

Insights from the CIG Brainstorm Session – 29 September 2025

Plenary Brainstorm: Questions

1

What actions are your company/organisation taking or planning around sCRM reuse or substitution?

2

Which tools or partnerships do your company/organisation use or want to use to support circular value chains in sCRM?

3

What type of support could MateriNex offer to assist your company/organisation starting or running innovation projects?

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Context and Objectives:

A brainstorm session was held around the three questions listed above during the Common Interest Group (CIG) meeting on 29 September 2025, hosted by Aluminium Duffel. These discussions will support the MateriNex team in more effectively streamlining the innovation theme of Strategic and Critical Raw Materials (sCRM) and strengthening MateriNex's role as a facilitator. We also hope these exchanges will inspire and energize the CIG sCRM community to identify relevant projects and foster impactful partnerships.

Discussion 1:

What actions are your company/organisation taking or planning around sCRM reuse or substitution?

1. Substitution of sCRM's

Current Initiative:

- Production of graphite out of CO₂ to be used in batteries

Future Initiative:

- Reduce consumption of sCRMs by supporting innovative substitution or increasing efficiency across the entire supply chain

2. New Ways of Originating sCRM's

Current Initiatives:

- Bioaccumulation as a technique to extract low concentrations of metals from soil (e.g., Ni extraction)
- Recovery of sCRMs from ashes
- Extract phosphorus from wastewater sludge to produce white phosphorus

3. Recycling

Future Initiatives:

- New investments in recycling facilities for new types of waste such as EV batteries or wind turbine blades
- Manage customer expectations to allow more recycled materials in products
- Start the (MateriNex) CUALITY project to improve recycling rates by enhancing characterization possibilities
- Enhance direct use of post-consumer scrap in production processes
- Develop innovative process improvements to better handle dirty scrap without first removing impurities

4. Support Systems

Future Initiatives:

- Digitalization of metal streams and linking them to product design
- Use of digital twins to optimize recycling processes

5. Design

Future Initiatives:

- Integrate LCA (Life Cycle Assessment), dismantling, reuse, and repair in the design phase
- Map regional material flow analysis
- Promote industrial symbiosis

Discussion 2:

Which tools or partnerships do your company/organisation use or want to use to support circular value chains in sCRM?

During the brainstorm session, academics and industry representatives emphasized the need for funding, supportive legislation, data sharing, and collaboration to advance circular value chains in Strategic and Critical Raw Materials (sCRM).

Academics highlighted the importance of subsidies, open data repositories, and scrap flow mapping to enable industrial symbiosis. They also called for simplified legislation and stronger ties between academia and industry to accelerate innovation.

Industry participants echoed the need for innovation support but stressed harmonized EU legislation – in particular for hazardous waste transport—and advocated for digital tools like digital twins and machine learning to enhance process characterization.

Both groups identified gaps in data accessibility, particularly around material provenance and product-level circularity. They underscored the value of platforms for sharing best practices and life cycle assessment methods and emphasized the need for closer cooperation across the value chain—including suppliers, recyclers, and sector organizations.

Key metrics such as reuse rates, recyclability, and environmental impact assessments were seen as essential for tracking progress. Collaborative initiatives and recognition of strategic projects under the CRM Act were viewed as critical enablers for circular business models.

The actions outlined below are designed to address these gaps and opportunities, positioning the initiatives as catalysts for impactful, collaborative innovation in advanced materials and circular value chains.

1. Facilitate Open Data and Scrap Flow Mapping

- Support the creation or expansion of open data repositories and platforms for mapping scrap flows, enabling better data sharing and industrial symbiosis among partners.

2. Advocate for and Pilot Harmonized Legislation

- Engage with policymakers and industry consortia to push for simplified, harmonized legislation across EU countries, especially regarding hazardous waste transport and CRM rules. Consider supporting pilot projects that demonstrate the benefits of regulatory alignment.

3. Develop and Promote Best Practice Platforms

- Invest in or co-develop platforms for sharing best practices, life cycle assessment procedures, and objective environmental impact metrics. Encourage project teams to contribute to and use these resources.

4. Foster Value Chain Collaboration

- Initiate or fund projects that require active cooperation across the value chain—suppliers, recyclers, logistics, and sector organizations—to improve material quality, traceability, and sustainability. Use sector organizations as neutral platforms for non-core activities.

5. Address Data Gaps

- Support projects that develop or implement tools to access currently unavailable but essential data, such as material provenance and product-level circularity information.

6. Recognize and Scale Strategic Projects

- Help promising initiatives to apply for recognition as strategic projects under the CRM Act and facilitate knowledge sharing between successful applicants and new consortia.

7. Measure and Communicate Impact

- Require funded projects to report on key circular metrics (e.g., material reuse rates, recyclability, supply chain transparency) and ROI indicators (e.g., cost per recovered unit, % of suppliers onboarded). Develop dashboards for sharing results with stakeholders.

Discussion 3

What types of support could MateriNex provide to assist your company or organisation in starting or managing innovation projects?

The input for this section is based on contributions from **26 participants**, including **5 representatives from research organizations (RTOs)** and **21 from companies**.

	Research Organisations			Companies		
	Prior 1	Prior 2	Prior 3	Prior 1	Prior 2	Prior 3
Support from MateriNex						
Initiating horizontal collaboration as a trusted party		2	2	1	7	7
Finding the right research partner; Support in forming your consortium in alignment with ICON guidelines	2		1		4	2
Expanding your network through targeted network opportunities	2		2	9	5	3
Expanding your network through active learning networks		2		4	5	3
Updating innovation roadmaps based on your input in focus groups		1		6		
Suggested Next-Level Support from MateriNex						
Support for the Industrial Advisory Board cSBO part ICON	1					
Guidance to specific expertise RTO's				6		

Conclusions:

Both companies and RTOs see networking as a key task for MateriNex, with a preference for short, thematic events over long-term learning networks.

Companies value MateriNex as a trusted third party to foster horizontal collaboration, while RTOs appreciate its support in developing ICON projects.

Interest in updating the roadmap is slightly higher among companies (6 out of 21 marked it as a top priority) than among RTOs (1 out of 5 marked it as second priority).

MateriNex hosted by VITO nv

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