 August 2026, was submitted to a stakeholder consultation conducted between September and October 2026, which was timed to coincide with the expected publication of the European Commission's proposal for a Circular Economy Act. The consultation collected 31 responses from national, regional and industry stakeholders in the five partner countries, exceeding the minimum target of 30 responses. The key validation indicator, on the Brief's expected contribution to IS policy promotion in the respondent's region, reached 82% of the maximum possible mean score, above the 80% threshold set in the validation methodology. Respondents assessed the document as clear, relevant and useful, and no recommendation was contested or rejected.

The feedback did not call for substantial revision of the messages or recommendations, which are therefore confirmed as formulated. Stakeholders' suggestions, notably on implementation roadmaps, country-specific adaptation, pilot actions, toolkits for local authorities and wider accessibility, have been taken into account as inputs for the project's dissemination, exploitation and policy-dialogue activities. This version therefore constitutes the validated final Policy Brief, available to inform national and European discussions on the Circular Economy Act and related policy processes.

The four key policy messages are presented below.



Figure 1. The four policy messages and the recommendations attached to each

➤ **Message 1. Make IS professions visible and recognised**

Skilled facilitation is one of the most consistent enabling conditions for Industrial Symbiosis across the five partner countries. Industrial Symbiosis initiatives require professionals capable of identifying synergies, coordinating companies, supporting regulatory interpretation, assessing technical and economic feasibility, and managing complex multi-stakeholder processes.

However, Industrial Symbiosis planning and facilitation are not yet established as clearly recognised occupational profiles across the partner countries. This limits the visibility of the competences required, makes it more difficult to organise consistent training pathways and contributes to continued dependence on temporary projects and individual expertise.

The most practical route is to integrate the relevant competences and professional profiles into existing national occupational classifications, qualifications frameworks and vocational education systems. Recognition at national level could subsequently support consolidation through the European Skills, Competences, Qualifications and Occupations classification.

Recognising professional profiles such as the Industrial Symbiosis Planner and Industrial Symbiosis Project Manager would help transform Industrial Symbiosis from an activity organised on a project-by-project basis into a more stable, replicable and scalable professional practice.

➤ **Message 2. Use the Circular Economy Act as a window to improve legal certainty.**

Industrial Symbiosis exchanges often depend on the legal classification of production residues, by-products and recovered materials. Although the Waste Framework Directive provides mechanisms for by-product and End-of-Waste status, their practical interpretation and implementation continue to vary between Member States and, in some cases, between regions.

EU-wide End-of-Waste criteria currently exist only for a limited number of material streams. For many materials relevant to Industrial Symbiosis, companies still depend on national or case-by-case administrative decisions. This increases uncertainty, transaction costs and legal risk, particularly for SMEs and for exchanges involving more than one jurisdiction.

The forthcoming Circular Economy Act provides a timely policy opportunity to advocate for greater harmonisation, clearer guidance and more consistent implementation of by-product and End-of-Waste provisions. The objective should not be to weaken environmental safeguards, but to make existing rules more predictable and proportionate for legitimate circular material exchanges.

National governments should use the preparation of their positions on the Circular Economy Act to promote clearer EU-level criteria for priority material streams, improved coordination between competent authorities and practical guidance for companies.

Without greater legal certainty, exchanges involving by-products and secondary materials will continue to be treated as exceptional cases rather than becoming a normal component of circular industrial activity.

➤ **Message 3. Make IS measurable and visible**

Industrial Symbiosis exchanges are not systematically identified or measured within existing European and national statistical frameworks. As a result, their contribution to resource efficiency, circular material use, emissions reduction and industrial resilience remains only partially visible.

This lack of visibility makes it difficult to compare initiatives, evaluate their impact, recognise their contribution to public policy objectives and build a stronger case for investment and institutional support.

Regional and national platforms for waste, by-products and secondary materials already exist or are being tested in several partner countries. However, there is still no common and interoperable framework for collecting and exchanging Industrial Symbiosis data across Europe.

A proportionate monitoring approach should build on existing systems rather than create a burdensome new reporting structure. Common data fields could cover the type and quantity of material exchanged, its legal status, quality specifications, continuity of supply, location, environmental benefits and participating sectors.

Material-based exchanges could then be more clearly linked to circular material use indicators, while complementary indicators would be needed to capture exchanges involving energy, water, heat, logistics, expertise and shared services.

Improved interoperability would make Industrial Symbiosis more visible and measurable without requiring an immediate mandatory EU-wide reporting framework.

➤ **Message 4: Adapt finance to the scale and collaborative nature of SME projects**

Industrial Symbiosis networks often stall during the early feasibility stage. Before companies can invest in infrastructure, logistics or process adaptation, they frequently require an independent technical, economic and legal assessment to determine whether a proposed exchange is viable.

These studies are often too small or locally specific for major EU-level financing instruments, while conventional SME support schemes are not always designed for joint applications involving several companies, sectors and shared risks.

Regional and national programmes already provide innovation vouchers, feasibility support, circular economy calls, technical assistance and investment grants. However, these instruments are rarely structured around the collaborative and cross-sectoral nature of Industrial Symbiosis.

Existing programmes should therefore be adapted to accept joint applications from groups of companies and to finance not only infrastructure, but also facilitation, matchmaking, technical validation, legal advice, environmental assessment and business-model development.

Regional operational programmes, chambers of commerce, development agencies, clusters and trade associations could implement such adaptations using existing budgets and administrative structures.

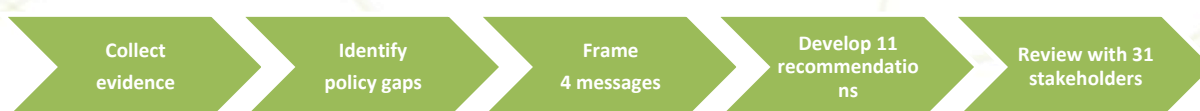
Making finance fit the scale and collaborative nature of Industrial Symbiosis would help bridge the gap between the identification of a potential synergy and its practical implementation.

Taken together, these four messages aim to build a shared agenda among stakeholders in the five INSET partner countries. The objective is to establish consensus around a limited number of practical and implementable measures that can strengthen professional capacity, legal certainty, data visibility and access to finance for Industrial Symbiosis.

By focusing on existing policy instruments and implementation mechanisms, the INSET Policy Brief seeks to support the transition from isolated initiatives towards more coordinated, recognised and scalable Industrial Symbiosis ecosystems in Europe.

2. Methodology

The Policy Brief was developed through a structured five-step methodology designed to ensure that its recommendations were both evidence-based and relevant to the institutions expected to implement them.



The methodology combined two complementary levels of analysis. First, the national dimension drew on the multidimensional assessment of the Industrial Symbiosis context in the five INSET partner countries: France, Italy, Spain, Slovenia and Lithuania. Second, the European dimension drew on the mapping of the EU policy and regulatory framework for Industrial Symbiosis between 2011 and 2026.

Together, these two evidence streams made it possible to identify where national implementation barriers correspond to gaps, inconsistencies or reform opportunities at European level. Cross-cutting recommendations are supported by evidence identified in several partner countries, while recommendations responding to a more specific national or territorial issue are clearly presented as context-dependent.

The development process consisted of five steps:

1. **Evidence collection:** consolidation of the findings generated through the national context analysis, the EU policy review and the relevant outputs of previous INSET work packages.
2. **Identification of policy gaps:** comparison of national barriers and enabling conditions with the existing European regulatory, financial, occupational and institutional framework.

3. **Formulation of policy messages:** organisation of the main findings into four priority policy messages addressing professional recognition, legal certainty, data visibility and SME-oriented finance.
4. **Development of recommendations:** preparation of concrete and actionable recommendations, each linked to a principal target authority, an existing implementation instrument and an indicative timeframe.
5. **Stakeholder validation:** consultation of relevant national, regional and industry stakeholders to assess the relevance, feasibility and likelihood of implementation of the proposed recommendations. The results are presented in Sections 5 and 6.

The Policy Brief therefore does not reproduce the full analytical work undertaken by the project. Instead, it translates the evidence generated by the INSET research and training programme into four key policy messages and eleven actionable recommendations addressed to clearly identified decision-makers.

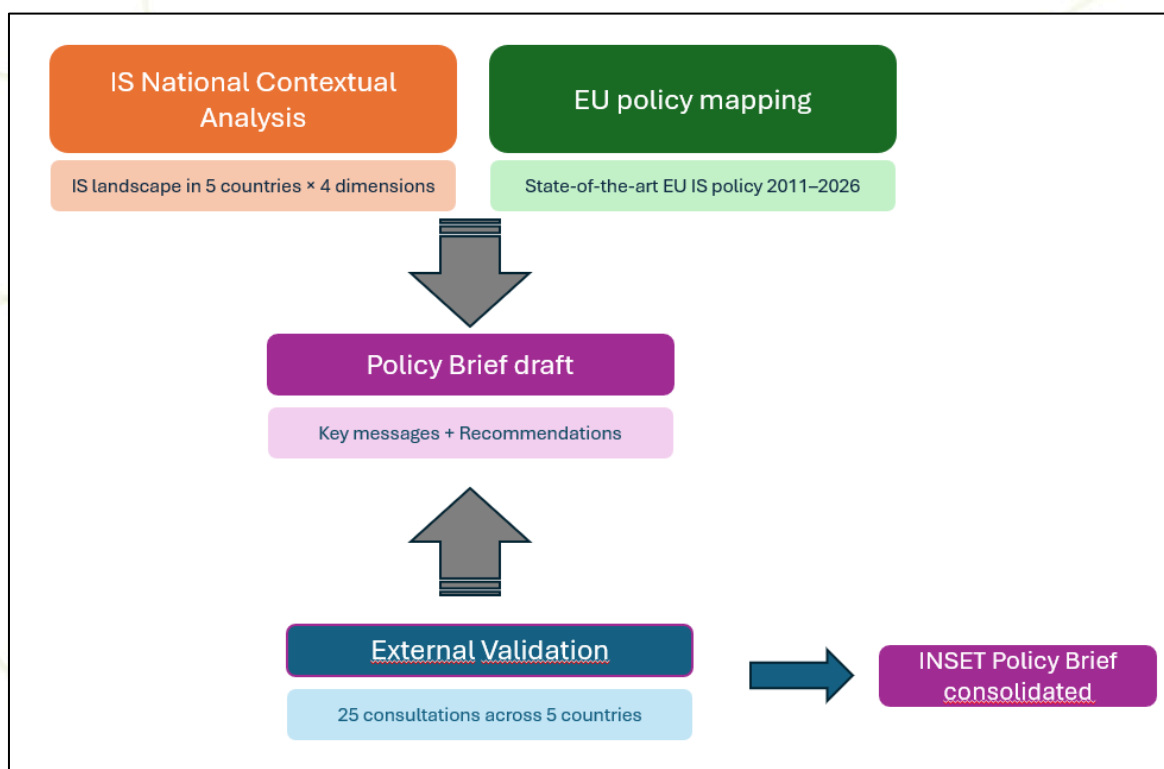


Figure 2. INSET Policy Brief process

Validation instrument

The scope of the validation process was designed to reflect what can realistically be delivered within an Erasmus+ cooperation project. The validation was carried out through a structured online questionnaire, open to stakeholders in all five partner countries (France, Italy, Spain, Slovenia and Lithuania), with a minimum target of 30 responses. A total of 31 responses were collected. Given the scope of the engagement, the results offer an indicative view of stakeholders' perspectives and cannot be generalised as the positions of individual stakeholder categories or countries. The results are presented in Section 5, and the recommendations that stakeholders considered a priority, by stakeholder group, in Section 6.

The validation was organised around three underlying questions.

First, whether *the document speaks the language of its intended audience*: whether public authorities, agencies and other relevant actors find its content clear,

relevant to their own territory or sector, and grounded in evidence they recognise as credible.

Second, whether *the recommendations are actionable* rather than aspirational: whether the actors in a position to implement them see them as realistic within their current mandate and resources, and whether there is a genuine likelihood of uptake, rather than a merely favourable reception on paper.

Third, whether the Policy Brief, as drafted for consultation, already contained everything the partnership needed it to contain, or whether *stakeholders could point to gaps, missing angles or additional recommendations* that would strengthen its relevance and completeness.

Taken together, these lines of enquiry allowed the INSET partnership to distinguish, recommendation by recommendation, between what was ready to be retained as is, what would benefit from reformulation before dissemination, and what should be set aside in the final version of the document. This distinction was the central purpose of the exercise: validation was not intended merely to confirm that stakeholders approved of the Policy Brief, but to give the partnership a clear, evidence-based basis for finalising its content. The outcome was that all eleven recommendations were retained as formulated, while stakeholders' suggestions were channelled into the project's follow-up activities.

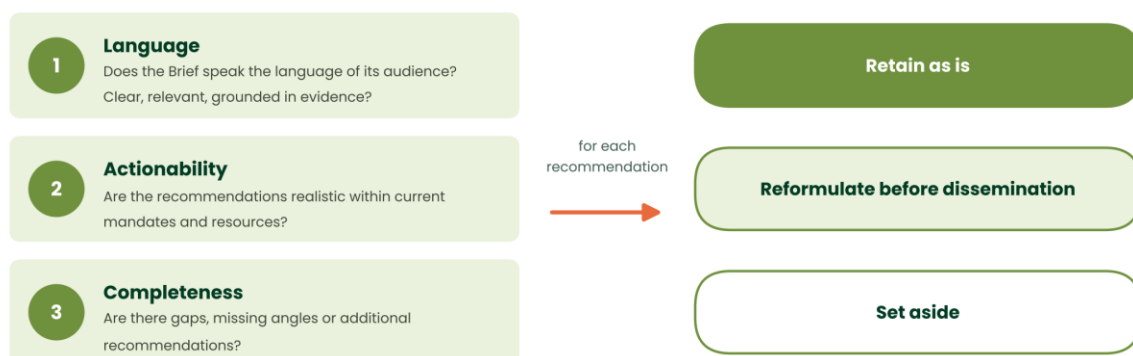


Figure 3. Validation instrument: three questions, three possible outcomes for each recommendation

National IS landscape analysis: key findings (WP5–A2)

The first workstream produced a multidimensional contextual analysis of IS across five partner countries: France, Italy, Lithuania, Slovenia and Spain.

The five INSET partner countries represent a diverse cross-section of the European Industrial Symbiosis landscape. They include larger industrial economies with comparatively mature or regionally developed support structures, medium-sized economies at different stages of institutionalisation, and smaller countries where Industrial Symbiosis is still emerging through pilot projects, digital tools and circular economy initiatives. This diversity is an analytical asset, as it makes it possible to identify both shared structural barriers and context-specific enabling conditions across different governance and industrial settings.

The following table provides a comparative overview of selected IS characteristics across the five partner countries. It draws primarily on the findings of the INSET WP5–A2 report and, where relevant, on contextual data from the European Environment Agency's 2024 Circular Economy Country Profiles.

Table 1 – Industrial symbiosis context in the five partner countries, at a glance

Dimension	France	Italy	Lithuania	Slovenia	Spain
Governance maturity	Relatively mature	Moderate	Emerging	Emerging	Moderate
Institutional coordination	Strong	Uneven	Limited	Weak	Fragmented
Facilitation ecosystem	Structured	Developing	Limited	Project-based	Regionally uneven
Regulatory clarity	Moderate	Moderate-low	Low-moderate	Low	Moderate-low
Financial support	Broad and diversified	Project-oriented	EU-dependent	Mainly indirect	Fragmented

Dimension	France	Italy	Lithuania	Slovenia	Spain
Ecosystem maturity	Advanced	Emerging	Emerging	Early-stage	Uneven
Main limitation	Scaling and coordination	Regional fragmentation	Weak institutionalisation	Lack of structured support	Territorial fragmentation

The comparative analysis reveals several consistent patterns across the five partner countries. Despite differences in ecosystem maturity, governance structures and institutional capacity, Industrial Symbiosis remains unevenly developed and, in most cases, dependent on regional initiatives, temporary projects or broader circular economy programmes.

Facilitation capacity also varies considerably. France has the most structured intermediary ecosystem, while Spain and Italy show more regionally uneven or developing support structures. In Lithuania and Slovenia, facilitation remains more limited or project-based. This confirms that the long-term development of Industrial Symbiosis depends not only on technical opportunities, but also on stable coordination mechanisms and specialised professional capacity.

Across the five countries, Industrial Symbiosis planning and management are generally not yet consolidated as formally recognised professional profiles. These functions are often carried out informally or within the framework of temporary projects, supporting the relevance of Key Message 1: Make Industrial Symbiosis professions visible and recognised.

Regulatory uncertainty also remains a recurring barrier, particularly in relation to the classification of by-products, End-of-Waste procedures and differences in administrative interpretation. The level of regulatory clarity varies between countries, but the overall evidence shows that case-by-case procedures and fragmented implementation can increase transaction costs and discourage companies, especially SMEs, from developing Industrial Symbiosis exchanges.

The following section summarises the main findings from the national analyses. A more detailed and country-specific assessment is available in the INSET WP5-A2 report.

FRANCE – Écologie Industrielle et Territoriale (EIT) as national model

Social: Strong tradition of territorial solidarity and collective IS governance. As of 2024, approximately 186 active EIT initiatives are registered on the SYNAPSE platform (<https://www.reseau-synapse.org/>), the majority co-led by local authorities and associations. The Territoires d'Industrie programme (2023–2027) embeds IS skills development in industrial zone regeneration. The aerospace cluster around Airbus in Occitanie demonstrates how large anchor companies can catalyse IS networks across supply chains.

Economic: Second-largest eurozone economy with diversified industrial base. The average EIT initiative mobilises one full-time equivalent per 57 economic actors, with 70% of initiatives generating more than ten inter-company interactions per year. ADEME (the French Agency for Ecological Transition) provides structured financial and technical support. Financial barriers persist for SMEs seeking to formalise IS exchanges, particularly around feasibility assessment costs.

Environmental: France's EIT framework has generated measurable CO₂ reductions and resource savings across active initiatives. The “Loi Industrie Verte” (2023) deepens the link between reindustrialisation and ecological transition. National waste statistics confirm that significant by-product streams remain unmatched, indicating substantial IS potential not yet captured by existing initiatives.

Legal/Regulatory: The Loi AGEC (2020) provides the primary legislative foundation for IS, establishing mandatory IS consideration for industrial zone management and waste recovery planning. France has developed relatively robust national End-of-Waste criteria that reduce case-by-case regulatory burden. The SYNAPSE digital platform provides a model for national IS mapping and matching systems.

ITALY – Circular Districts and national strategy integration

Social: Italy has a tradition of industrial districts (distretti industriali) that provides a natural territorial foundation for IS. Social capital and inter-firm cooperation within districts are comparatively high, facilitating trust-based IS exchanges. However, IS awareness among SMEs outside established district networks remains limited, and the profession of IS Planner and manager lacks formal recognition.

Economic: Italy has formally integrated IS into its National Circular Economy Strategy (SNEC, 2022) and National Recovery and Resilience Plan (PNRR). The ceramics, textiles,

chemical, and agri-food sectors present strong IS potential. IS is cited in Italy's PNRR as a tool for industrial decarbonisation. SME access to dedicated IS finance remains the most cited economic barrier among stakeholders interviewed.

Environmental: Italy generates approximately 130 million tonnes of industrial waste annually, a fraction of which is currently exchanged through IS arrangements. Significant untapped IS potential exists in the food and beverage, mechatronic, steel industry, leather, and ceramics sectors. The National Recovery Plan includes targets for circular economy performance improvement relevant to IS.

Legal/Regulatory: Italy's End-of-Waste procedures are widely regarded as among the most administratively complex in the EU. Case-by-case national determinations under Article 6 of the Waste Framework Directive impose significant transaction costs and time delays. The absence of harmonised EU End-of-Waste criteria for key Italian industrial by-products (organic residues, leather processing waste, ceramic co-products) is the primary legal barrier identified by stakeholders.

LITHUANIA - Emerging IS capacity in a transforming industrial economy

Social: Lithuania is at an earlier stage of IS institutionalisation than the other INSET partners, providing a valuable perspective on the conditions needed to launch IS programmes in transition economies. IS awareness among enterprises is growing, driven by the sustainability reporting requirements of the Corporate Sustainability Reporting Directive (CSRD) and the energy security pressures following the 2022 energy market disruption. Regional industrial development agencies are beginning to explore IS as a territorial development tool.

Economic: Lithuania's industrial base -including food processing, chemicals, wood products, and manufacturing -contains significant latent IS potential. The country's strategic geographic position within the Baltic industrial corridor creates opportunities for cross-border IS with Latvia and Estonia. SME dominance of the industrial fabric makes the availability of accessible IS finance instruments a critical enabling condition.

Environmental: Lithuania's environmental performance in waste management and resource efficiency has improved significantly following EU accession. Industrial waste generation in food processing and manufacturing presents IS exchange opportunities that are not yet systematically explored. Lithuania's participation in Baltic regional energy cooperation frameworks creates a natural entry point for IS in heat exchange and by-product valorisation.

Legal/Regulatory: Lithuania applies EU waste law through national transposition instruments without IS-specific provisions. The legal environment for by-product classification follows the general WFD framework, with administrative procedures that

are comparable to the EU average. Alignment with the forthcoming Circular Economy Act will require proactive national legislative action.

SLOVENIA – Digital IS pioneer and Circular Economy Hotspot 2025

Social: Despite its smaller industrial scale, Slovenia has established a distinctive national identity as a circular economy innovator, hosting the Circular Economy Hotspot 2025. The E-Symbiosis digital platform, developed with public support, a relevant national IS matching initiative with strong potential for further development and has been cited as a model in the RISERS Standardisation Roadmap. IS facilitation culture is comparatively strong, with a well-networked community of IS practitioners.

Economic: Slovenia's compact industrial base –including chemicals, metals, wood products, and pharmaceuticals –is well-suited to territorial IS approaches. The E-Symbiosis platform has successfully matched IS partners in sectors previously considered incompatible. Public funding from the Slovenian **Environment** Agency has been critical in supporting IS infrastructure. The challenge is to move from facilitated pilot projects to self-sustaining IS networks.

Environmental: Slovenia adopted a Circular Economy Roadmap in 2018 and has consistently improved its circular economy indicators. The country hosts active IS exchanges in the chemicals–metals–energy nexus, with documented CO₂ and resource savings. IS is positioned within Slovenia's Just Transition framework as a tool for carbon-intensive region transformation.

Legal/Regulatory: Slovenia lacks IS-specific provisions in its national waste legislation, relying entirely on EU framework instruments. The absence of national EoW criteria for IS-relevant materials forces Slovenian IS actors into lengthy administrative procedures. However, Slovenia's participation in the RISERS project and its membership of the EU Circular Economy Stakeholder Platform ensure that its standardisation needs are represented in the EU policy process.

SPAIN – España Circular 2030 and regional IS hubs

Social: Spain's IS social context is characterised by strong regional industrial identities (Catalonia, Basque Country, Valencia) that provide the geographic and institutional basis for territorial IS programmes. The second Action Plan of España Circular 2030 (2024–2026) explicitly references IS as a decarbonisation tool. Stakeholder awareness of IS has grown significantly following the COVID-19 supply chain crisis, which elevated the strategic importance of local resource loops.

Economic: Spain has a diversified SME-dominated industrial structure with significant IS potential in the agri-food, automotive, chemicals, and construction materials sectors. The Basque Country's IHOBE agency provides a regional model for IS facilitation. Access

to green finance for IS projects is improving following the transposition of EU Taxonomy criteria but remains difficult for SMEs because many EU-level financial instruments are not well adapted to small, multi-actor IS projects

Environmental: España Circular 2030 sets national circular economy targets including waste reduction and secondary material use rates consistent with Clean Industrial Deal ambitions. Spain's climate commitments under the NECP (National Energy and Climate Plan) create regulatory incentives for IS in energy-intensive sectors. Regional disparities in IS capacity are significant, with more advanced IS activity concentrated in northern industrial regions.

Legal/Regulatory: Spain's Law 7/2022 on Waste and Contaminated Soil provides a national legal framework for by-product classification and End-of-Waste determination that is more streamlined than Italy's but features variable implementation across autonomous communities. IS is not yet an explicit legal category in Spanish waste law, creating classification ambiguities that complicate formal IS agreements.

The cross-country analysis reveals a consistent set of barriers and enabling conditions that transcend national contexts and point to the structural nature of the IS governance gap. The results indicate that the main constraints affecting IS development are systemic rather than primarily technological. They emerge from the interaction between regulatory frameworks, market conditions, governance arrangements, and institutional capacities. This suggests that policy, coordination and implementation measures are currently more decisive for scaling Industrial Symbiosis than the further development of technical solutions alone.

Table 2. Key structural barriers to Industrial Symbiosis deployment and the policy implications addressed in the Key Messages

Structural Barrier	Policy Implication addressed in Key Message
Regulatory uncertainty, Fragmented End-of-Waste criteria	The legal classification of residual materials, by-products and recovered resources often depends on national or case-by-case interpretation. This can delay exchanges, increase transaction costs and reduce legal predictability, particularly for SMEs and cross-border initiatives. Regulatory certainty is one of the most recurrent barriers identified across the partner countries. → Message 2

Structural Barrier	Policy Implication addressed in Key Message
Governance fragmentation and administrative complexity	Responsibilities relevant to IS are distributed across waste, industrial, climate, innovation and regional policy domains. Limited coordination between authorities and complex permitting or compliance procedures can slow implementation and increase administrative burdens. → Message 2
Absence of a common IS reporting and recognition framework	The lack of common reporting, verification and recognition approaches limits the comparability, visibility and credibility of IS exchanges. This makes it more difficult to demonstrate impact to public authorities, investors and other stakeholders. → Message 3 and 4
Limited formal recognition of IS professions	IS planning, facilitation and management are important enabling functions, but they are not yet consolidated as formally recognised professional profiles within national or European skills frameworks. This limits the development of consistent training pathways and long-term facilitation capacity. → Message 1
Financial instruments not adapted to multi-actor SME projects	Existing funding mechanisms do not always reflect the small scale, collaborative structure and shared risks of many IS initiatives. SMEs often face difficulties financing feasibility studies, technical validation, facilitation and early-stage project development. → Message 4
Weak IS monitoring and data interoperability	Limited access to comparable and interoperable data reduces the visibility of potential synergies and makes it difficult to assess the contribution of IS to circular economy, resource-efficiency and climate objectives. → Message 3
Variable national and regional implementation	Differences in End-of-Waste procedures, administrative practices, support structures and digital tools create uneven implementation conditions across Member States and regions. → Message 2 and 3
Market distortions and weak demand for secondary resources	Virgin raw materials may remain economically more attractive than secondary resources where environmental externalities are not fully reflected in prices. This weakens the business case for IS exchanges and reduces incentives for long-term investment. → Message 2

EU Policy Mapping (WP5 A.3)

The second workstream produced a state-of-the-art analysis of the EU regulatory framework for IS, covering the period from the 2011 Roadmap to a Resource-Efficient Europe (COM (2011)571) to the 2025 Clean Industrial Deal and the forthcoming Circular Economy Act. The mapping was complemented by a review of relevant

EU-funded research, innovation and standardisation projects and by an assessment of the principal implementation gaps affecting Industrial Symbiosis.

The architecture of EU policy relevant to IS can be understood through three concentric regulatory and policy rings:

- **Inner ring –Waste legal framework.** The Waste Framework Directive 2008/98/EC, as amended by Directive (EU) 2018/851, establishes the conditions for by-product status under Article 5 and End-of-Waste status under Article 6. These provisions determine whether residual material flows may be used outside waste-management procedures. Differences in their interpretation and implementation constitute one of the principal legal barriers to Industrial Symbiosis across Member States.
- **Middle ring –Industrial and environmental permitting.** The revised Industrial Emissions Directive, REACH and the relevant Best Available Techniques Reference Documents shape the conditions under which industrial activities are authorised and operated. The increasing integration of resource efficiency, circularity and transformation planning may create opportunities for Industrial Symbiosis, although implementation depends on sectoral BREFs and national permitting practices.
- **Outer ring –Strategic and financial framework.** The European Green Deal, the Circular Economy Action Plans, the Net-Zero Industry Act, the Critical Raw Materials Act, the Clean Industrial Deal, the EU Taxonomy and Cohesion Policy shape the political priorities, investment conditions and financial opportunities relevant to Industrial Symbiosis.

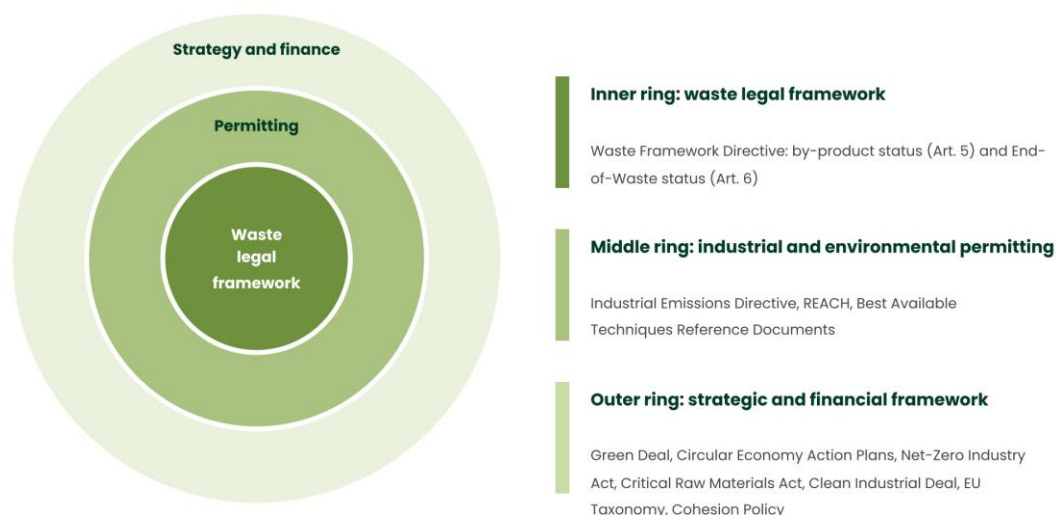


Figure 4. The three rings of EU policy relevant to industrial symbiosis

Table 3. Selected EU instruments shaping the legal and policy basis for industrial symbiosis

Instrument	IS relevance
COM(2011)571 - Roadmap to a Resource-Efficient Europe	First explicit EU positioning of IS within resource efficiency; called on member states to develop territorial IS programmes.
COM(2015)614 -First Circular Economy Action Plan	Embedded IS as a production priority; mandated regulatory clarification of by-product and End-of-Waste status.
Directive 2008/98/EC, as amended by Directive (EU) 2018/851 -Waste Framework Directive	Strengthened the legal basis for by-product classification (Art. 5) and End-of-Waste criteria (Art. 6). Harmonised criteria still cover only a fraction of IS-relevant streams. A targeted revision on food and textile waste entered into force in October 2025.
COM(2019)640 -European Green Deal	Positioned IS as a decarbonisation tool for energy-intensive industries; provided the impetus for the 2020 CEAP and the Clean Industrial Deal.
COM(2020)98 -New Circular Economy Action Plan	First explicit EU commitment to an industry-led IS reporting and certification system (Section 3.2). Still undelivered as of mid-2026: the most significant outstanding IS implementation gap.
Directive (EU) 2024/1785 - Revised Industrial Emissions Directive	Integrates resource efficiency and circularity into Best Available Techniques; transformation plans explicitly identify IS as a qualifying measure.

Instrument	IS relevance
Regulation (EU) 2024/1735 -Net-Zero Industry Act	Strategic project status and fast-track permitting may extend to IS-enabled net-zero manufacturing; non-price procurement criteria can reward IS-enabled supply chains.
Regulation (EU) 2024/1252 - Critical Raw Materials Act	25% secondary production target for strategic raw materials by 2030; IS exchanges involving critical-material-rich streams are a primary supply pathway.
COM(2025)85 final -Clean Industrial Deal	Sets the target of doubling the EU circular material use rate from 11.8% to 24% by 2030; announces the Circular Economy Act; identifies IS as an implementation tool.
Circular Economy Act (proposal planned for Q3 2026)	Is expected to strengthen the Single Market for secondary raw materials and address barriers to circular material flows. Its exact content has not yet been confirmed. For INSET, it represents an advocacy opportunity to promote clearer End-of-Waste conditions, improved monitoring and stronger recognition of Industrial Symbiosis.
Regulation (EU) 2020/852 -EU Taxonomy	IS activities can in principle qualify under Objective 4 (circular economy transition), but alignment requires expert assessment that is cost-prohibitive for most SMEs.

The End-of-Waste baseline, stated precisely

Because End-of-Waste status is central to several of the policy messages developed in this Brief, the regulatory baseline is stated here precisely.

As of mid-2026, harmonised EU-wide End-of-Waste criteria had been adopted for only three groups of materials: iron, steel and aluminium scrap (Council Regulation (EU) No 333/2011), glass cullet (Commission Regulation (EU) No 1179/2012) and copper scrap (Commission Regulation (EU) No 715/2013). A draft implementing act establishing EU-wide criteria for plastics was presented in December 2025, and technical work by the Joint Research Centre (JRC) on textiles and on construction and demolition waste was under way.

All other streams, including the organic residues, chemical by-products, process heat carriers, ceramic co-products and food industry streams that dominate IS exchanges in the partner territories, depend on national case-by-case

determinations under Article 6(4) of the Waste Framework Directive. Differences in national procedures, competent authorities, documentary requirements and administrative interpretation lead to wide variation in timelines and outcomes. A 2023 European Environment Agency assessment identified this fragmentation as the most frequently cited legal barrier to IS across Member States, a finding corroborated by INSET’s national research. The INSET national analyses confirm that this regulatory fragmentation is a recurrent barrier to the development and replication of IS exchanges, particularly for SMEs and for exchanges involving more than one jurisdiction.

Harmonised EU End-of-Waste criteria (mid-2026)



Figure 5. End-of-Waste baseline: EU criteria for three material groups, case-by-case for all others

The stakeholder consultation confirmed this assessment. Regulatory barriers were the most frequently identified obstacle to the implementation of the Brief’s recommendations (22 of 31 respondents, 71%), and respondents prioritised the harmonisation of End-of-Waste criteria for priority material streams among the most urgent measures. One respondent noted that the baseline described above matches the situation experienced by companies on the ground.

Four critical implementation gaps shape the current EU landscape for IS:

Table 4. Critical implementation gaps for IS and their territorial consequences

Implementation Gap	Description and territorial consequences
Absence of a common IS reporting and recognition framework	The 2020 Circular Economy Action Plan recognised the role of industry-led reporting and certification in facilitating Industrial Symbiosis, but this has not yet resulted in a consolidated EU-level framework. The absence of common reporting and recognition approaches limits the comparability, visibility and verification of IS exchanges and makes it more difficult to demonstrate their contribution to policy objectives or investment decisions.
Fragmented End-of-Waste criteria	Harmonised EoW criteria cover only a small fraction of IS-relevant material streams. Most exchanges require national, case-by-case determinations, resulting in uneven conditions across and within INSET partner countries.
Limited SME access to suitable finance	EU Taxonomy, InvestEU, and EIB instruments carry cost and threshold barriers incompatible with SME scale. Most IS projects remain dependent on short-term EU project funding, including in INSET partner countries.
Limited integration of IS into the digital transition	The Digital Product Passport framework may improve the availability and traceability of product and material data relevant to Industrial Symbiosis. However, Industrial Symbiosis is not currently established as a specific DPP use case, and interoperability between product-level data, material-flow databases and IS platforms remains underdeveloped.

The synthesis of the two workstreams, namely the national evidence assessed against the EU policy and implementation gaps identified, provides the methodological foundation of this Policy Brief. Each recommendation presented in the following sections is grounded in two complementary forms of evidence: it responds to a documented challenge affecting one or more INSET partner countries, and it addresses a corresponding regulatory, institutional or implementation gap at European level. This approach ensures that the recommendations are both territorially relevant and connected to the wider EU policy framework. The stakeholder consultation subsequently tested these recommendations with national, regional and industry stakeholders, and confirmed their relevance and feasibility (see Sections 6 and 7).

3. A dual-track approach to IS development

The evidence highlights a central challenge in IS policy. Many of ***the regulatory, financial and strategic conditions that shape IS development are established at EU and national level***, while implementation depends largely on regional and local actors, including companies, clusters, development agencies, public authorities and vocational education and training institutions.

The INSET Policy Brief addresses this challenge through two complementary and mutually reinforcing tracks.

Top-down track: European policy and regulatory frameworks relevant to Industrial Symbiosis are evolving rapidly. The revised Industrial Emissions Directive, the Net-Zero Industry Act, the Critical Raw Materials Act, the Digital Product Passport framework, the Clean Industrial Deal and the forthcoming Circular Economy Act will progressively influence the conditions under which IS initiatives are developed and implemented across Member States.

INSET's role is to map this evolving framework clearly and translate it into practical information for national, regional and local stakeholders. This enables them to anticipate regulatory and policy developments, identify emerging opportunities and prepare for future implementation requirements.

Bottom-up track: Industrial Symbiosis development cannot depend solely on future legislative change. Territorial actors can already strengthen facilitation capacity, identify synergies, improve data collection, demonstrate environmental and economic value, and build local cooperation networks using existing instruments and support structures.

INSET's role is to equip these actors through its training pathways, competence framework, practical tools and documented practices. This helps ensure that the capacity required to implement future policy developments is already being built at territorial level.

Table 5. Preparing territories for future IS policy: INSET's contribution across two tracks

TOP-DOWN TRACK	BOTTOM-UP TRACK
EU regulatory evolution is underway and will reach territories regardless. The Clean Industrial Deal, the Circular Economy Act (2026), IED 2.0, NZIA, CRMA, and the Digital Product Passport constitute a wave of legislative change that will redefine the operating conditions for IS across all Member States. INSET's role: interpret and communicate the evolving policy framework so that stakeholders can prepare and act proactively.	At the same time, IS cannot wait for perfect legislation. Territorial actors, such as companies, clusters, development agencies, VET institutions, can build IS capacity, demonstrate IS value, and develop local IS ecosystems now, using the tools and frameworks already available. INSET's role: provide training, competence frameworks, practical tools and documented practices that strengthen implementation capacity.

The strategic logic of the INSET Policy Brief

Territorial stakeholders do not directly determine EU legislation, but they can contribute evidence to policy discussions, influence national and regional implementation, and build the practical capacity needed to translate European objectives into effective Industrial Symbiosis initiatives.

INSET supports this process through three complementary resources:

- training pathways that strengthen the competences of Industrial Symbiosis planners, managers and facilitators;
- an Observatory that collects, organises and disseminates regulatory, territorial and practice-based information relevant to Industrial Symbiosis;
- a best-practice toolkit that translates project evidence into practical and replicable approaches.

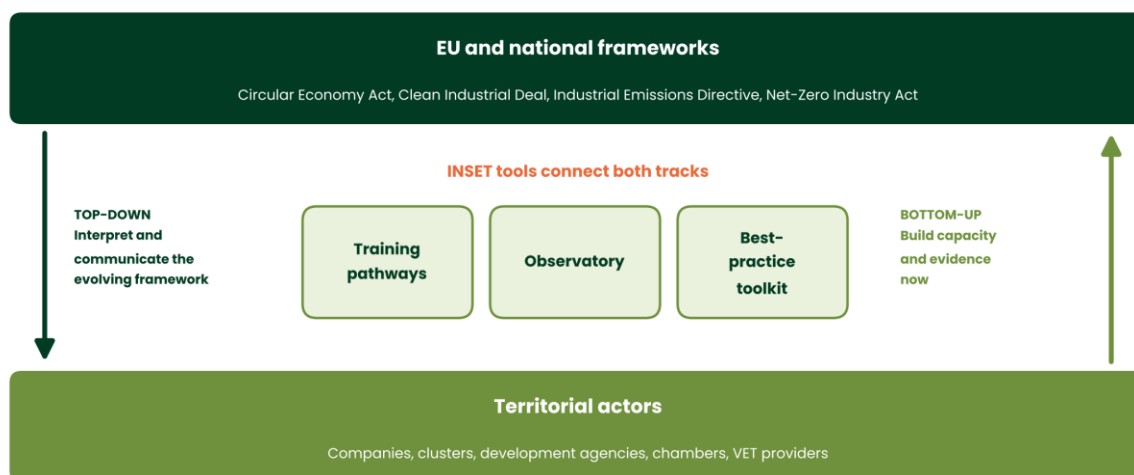


Figure 6. Dual-track logic: INSET tools connect the EU framework with territorial action

The Policy Brief's recommendations are grounded in what is feasible for territorial actors, while remaining connected to the larger EU reform agenda.

4. Policy message and recommendation framework

The recommendations follow three design principles intended to keep them actionable rather than merely aspirational.

- 1) Each recommendation names one adopting actor, one delivery vehicle that already exists, and one horizon; nothing depends on creating a new institution or waiting for a new EU instrument.
- 2) Recommendations addressed to EU institutions appear only where the consulted stakeholders hold a real channel of influence, principally the national positions now being formed on the Circular Economy Act proposal.
- 3) Each recommendation is written as a proposition that a stakeholder can score for relevance, feasibility and likelihood of adoption; the validation questions at the end of each message translate this directly into the questionnaire

Key Policy Messages

The policy messages below integrate both top-down and bottom-up tracks. Each message has a territorial anchor, something observable in the INSET partner countries, and an EU-level horizon, namely a regulatory development that makes the message timely and actionable. The four messages also correspond to four reference macro-categories:

People: Message 1, professional recognition

Rules: Message 2, legal certainty

Data: Message 3, measurability and visibility

Money: Message 4, finance adapted to SME-based collaborative projects

The messages and recommendations were submitted for stakeholder validation through the WP5 consultation process, the results of which are presented in Sections 5 and 6.

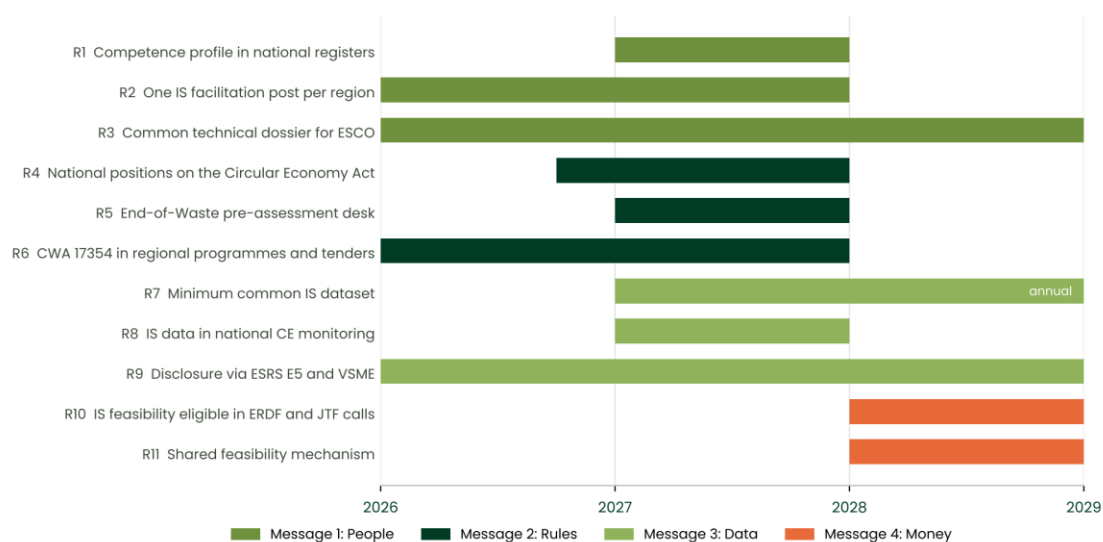


Figure 7. Indicative timeline of the eleven recommendations, by policy message

Message 1 – Make Industrial Symbiosis professions visible and recognised

Skilled facilitation is one of the most consistent enabling conditions for Industrial Symbiosis across the five INSET partner countries and in the wider literature. Exchanges do not happen spontaneously: someone must identify partners, build inter-firm trust, navigate the regulatory questions described in Message 2, assess feasibility and formalise agreements. The INSET national analysis confirms this approach:

- the French EIT model is functional because ADEME invested in a national network of professionals.
- E-Symbiosis works because a human facilitation layer converts digital matches into agreements
- Italy's most active exchanges sit where chamber or association staff informally play the role.

Yet in none of the five countries, and not at EU level, is IS planning or management a recognised occupation. Practitioners work under a dozen titles with no common framework, training pathway or quality standard, and capacity evaporates when project funding ends.

Where this Brief departs from the existing literature is on the route. Calls to "recognise the IS profession" and to create an ESCO occupational standard have circulated for years without effect, because ESCO revision is slow and no member state is obliged to wait for it. The faster and largely untried route runs through national occupational repertoires, which are updated regularly, are governed nationally, and directly unlock formal VET pathways and public training funds: the RNCP and France Compétences procedures in France, the Atlante del Lavoro and regional repertoires in Italy, the INCUAL catalogue in Spain, and the national qualifications registers of Slovenia and Lithuania. National entries then become the evidence base on which an ESCO revision request can succeed. INSET's competence framework and curriculum give the five countries a ready-made

technical dossier for both steps; no other current Erasmus+ output covers this ground for IS.

Table 6. Recommendations to embed the INSET results in national and regional systems – Message 1

No.	Recommendation	Lead actor	Delivery mechanism	Horizon
R1	Submit an IS planner/manager competence profile, based on the INSET framework, for entry into the national occupational repertoire or qualifications register, using the standard national update procedure.	INSET national partners, in cooperation with VET providers, sectoral organisations and competent national skills or qualifications authorities	National repertoire update procedures (RNCP, Atlante del Lavoro, INCUAL, national registers)	2027
R2	Fund or designate at least one post dedicated to IS facilitation for each participating region, hosted within an existing organisation (regional development agency, chamber of commerce or industrial estate management body), whilst also making use of the INSET programme as a training framework.	Regional development agencies, chambers of commerce, industrial zone managers, business association	Existing staffing budgets; ERDF technical assistance; Just Transition Fund where applicable	2026–2027
R3	Consolidate the two INSET competence profiles into a common technical dossier and submit them through relevant ESCO maintenance, national reference-point and Cedefop consultation channels as evidence supporting the future recognition of an EU-level Industrial Symbiosis professional profile.	INSET partnership, supported by national ESCO reference points and relevant sectoral or qualifications bodies	ESCO continuous improvement process; Cedefop consultations	2026–2028

Message 2 – Use the Circular Economy Act window to improve legal certainty

Legal uncertainty over by-product and End-of-Waste status is the most cited barrier in all five territories, and the baseline is narrow: harmonised EU criteria cover three material groups, with plastics in the pipeline and textiles and construction materials under technical development. The Circular Economy Act is the realistic vehicle for widening this baseline, and its timing defines the Brief's own calendar: the Commission proposal is expected in Q3 2026, which means national positions are being formed in exactly the window in which the INSET consultation runs. The consultation is therefore not only a validation exercise; it is a mechanism for feeding evidence from five member states into the CEA debate at the moment it matters.

Standardisation follows the same logic: CWA 17354 is a genuine technical achievement, adopted as vocabulary by national programmes, but as a voluntary CEN¹ Workshop Agreement it cannot be referenced in regulation, procurement or Taxonomy screening criteria. Rather than repeating the long-standing call for a CEN/CENELEC mandate, the recommendations below focus on what the consulted actors can do: adopt the existing agreement where they control the rules and keeping into in consideration while implementing CEA requirements at national level.

Table 7. Recommendations to embed the INSET results in national and regional systems – Message 2

¹ CEN – Comité Européen de Normalisation https://www.cencenelec.eu/media/CEN-CENELEC/CWAs/RI/cwa17354_2018.pdf

No.	Recommendation	Adopting actor	Delivery vehicle	Horizon
R4	Develop coordinated national positions advocating for the extension of harmonised End-of-Waste criteria to priority Industrial Symbiosis material streams, the development of a proportionate EU-level IS reporting and recognition framework, and further European standardisation work building on CWA 17354.	National ministries responsible for environment, economy and industry, supported by sector federations, competent authorities and INSET partners	CEA consultation process following the Q3 2026 proposal	Q4 2026–2027
R5	Establish a national End-of-Waste pre-assessment desk (or fast-track procedure) for IS-relevant streams.	Competent national waste authorities and circular economy agencies	Administrative reorganisation within existing mandates; no new legislation required	2027
R6	Use CWA 17354 terminology and methodology as a condition in regional IS support programmes, facilitation service tenders and platform data taxonomies, creating a demand signal for the future European standard and ensuring data compatibility.	Regional development agencies, managing authorities, IS platform operators	Programme eligibility criteria and tender specifications already under regional control	2026–2027

Message 3 – Make Industrial Symbiosis measurable and visible

The Clean Industrial Deal establishes the objective of increasing the EU circular material use rate to 24% by 2030. Achieving this objective will require stronger recovery and productive use of secondary materials across industrial value chains. Industrial Symbiosis can contribute by enabling by-products, production residues and recovered materials to replace primary inputs, although not all IS exchanges are captured by the circular material use rate. Exchanges involving energy, waste heat, water, logistics, equipment or shared services require complementary indicators.

At present, Industrial Symbiosis exchanges are not systematically identified or aggregated within European and national monitoring frameworks. Definitions, data fields and reporting practices vary between platforms, facilitators, regions and companies. As a result, it remains difficult to compare initiatives, aggregate their impacts or demonstrate their contribution to circular economy, climate and industrial policy objectives.

The objective should not necessarily be to create a new statistical system from the outset. A more practical first step is to establish a proportionate minimum dataset that can be applied through existing channels, including platform records, facilitator documentation, territorial circular economy monitoring systems and corporate sustainability reporting.

For larger companies subject to sustainability reporting requirements, ESRS E5 provides a framework for reporting material resource inflows, outflows, waste and circular economy practices where these matters are material. For non-listed SMEs, the voluntary VSME standard includes disclosures on circular economy practices, waste generation, recycling or reuse and relevant material flows. Neither framework contains a dedicated Industrial Symbiosis disclosure, but both may

provide useful channels for reporting relevant exchanges where the necessary data are available. A common minimum dataset would improve comparability and visibility while avoiding unnecessary reporting burdens. It should distinguish between directly measured data and estimated impacts and should be compatible, where possible, with existing national and European classifications.

Table 8. Recommendations to embed the INSET results in national and regional systems – Message 3

No.	Recommendation	Adopting actor	Delivery vehicle	Horizon
R7	Develop and apply a minimum common IS dataset to every facilitated exchange (material category, annual tonnage, CO ₂ saving estimate, number of enterprises, exchange value) and publish an annual territorial or network impact report based on it.	Industrial Symbiosis platforms, facilitators, clusters and network coordinators, supported by INSET partners	Existing platform records; INSET measurement template	From 2027, annual
R8	Integrate the aggregated IS dataset into relevant national-level monitoring framework (e.g. waste data observatories, CE platform, etc.)	National circular economy agencies and environment ministries	Existing national CE monitoring reports	2027
R9	Encourage companies participating in Industrial Symbiosis exchanges to disclose relevant material-flow and circular economy information through applicable corporate sustainability reporting channels, including ESRS E5 for companies within scope and the voluntary VSME framework for non-listed SMEs.	Participating companies, supported by facilitators, sector federations, accountants and sustainability advisers	Existing ESRS E5 and VSME reporting structures, company environmental management systems and sustainability reports	2026–2028

Message 4 – Adapt finance to the scale and collaborative nature of SME projects

Industrial Symbiosis networks often stall during the early feasibility stage. Before companies can invest in infrastructure, logistics or process adaptation, they frequently require an independent technical, economic and legal assessment to determine whether a proposed exchange is viable.

These studies are often too small or locally specific for major EU-level financing instruments, while conventional SME support schemes are not always designed for joint applications involving several companies, sectors and shared risks.

Regional and national programmes already provide innovation vouchers, feasibility support, circular economy calls, technical assistance and investment grants. However, these instruments are rarely structured around the collaborative and cross-sectoral nature of Industrial Symbiosis.

Existing programmes should therefore be adapted to accept joint applications from groups of companies and to finance not only infrastructure, but also facilitation, matchmaking, technical validation, legal advice, environmental assessment and business-model development.

Regional operational programmes, chambers of commerce, development agencies, clusters and trade associations could implement such adaptations using existing budgets and administrative structures.

Making finance fit the scale and collaborative nature of Industrial Symbiosis would help bridge the gap between the identification of a potential synergy and its practical implementation.

Table 9. Recommendations to embed the INSET results in national and regional systems – Message4

No.	Recommendation	Adopting actor	Delivery vehicle	Horizon
R10	Include Industrial Symbiosis opportunity identification, feasibility studies, facilitation, legal assessment and early-stage technical validation as explicitly eligible expenditure in relevant regional and national programmes, with proportionate and simplified application procedures for SME-led and multi-actor projects.	Regional managing authorities (ERDF, JTF); national managing authorities where programmes are national	Programme call texts and annual work programmes	Next call cycle, 2028
R11	Establish a shared Industrial Symbiosis feasibility mechanism at sectoral, cluster or territorial level to co-finance preliminary studies and reduce the cost and risk borne by individual SMEs.	Chambers of commerce and sector federations, with IS professional technical support	Existing membership service budgets	2028

5. Stakeholder consultation

The consultation was conducted through a joint online survey, administered in English and, in part, in national languages, and open to stakeholders in the five partner countries. It collected 31 valid responses, exceeding both the minimum target of 30 set in the validation methodology and the indicative figure of 25 respondents originally envisaged. Participation was balanced across the partnership: Spain (10), Slovenia (8), France (6), Italy (4) and Lithuania (4).

The first section, *General questions*, characterised the respondents: country, organisation (optional), type of organisation, role within the organisation (open question) and familiarity with Industrial Symbiosis.

The sample is heterogeneous in terms of both organisational type and function. Respondents include VET providers, universities and research institutions, business support organisations, public agencies, regional and national authorities, SMEs, manufacturing companies and private consultants. Respondents' roles include project managers and coordinators (11), advisors and consultants (7), CEOs and owners, teachers and professors, researchers and technicians. Familiarity with Industrial Symbiosis (IS) was high: 80.6% of respondents declared themselves familiar or very familiar with the subject, and only one respondent reported no familiarity. In addition, 93.5% of respondents had read the Brief mostly (48.4%) or completely (45.2%), which supports the reliability of the assessments.

The second section, *Assessment of the Policy Brief*, addressed the content of the Policy Brief document and combined closed and open questions. The closed questions covered:

- the extent to which the respondent had read the Brief (partially, mostly, completely);
- its clarity, its relevance for the respondent's organisation and the usefulness of its recommendations, each rated on a five-point scale;

- the level of agreement with five statements, on whether the Brief clearly explains the benefits of IS, whether its recommendations are realistic and feasible and address current challenges, whether it provides sufficient evidence, and whether it can contribute to future public initiatives;
- the likelihood that the Brief will contribute to promoting IS policies in the respondent's region, which was the key validation question;
- the policy areas expected to benefit (e.g. circular economy, environmental, innovation, skills and training, industrial development and regional development policies), as a multiple-choice question;
- the barriers to implementing the recommendations, also multiple-choice;
- the likelihood that the respondent would refer to the Brief when developing future policies;
- overall satisfaction.

The open questions invited respondents to indicate the recommendations or issues they considered most relevant or urgent, the most valuable aspects of the Brief, possible improvements and additional recommendations, and any further comments. The last three were optional and received 22, 12 and 3 responses respectively.

This structure maps onto the three lines of enquiry defined in the validation methodology:

- clarity and relevance for the intended audience (clarity, relevance and usefulness ratings);
- actionability of the recommendations (feasibility statement, barriers, intention to use the Brief);
- and completeness (improvements and additional recommendations).

The Policy Brief was assessed very positively on all core criteria:

- Clarity and relevance:

93.5% rated the document 4 or 5 on a five-point scale (no score below 3).

Relevance to the respondent's organisation: 87.1% rated it relevant or very relevant, with 12.9% neutral. This is the lowest of the four core indicators, which is consistent with the heterogeneity of the sample.

Usefulness of the recommendations: 96.8% rated them useful or very useful, with a single neutral rating.

Overall satisfaction: 96.8% were satisfied or very satisfied, again with a single neutral response.

- Actionability of the recommendation

Agreement with the five evaluative statements was likewise high. The share of respondents who agreed or strongly agreed was 93.5% that the Brief clearly explains the benefits of IS (29/31) and that the recommendations address current challenges (29/31). It was 87.1% that the INSET Policy Brief provides sufficient supporting evidence (27/31), 83.9% that it can contribute to future public initiatives (26/31) and 80.6% that the recommendations are realistic and feasible (25/31). The feasibility statement therefore received the lowest, though still clearly positive, level of agreement. Disagreement was marginal, limited to single responses on most statements and to two responses on the adequacy of the evidence base.

Respondents were asked whether the INSET Policy Brief is likely to contribute to promoting IS policies in their region. No respondent gave a negative answer: 77.4% (24/31) considered this likely or very likely, and 22.6% (7/31) were neutral. Expressed as a mean score normalised to the five-point scale, the indicator reaches 82%, above the 80% validation threshold. In addition, 93.5% of respondents stated that they would probably or definitely refer to the Brief when developing future policies, while the remaining 6.5% answered "probably not" and none answered "no". Respondents expect the greatest benefits for innovation policies and for skills and training policies (19.4% each), followed by circular economy policies (16.1%) and industrial development (12.9%). Several respondents selecting "Other" indicated that all areas would benefit.

The multiple-choice question on barriers produced 113 selections. The most frequently identified obstacles were regulatory barriers (22 respondents, 71.0%), lack of funding (20, 64.5%), and lack of political commitment and limited cooperation between actors (18 each, 58.1%). All other options were selected by fewer than half of respondents. This ranking is consistent with the Brief's own diagnosis that the principal constraints on IS are systemic rather than technological, and it supports the priority given to Messages 2 (legal certainty) and 4 (finance).

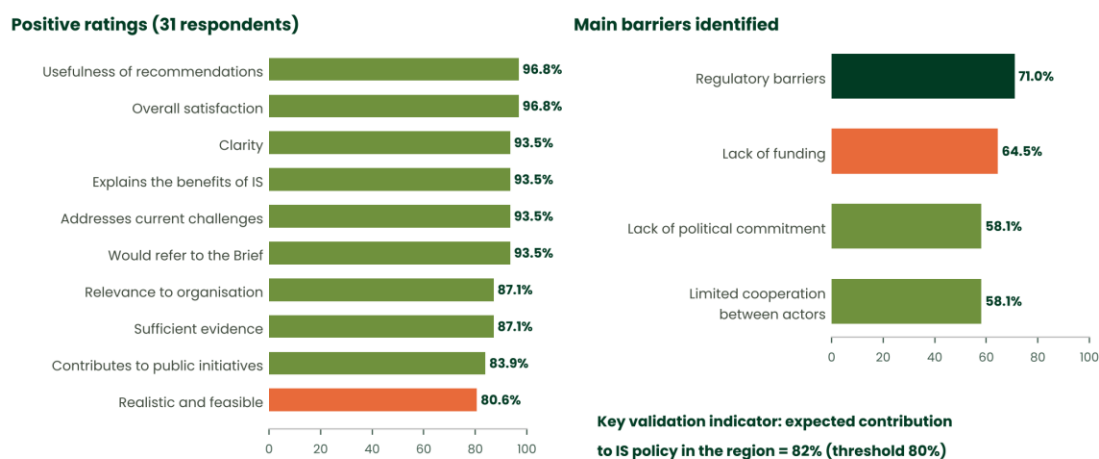


Figure 8. Stakeholder consultation: main results (31 respondents)

- Qualitative feedback: improvement and recommendations

Open-ended responses on the most valuable aspects of the Brief converged on four elements: (i) the recognition that IS requires professional facilitation and stable organisational capacity, in addition to technical solutions; (ii) the practical orientation of the recommendations, each linked to a responsible actor, an existing instrument and an indicative timeframe; (iii) the reliance on existing instruments rather than new institutions; and (iv) the integrated treatment of professional capacity, legal certainty, data and finance as interconnected barriers. One respondent noted that the Brief's description of the End-of-Waste baseline, with

only three harmonised material groups, matches the situation experienced by companies on the ground.

Suggested improvements were mainly of an operational rather than substantive nature, and clustered around the following themes:

Prioritisation and sequencing: distinguishing measures that can be launched through existing programmes from those requiring regulatory or institutional change, and distinguishing short-, medium- and long-term actions, with an explicit implementation-difficulty rating.

Operationalisation: concrete first steps, indicative costs and resources, monitoring indicators, examples of suitable funding instruments, and implementation roadmaps.

Territorial adaptation: country- and region-specific notes, clearer differentiation of national, regional and local responsibilities, and recognition that barriers differ across countries owing to uneven transposition of EU legislation.

Evidence and examples: more case examples from the partner countries and SME-based industrial territories, and clearer linkage between competence profiles and existing VET and university provision (including the distinction between IS Planner and IS Project Manager).

Accessibility: a shorter operational summary and a starter checklist for local authorities with limited capacity, a less dense layout, and translation into additional languages.

Suggestions for additional recommendations (12 responses) focused on:

- the integration of IS into VET and university curricula, modular training pathways, teacher training;
- regional pilot calls and industrial pilots;
- knowledge exchange, reuse of results from previous EU projects;
- measurable targets with a clearer monitoring framework.

Both validation criteria were met: the number of responses exceeded the minimum of 30, and the key indicator on the Brief's expected contribution to IS policy development reached 82%, above the 80% threshold.

6. Recommendations validated by stakeholder group

Through its open-ended questions, the stakeholder consultation gathered specific comments on the eleven recommendations of the Policy Brief, which are organised under four key themes: People, Rules, Data and Money. The mapping below is based on the content of these comments, in which respondents referred explicitly to specific recommendations (R numbers), to key messages, or to their own institutional perspective. Given the scope of the stakeholder engagement foreseen by the project, the results cannot be generalised as the positions of the stakeholder categories. They offer, rather, an indicative view of the perspectives of each group, which the INSET Policy Brief will take into account in the project's follow-up activities. No recommendation was contested or rejected by any respondent, and all four key messages received explicit support.

Table 10. Mapping of stakeholder comments to the Policy Brief recommendations and key messages

Stakeholder Group	Recommendations and messages prioritised	Rationale expressed by respondents
Regional authorities and development agencies	R2 (facilitation capacity), R6, R10 (early-stage funding), R11; Message 4	Regions need stable facilitation capacity, common methodologies and funding schemes covering feasibility studies and early-stage support. Existing innovation vouchers and feasibility schemes should be adapted to joint, cross-sectoral applications, and a shared regional facilitation function should be established.
Local authorities and SME-based industrial territories	R2, R10, R11; R5 and R6 as complementary measures	A dedicated territorial facilitator and a shared feasibility mechanism are essential where SMEs cannot individually bear the cost and risk of preliminary studies. Legal advice and technical assessments should be made eligible under regional and national SME

Stakeholder Group	Recommendations and messages prioritised	Rationale expressed by respondents
VET providers, universities and training organisations	Message 1 (recognition of IS profiles); R2	programmes. Clarity on by-products and End-of-Waste reduces uncertainty. Recognised competence profiles in qualification frameworks enable coherent educational pathways. Facilitation expertise must be anchored in stable organisations and programmes. Competence profiles should be submitted through standard national update procedures. Training results of EU projects should be transferred to permanent structures.
Companies and business support organisations	R5, R7, R10; Message 2; Message 4	Companies need clearer regulatory guidance on by-products and End-of-Waste, comparable data, and funding for feasibility studies and early technical validation. Harmonised End-of-Waste criteria for priority streams and SME finance adapted to collaborative projects were indicated as the most urgent.
Consultants and advisory organisations	Messages 2 and 3 (legal certainty; data measurement)	These challenges mirror those regularly encountered with clients. One respondent proposed encouraging companies engaged in IS exchanges to disclose material-flow information through corporate sustainability reporting channels (ESRS E5, and VSME for non-listed SMEs).

Across groups, three recommendation clusters emerge as the strongest convergence points:

- (i) dedicated facilitation capacity (R2) combined with funding for pre-investment activities (R10, supported by R11), which respondents explicitly asked to be coordinated so that identifying a synergy leads directly to support for assessing and developing it;

- (ii) legal certainty on by-products and End-of-Waste (R5, R6; Message 2), consistently linked to the main perceived barrier;
- (iii) the recognition of IS professional profiles (Message 1). Recommendations on data interoperability (R7; Message 3) were cited less frequently but were considered a precondition for comparable monitoring. One respondent considered the End-of-Waste and early-stage funding measures the most urgent, while noting that their feasibility requires further assessment. This is consistent with the broader request to differentiate measures achievable through existing instruments from those requiring longer regulatory or institutional processes.

In line with the validation methodology, all eleven recommendations are therefore retained as formulated. The proposals for prioritisation, implementation roadmaps, country-specific notes, pilot actions and toolkits are classified as complementary follow-up actions, to be taken up in the dissemination and exploitation of the INSET Policy Brief.

7. INSET Tools as the connective links between both tracks

INSET's own outputs are not supplementary to the policy recommendations; they are the practical mechanism through which the bottom-up track becomes operational and connects upward to the EU framework. Each INSET tool has a defined function in this dual architecture:

IS Planner & IS Project Manager Training Pathways

Builds the professional facilitation capacity that all five partner countries identify as a critical gap. Creates the human capital base that the incoming ESCO IS profile integration (expected under CEA 2026) will require. Immediately deployable by VET institutions and IS networks in all five countries.

INSET IS Observatory

Generates structured, comparable IS data across five territories. Fills the information asymmetry barrier identified in WP5-A2. Feeds directly into the EU IS monitoring framework that the CEA 2026 IS certification system can require. Gives regional authorities the data infrastructure to demonstrate IS territorial performance to national governments and EU institutions.

INSET Best Practice Toolkit

Translates IS case evidence into replicable models for different industrial and territorial contexts. Enables industry associations, development agencies, and IS professionals to promote IS adoption without requiring bespoke expert support for each initiative. Provides the qualitative evidence base that complements Observatory quantitative data.

**INSET
Transnational
Network**

A transnational community of practice that bridges VET institutions, IS professionals, industry associations, and regional development agencies. Creates peer learning and experience transfer across different national IS maturity levels. France's more advanced ecosystem becomes a practical reference model for Lithuania and Slovenia. The network itself is a governance innovation, a bottom-up IS coordination structure that complements fragmented national institutional arrangements.