ETP SMR

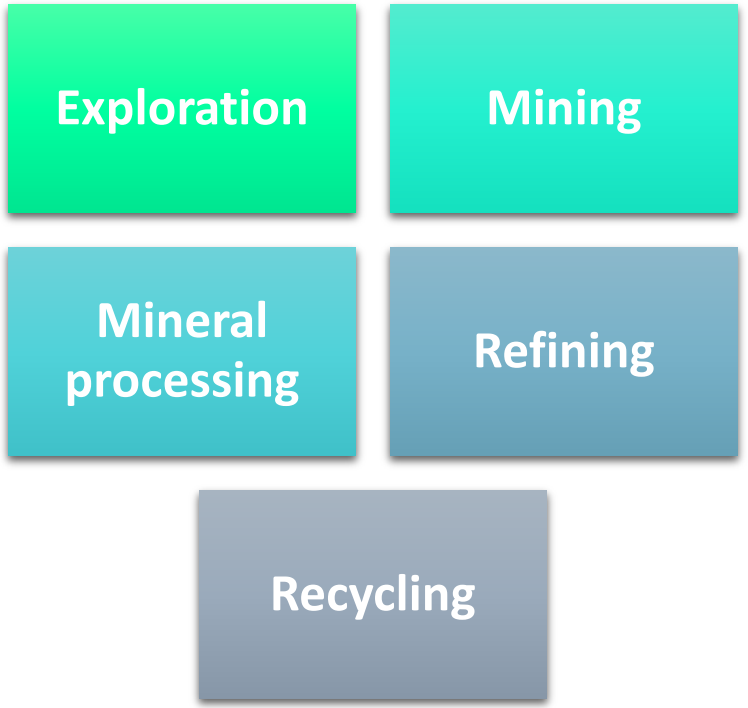
General Presentation

www.etpsmr.org

ETP SMR - What is it?

The **European Technology Platform on Sustainable Mineral Resources** (ETP SMR) is an association of entities operating in the **Mineral Resources R&I sector across the whole value chain**.

Our mission is to **develop long-term European Minerals Industries Research and Innovation agendas and roadmaps for actions at EU and national level**.



Members

ETP SMR

28 Members

Mintek
Republic of South Africa

Created with mapchart.net

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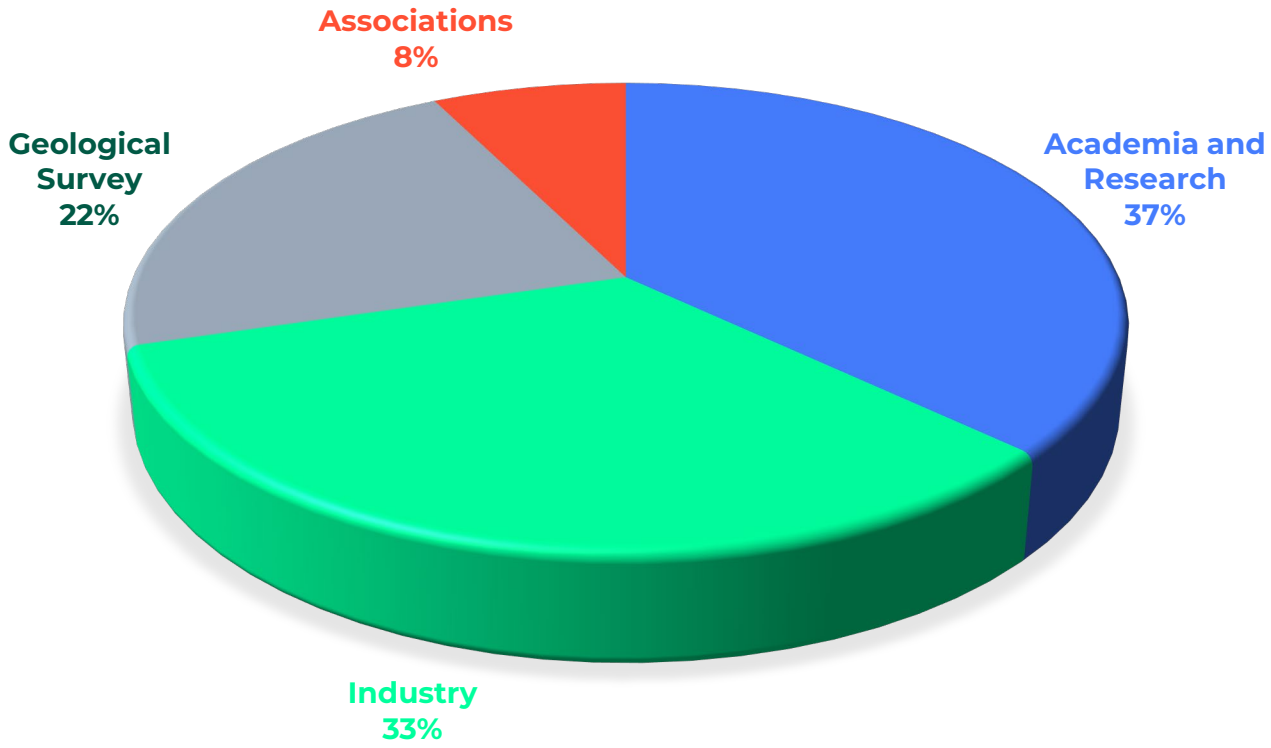
Stakeholder categories

- Raw materials Industry
- Technology providers
- Geological Surveys
- Academia and Research Institutes
- Industry & Stakeholder Associations
- International partners



Activities

Update of the ETP SMR Strategic R&I Agenda

- **Update ambitions to match current needs**
  - Two workshops, Dec 2022 and March 2023,
  - + consultation procedure on a first and second draft

- **The World's climate ambitions** increase the need for metals and minerals and also highlights also the need for climate neutral mining-, processing/refining-, and recycling operations

- **Changed geopolitical context** – security of supply cannot be taken for granted

- **New RM for emerging technologies the EU aims for leadership**

- **Advise the European Commission on relevant R&I needs for the mineral raw materials industries to enable secure and sustainable raw materials for the EU industries in line with the ambitions of the CRMA.**

Strategic ambitions (areas)

- Exploration & resource characterization
- Mining
- Mineral processing
- Metallurgy/Metals recovery & Recycling
- Decarbonization of operations
- Forecast and substitution of raw materials
- Environmental performance
- Social performance
- Raw materials policy and monitoring
- Global partnerships

https://www.etpsmr.org/?post_documents=etp-smr-strategic-research-and-innovation-agenda-2023

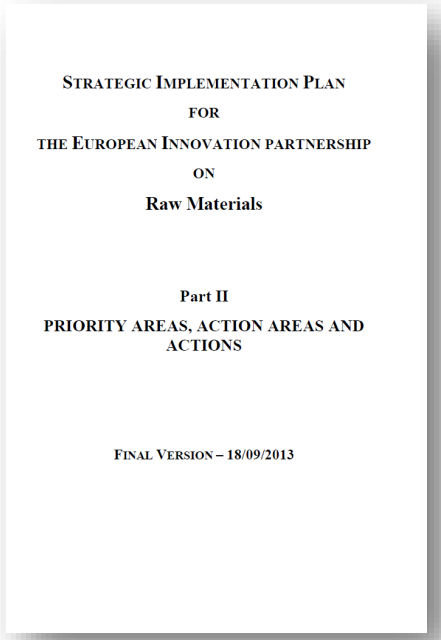
The role of research and innovation in ensuring a safe and sustainable supply of critical raw materials in the EU

The **European Parliament's report** mentions ETP SMR's SRIA several times.

https://www.europarl.europa.eu/RegData/etudes/STUD/2024/762848/EPRS_STU(2024)762848_EN.pdf

Next Steps: Strategic Implementation Plan (SIP)

- **Actionable Implementation:** Translate the 2023 ETP SMR Strategic Research and Innovation Agenda (SRIA) into concrete, actionable steps via a detailed implementation plan.
- **Strategic Plan Update:** Update the EIP on Raw Materials' Strategic Implementation Plan (SIP) to ensure its continued relevance.
- **Securing Funding:** Contribute strategically to the European Commission's SIP, which is linked to the CRMA communication, to secure targeted funding opportunities.
- **Goal Alignment:** Ensure that our goals are aligned with the European commissions goals regarding Raw material acquisition and processing.
- **CRMA Relevance:** Maintain a strong connection to the CRMA communications, to ensure that our programs remain relevant to current EU raw material policy.


STRATEGIC IMPLEMENTATION PLAN
FOR
THE EUROPEAN INNOVATION PARTNERSHIP
ON
Raw Materials

Part II
PRIORITY AREAS, ACTION AREAS AND ACTIONS

FINAL VERSION – 18/09/2013

Strategic Implementation Plan 2026-XXXX

- call topics
-objectives, problem definition
-scope
-budget
-expected outcome
- Type of call (IA, RIA, …)

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ETP SMR – 1st Workshop ‘Strategic Implementation Plan’

Raw Material Week

Brussels, Belgium | 10 December 2024

EU Commission – DG GROW Keynote Speaker: ‘Co-Funded Partnership: Raw Materials for the Green and Digital transition’

Panel Discussion

- *Rolf Kuby (Euromines)*
- *Tobias Kampman (ERA-MIN - Vinnova)*
- *Michael Tost (Leoben University)*
- *Daniel Cios (DG GROW)*
- *Moderator: Julie Hollis (EuroGeoSurveys)*

Round table
(30 participants)

Our sponsoring members & Participants

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TNO innovation for life
SGU
Géosciences pour une Terre durable brgm
EuroGeoSurveys European Geoscience for Society
The Geological Surveys of Europe

ETP SMR – 2nd Workshop ‘Strategic Implementation Plan’

Brussels, Belgium - Hybrid | 2 April 2025

- **EU Commission – DG GROW Keynote Speaker**: ‘Horizon Europe Calls, Co-Funded Partnership & Clean Industrial Deal’
- **Round table** (21 participants)

Pitching Event

This event is designed to **encourage international collaboration and partnership** in **Raw Materials Research & Innovation.** It aims to connect stakeholders from Partnership countries, providing a crucial platform for networking and strategic alliance building.

- **International Partnership Development**: Facilitating interaction and collaboration with R&I stakeholders Partnership countries to expand the Raw Materials Research and Innovation connections.
- **EU Funding Opportunities**: Creating opportunities for participants to identify and secure new partners for applications to upcoming EU funding calls (e.g., Horizon Europe), as well as for future Co-funded Raw Materials Partnership.
- **Academia-Industry Synergy**: Bridging the gap between academia and industry by offering a space for knowledge exchange, showcasing expertise, and presenting innovative ideas or challenges. Participants will have the chance* to pitch their areas of interest, specific project concepts, or problems requiring collaborative solutions, thereby promoting mutual awareness and potential collaborations.

**(subject to availability)*

Shape the Future of Raw Materials!

ETP SMR

Connect & Collaborate

Gain EU Recognition

Drive Innovation

Strategic Partnerships

Stay Informed & Influential

Exclusive Network

Amplify Your Impact

Join Us!

Contact the Secretariat:
info@eurogeosurveys.org

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Strategic Research and Innovation Agenda (SRIA) - Summary

www.etpsmr.org

Need for Research and Innovation in Exploration

Credit: EPIROC

- **No new mines without exploration**
- **< 2% of investments in exploration** are allocated to **EU Member States**
- **CRM Act – Member States** shall draw up **national exploration programmes**
- Mineral potential - **Europe is underexplored**

Challenges

- **Skills shortage**
- Need:
  - **R&I** to **discover** and **understand ore deposits** in Europe
  - **Technology** to **process**, **extract** and **recycle** CRM/SRM
  - **Collaboration** with strong exploration & mining jurisdiction

Credit: GKZ Freiberg

R&I – Mineral potential

✓ Strengthen efforts to **improve the EU's exploration capabilities by linking R&I actions to the Member States Exploration Programs** (actions needed now, however long term effects)

✓ **Improved knowledge base** on the **vast variety of European ore types** (not limited to MS Exploration Programs) and **cost-effective exploration technology.**

R&I – Policy

✓ **Examination of policy and legislative barriers to the EU's ability to increase domestic production from both primary and secondary sources.**

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Need for Research and Innovation in Mineral Processing

Credit: GKZ Freiberg

Developed | **Improved** | **New** | **Efficient** | **Methods** | **Technologies**

Traceability and industry integration

- **Global Passport** - traceability through the value chain

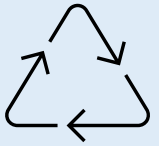
Process optimization

- **Comminution technologies**
  - ✓ Measurement technology
  - ✓ Models for optimizing design
  - ✓ Control of comminution and separation circuits
- **Efficient wet and dry separation processes / technologies**
  - ✓ Treating polymetallic and complex ores
  - ✓ Removing impurities
  - ✓ Improving recovery of low-grade
- **Geometallurgical modelling**
  - ✓ Process mineralogy
  - ✓ Analytics for resources characterization
  - ✓ Economical optimisation
  - ✓ Ore traceability
- **New** and **smart process design and methods**
- **Model-predictive control concepts and data-driven models** (digital twins)

Environmental performance

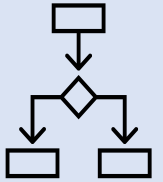
- **Flotation reagents** (effects on downstream processing, water recirculation, and health and safety)
- **Water treatment methods**
- **Feasibility of dry stacking in wet climates**

Recycling and secondary feed streams



- Design for **end-of-life products**
- **Automation**
  - ✓ Identification of the source
  - ✓ Dismantling and separation

System integration



- **Digitised processing plants** (advanced online characterization, sensor technology, and data analytics)
- **Integration with upstream and downstream processes** (geology/mining and smelter processes)
- **Coupling of business sectors and development of new business models**

What are the expected impacts?

Credit: Boliden

Reduced:

- ✓**energy consumption**
- ✓**losses of valuable minerals** (including CRMs)
- ✓**cost** (less energy consumption and wear)

Increased:

- ✓**revenue** through **cost-effective production of by-products**
- ✓**security of supply** of raw materials

Improved:

- ✓**environmental performance** (e.g., climate impact, water management, emissions, tailings)
- ✓**social acceptance of mineral processing plants** due to higher resource efficiency, lower emissions, and less waste

Developed intelligent production systems

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Need for Research and Innovation in Metallurgy/Metals recovery & Recycling

Credit: Nickelhütte Aue

New materials for emerging technologies
(procurement/production/recycling)

Traceability and industry integration

- **EU's digital product passport** in the recycling industry for circular economy

Decarbonisation

- **Climate neutral processing** & **refining technologies** (incl. use of reagents with no carbon footprint)
- **Alternative carbon free reduction agents** (technically & economically viable)
- **Decarbonisation of energy intensive** metallurgical processes

Environmental performance

- **Methods** for **optimized use** of **energy** & **water**
- **Development** of **technologies** with **low atmospheric** & **water emissions** with **minimal impact on the environment**

Process- and resource optimisation (primary- and secondary resources)

- **Process design optimization** using **thermodynamic data,** considering **efficiency in the process route** (new measurement technology, process modelling & automation)

- **Knowledge & technology** to **increase recovery yields** and **extract additional elements** (primary/secondary materials streams)

- **Technology** to ensure the **quality of by-products for use in new applications** (e.g., process control of slag properties / slag composition)

- **Methods & business models** to **use secondary materials or side streams** from **internal processes or across business sectors** to enhance efficiency and recovery of metals.

- **Mechanical & chemical processing** of **complex products** with minimal dissipation of CRMs.

- **Reuse** (compatibility: logistics / product optimization / reintegration into life cycle / safety / efficiency)

What are the expected impacts?

- **Sustainable** & **climate neutral** **mineral / metal supply**
- **Optimized processes** for **competitive** & **sustainable processing / refining capacity**
- **Increased**:
  - ✓ **resource efficiency** by **increased minerals** & **metal recovery** (primary/ secondary)
  - ✓ **security of supply** of raw materials
- **Development:**
  - ✓ **circular economy hub in the EU** (cross-sectoral process streams)
  - ✓ **markets for by-products**
- **Maintain energy intensive industries in Europe**
- **Efficient energy** & **water use**
- **Reduced landfill/tailings**
- **Waste:**
  - ✓ **inventories** of depositories and dumps (municipal landfills, domestic waste streams)
  - ✓ **improvement** of their **use** (redirection of waste streams)

Credits: Boliden

Frontrunners in sustainability

Credit: Boliden

Climate neutral and circular metals systems

Cobalt recycling (credit: Nickelhütte Aue)

Accelerate technological developments: mineral processing, metal production & recycling to **stay competitive** while adopting to **climate neutral processes** (goal: **net zero GHG emissions by 2045**)

CRMA targets by 2030: **R&I to develop economically and environmentally viable processes for extracting SRM/CRMs as by-products** from existing mines/waste streams/EOL products, or from advanced exploration projects.

➡ **Access to piloting facilities is key**

Long term: **Metals recovery from new exploration targets and MS Exploration Programs** (increased knowledge base will attract investments)

Environmental & social performance

Wetland restoration (Credit: Kaunis Iron)

High environmental and social performance are key for achieving Social License to Operate and to attract a skilled work force

Examples of **R&I needs** on both **technical- and social science**:

- Water management
- Dam safety and tailings management
- Air emissions management
- Waste management
- Biodiversity status
- Corporate Social Responsibility
- Management of land-use conflict
- Gender equality and diversity
- Safety and needs of workers
- Non-destructive exploration technologies

Recommendations

Credit: Sandvick

The European Union and the Member States cannot rest on its laurels if we want to secure raw materials for our industries:

- **Dramatically strengthen the mineral resource R&I sector**

Create opportunities for research collaboration between industry, SMEs, academia, institute and public authorities

- **Encourage Member States to provide national R&I funding possibilities**

Prioritise a Cofund Partnership on Raw Materials

- **Enable R&I collaboration with other strong mining countries** giving access to a stronger, broader, more mature R&I community (e.g., Australia, Canada, the US)

- **Create instruments and tools** that support weak links along the raw materials value chain R&I gaps along the value chain hamper the build-up of robust value chains

- **Gain leadership** in strategic research in the raw materials ecosystem

Both basic and applied research are need if we are to rebuild a strong, competitive minerals industry