



RESEARCH & INNOVATION PROGRAMME ON RAW MATERIALS TO FOSTER CIRCULAR ECONOMY



Co-funded by the Horizon 2020 programme
of the European Union

ERA MIN 2. Introduction

ERA-MIN 2 (1st December 2016 – 30th November 2021) – **5 years**

- Title: *Implement a European-wide **coordination of research & innovation programs** on raw materials to strengthen the industry competitiveness and the shift to a circular economy*
- **Horizon 2020 ERA-NET Cofund** project under *Societal Challenge 5 - Climate Action, Environment, Resource Efficiency and Raw Materials*
- ERA-NET Cofund instrument is a **public-public partnership (P2P)**:
 - **Eligible participants** are research funding organisations (national Ministries, regional authorities, national and regional funding agencies).
 - The **European Commission co-funds a single joint call for transnational proposals** (ERA-MIN Joint Call 2017). In addition, two joint calls without EU co-funding will be implemented.

Participation of legal entities from **international countries and/or regions** is encouraged in the **2018 and 2019 Joint Calls**.

ERA-MIN Joint Call 2017

EU co-funded Call

- EU co-funding: ca. **5 M€**
- Total call budget ca. **15 M€**

- Launch: **1st February 2017**
- Funding decision: **Jan. 2018**
- Projects start: **1st May 2018**

- **Centralised peer-review** based on the H2020 evaluation criteria:
1) Excellence, 2) Impact and 3) Implementation.

- Selection of projects following a **ranking list** recommended by the Scientific Evaluation Board.

Future objectives/activities

2018 and 2019 Joint Calls for transnational proposals by pooling only national/regional funds, without EU co-funding

OPEN to participation of funding organisations from other countries and regions that are not partners of ERA-MIN 2

As a result of 3 joint calls for transnational R&I proposals, ERA-MIN 2 aims to provide support to a total of **30 transnational R&I projects with 30 million Euros.**

2017-2021 – Follow-up of funded projects (including ERA-MIN projects); Organise mid-term and final Workshops; Mapping of research funding programmes for mutual learning; Organise/participate in joint workshops, matchmaking events with other Ministries and funding agencies

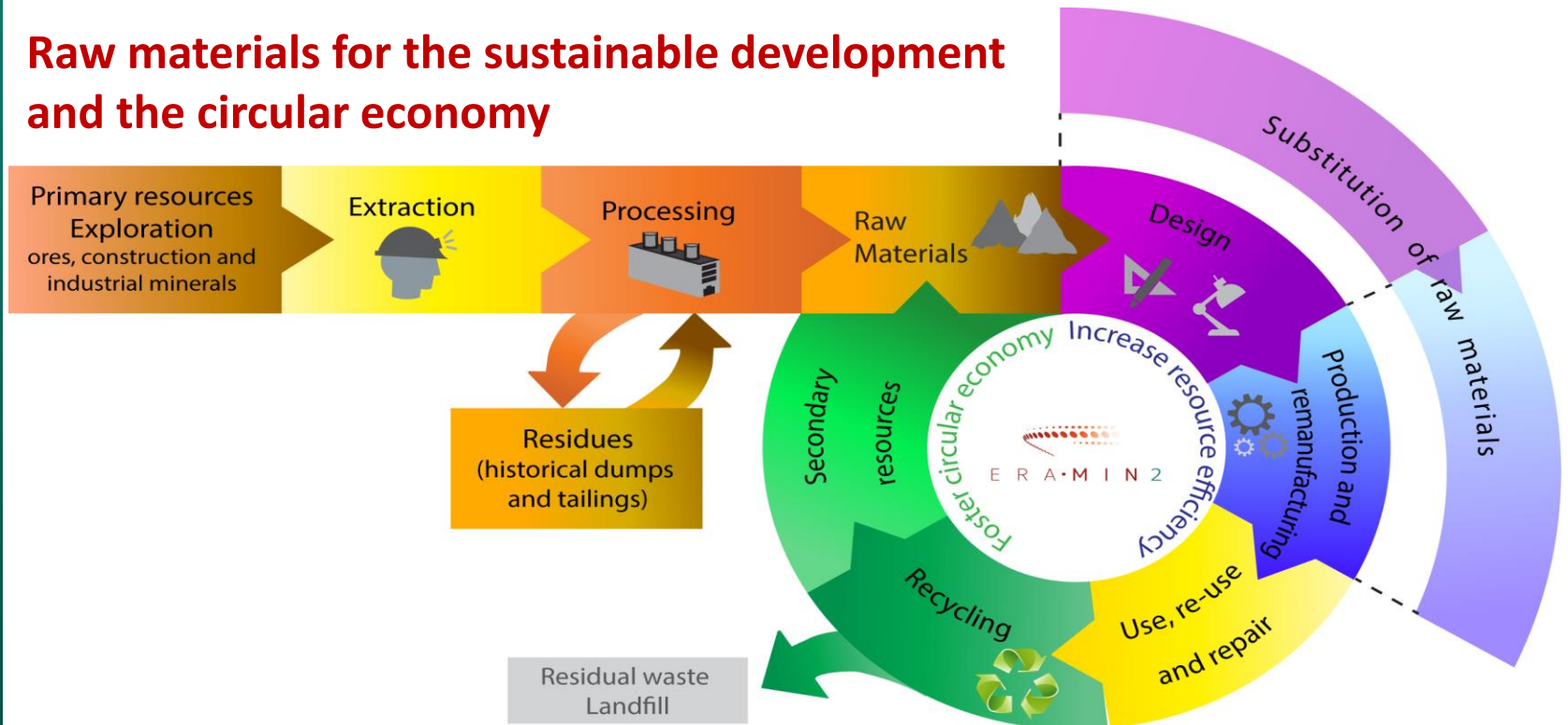
By 2021, ERA-MIN 2 aims to have **24 Associated partners/Observer organisations:**

18 from European countries; 6 from non-European countries.

ERA-MIN Joint Call 2017 at a glance

SCOPE: demand-driven research and innovation on primary and secondary resources of metallic, construction and industrial minerals and substitution of Critical Raw Materials in a circular economy approach.

Raw materials for the sustainable development and the circular economy



ERA-MIN Joint Call 2017 – thematic areas

Five main topics:

1. **Supply of raw materials from exploration and mining**
2. **Design**
3. **Processing, Production and Remanufacturing**
4. **Recycling of End-of-Life Products**
5. **Cross-cutting topics:**

5.1. **New business models**

5.2. **Improvement of methods or data for
environmental impact assessment**

5.3. **Social acceptance and trust/public perception
of raw materials**

ERA-MIN Joint Call 2017 – main topics and sub-topics

1. Supply of raw materials from exploration and mining

- 1.1. Exploration
- 1.2. Mining operations
- 1.3. Mine closure & reclamation

2. Design

- 2.1. Product design for increased raw material efficiency
- 2.2. Product design for reuse or extended durability of product
- 2.3. Product design to promote recycling
- 2.4. Product design for critical material substitution

ERA-MIN Joint Call 2017 – main topics and sub-topics

3. Processing, Production and Remanufacturing

- 3.1. Increase resource efficiency in resource intensive production processes
- 3.2. Increase resource efficiency through recycling of residues or manufacturing
- 3.3. Increase resource efficiency using information & communication technologies (ICT)

4. Recycling of End-of-life products

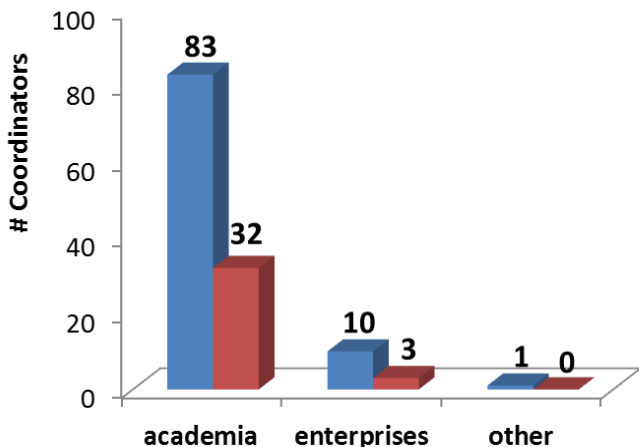
- 4.1. End-of-life products collection and logistic
- 4.2. End-of-life products pre-processing
- 4.3. Recovery of raw materials from End-of-life products
- 4.4. Increase recycling of End-of –Life products information & communications technologies (ICT)

ERA-MIN Joint Call 2017

Call statistics

ERA-MIN Joint Call 2017 – proposals submission

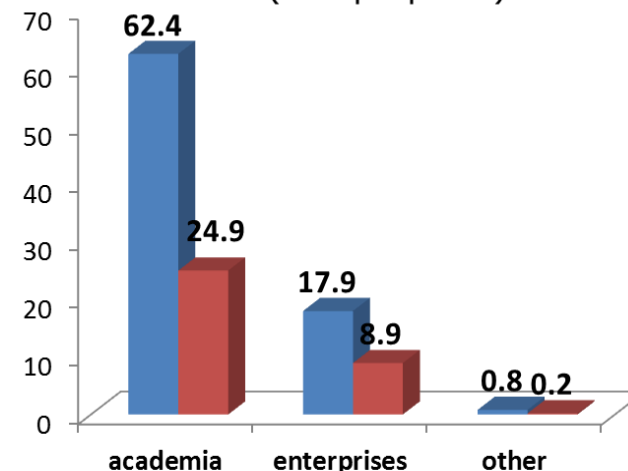
94 Pre-proposals
35 Full-proposals



Total costs:

81.2 million € (Pre-proposal)

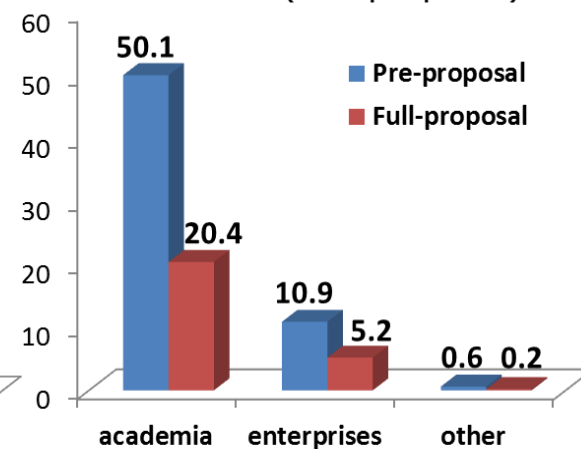
34 million € (Full-proposal)



Requested funding:

61.7 million € (Pre-proposal)

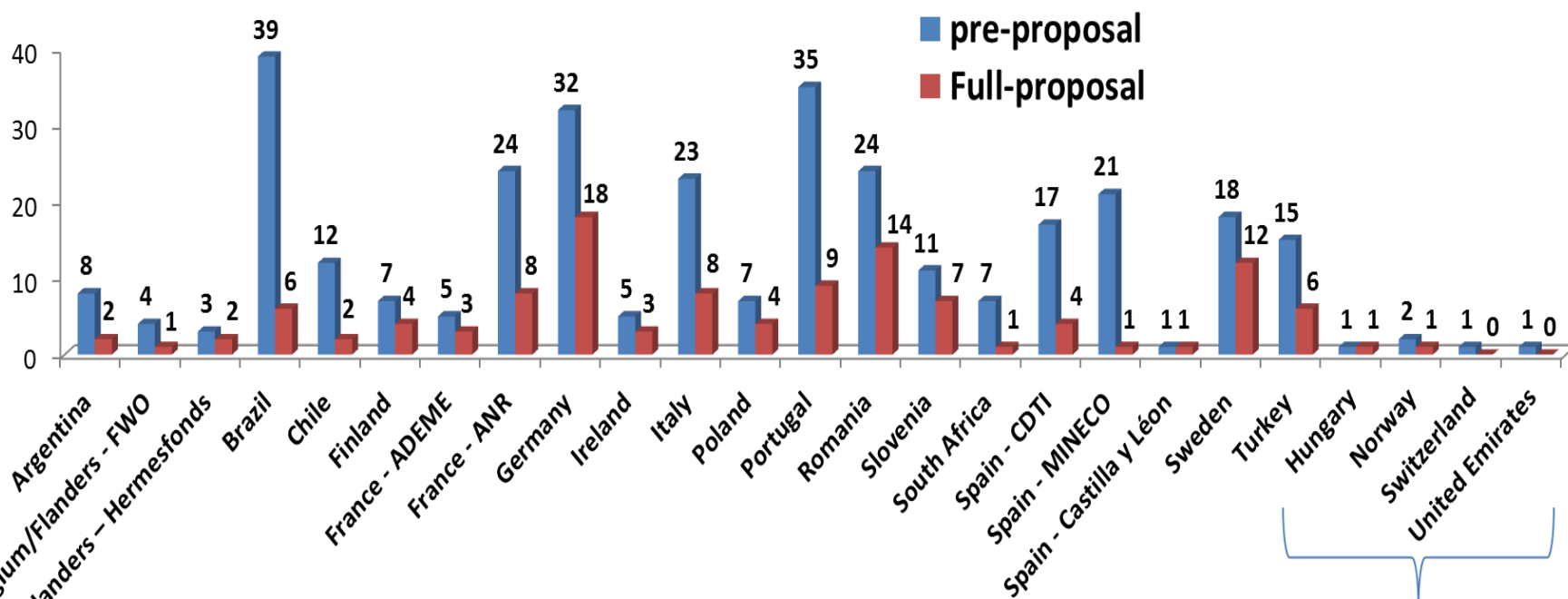
25.7 million € (Full-proposal)



94 Pre-proposals involving **493** applicants (**27% enterprises**)

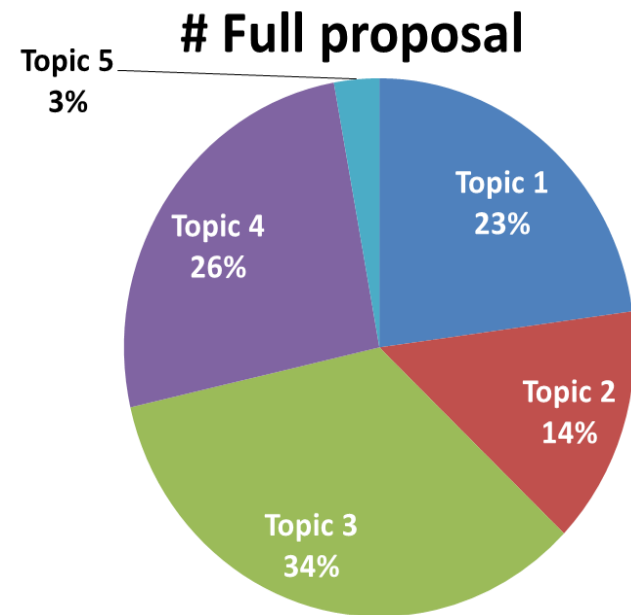
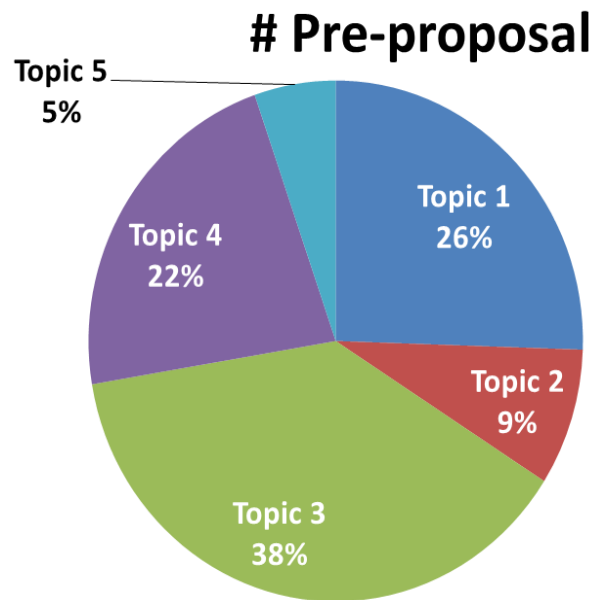
35 Full-proposals involving **186** applicants (**33 % enterprises**)

ERA-MIN Joint Call 2017 – proposals submission by country



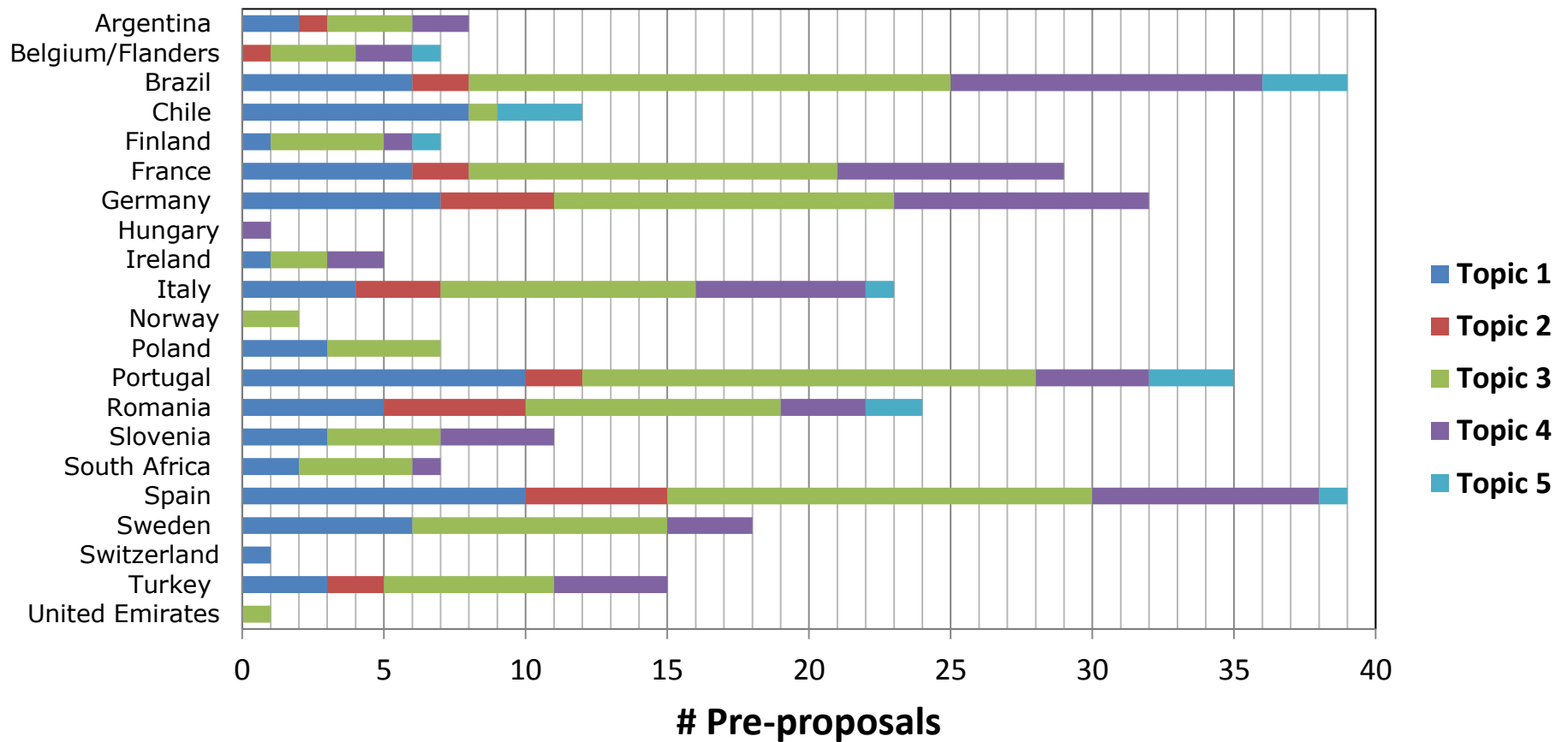
4 countries not participating
in the Call

ERA-MIN Joint Call 2017 – proposals submission by call topic

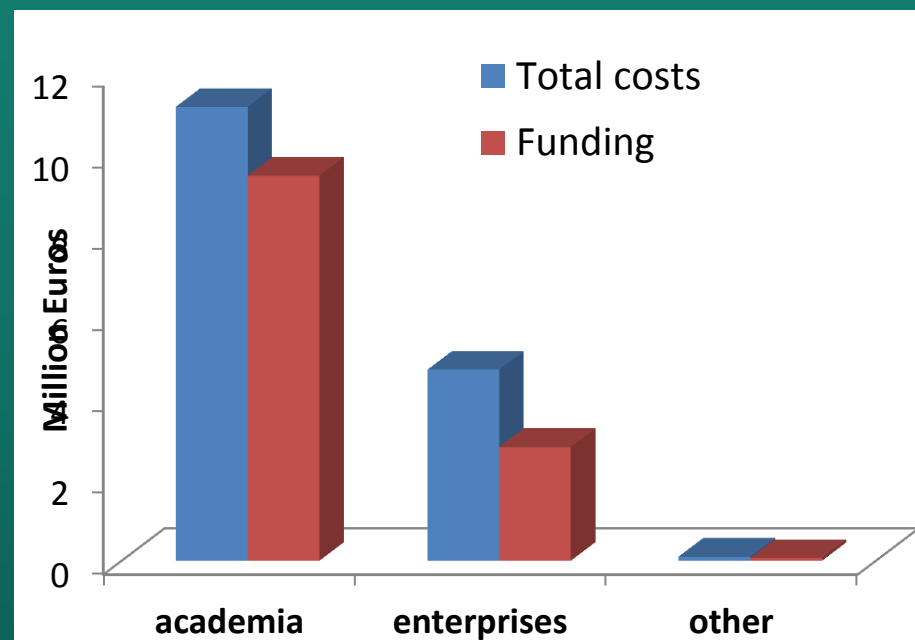
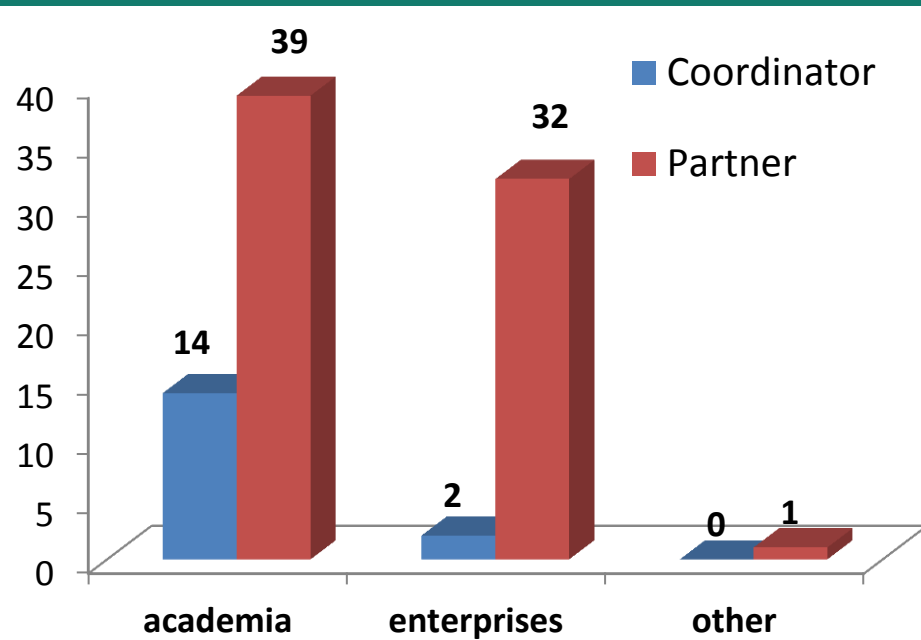


ERA-MIN Joint Call 2017

Main call topics addressed in each country (pre-proposals)



ERA-MIN Joint Call 2017 – funded projects (Success rate – 17%)

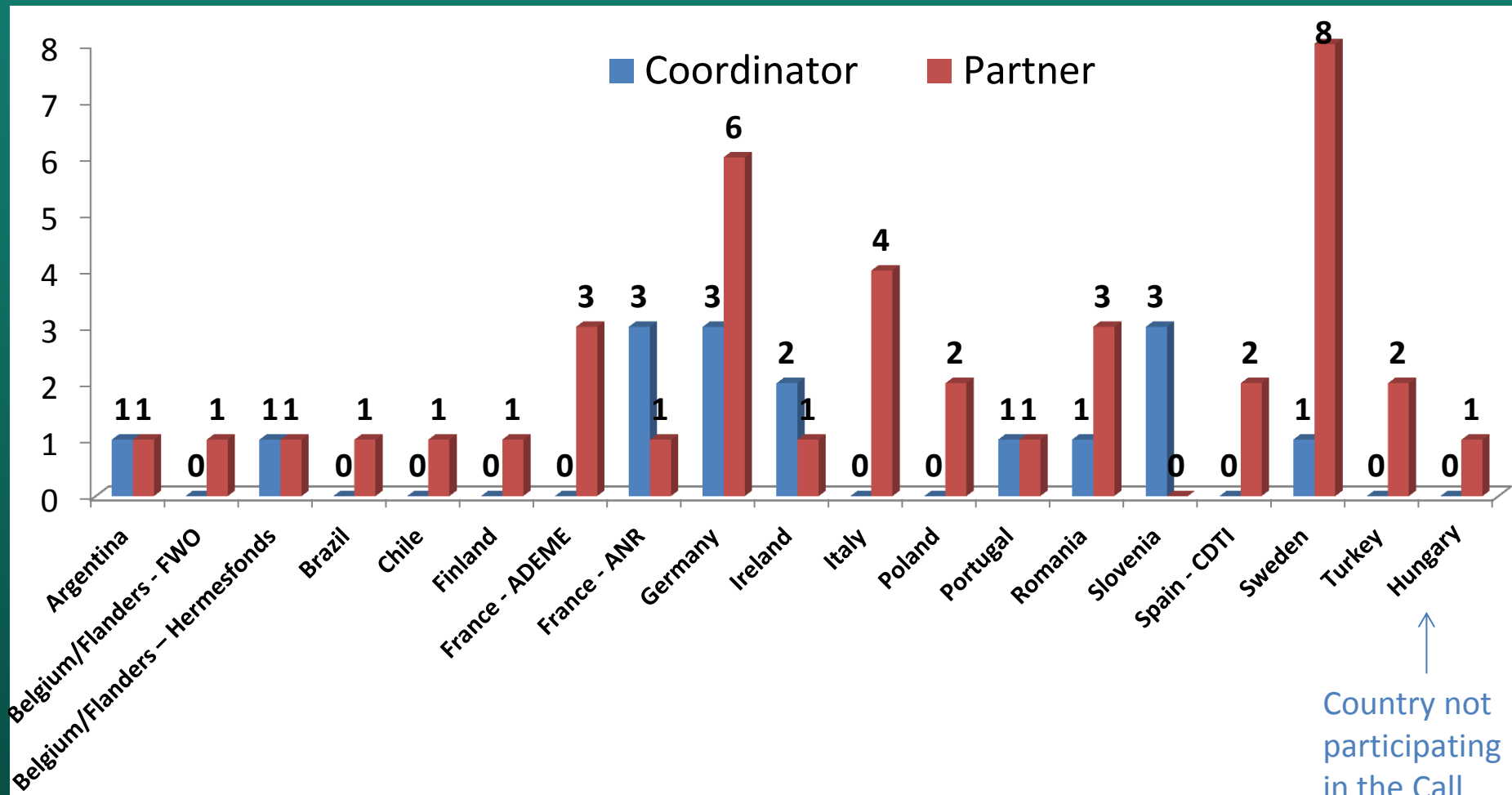


16 transnational funded projects by **16** countries/regions

12.3 million Euro allocated funding of **16** million Euro total costs

34 enterprises (**39%**) out of a total of **88** beneficiaries

ERA-MIN Joint Call 2017 – Participations as coordinator and as partner in funded projects



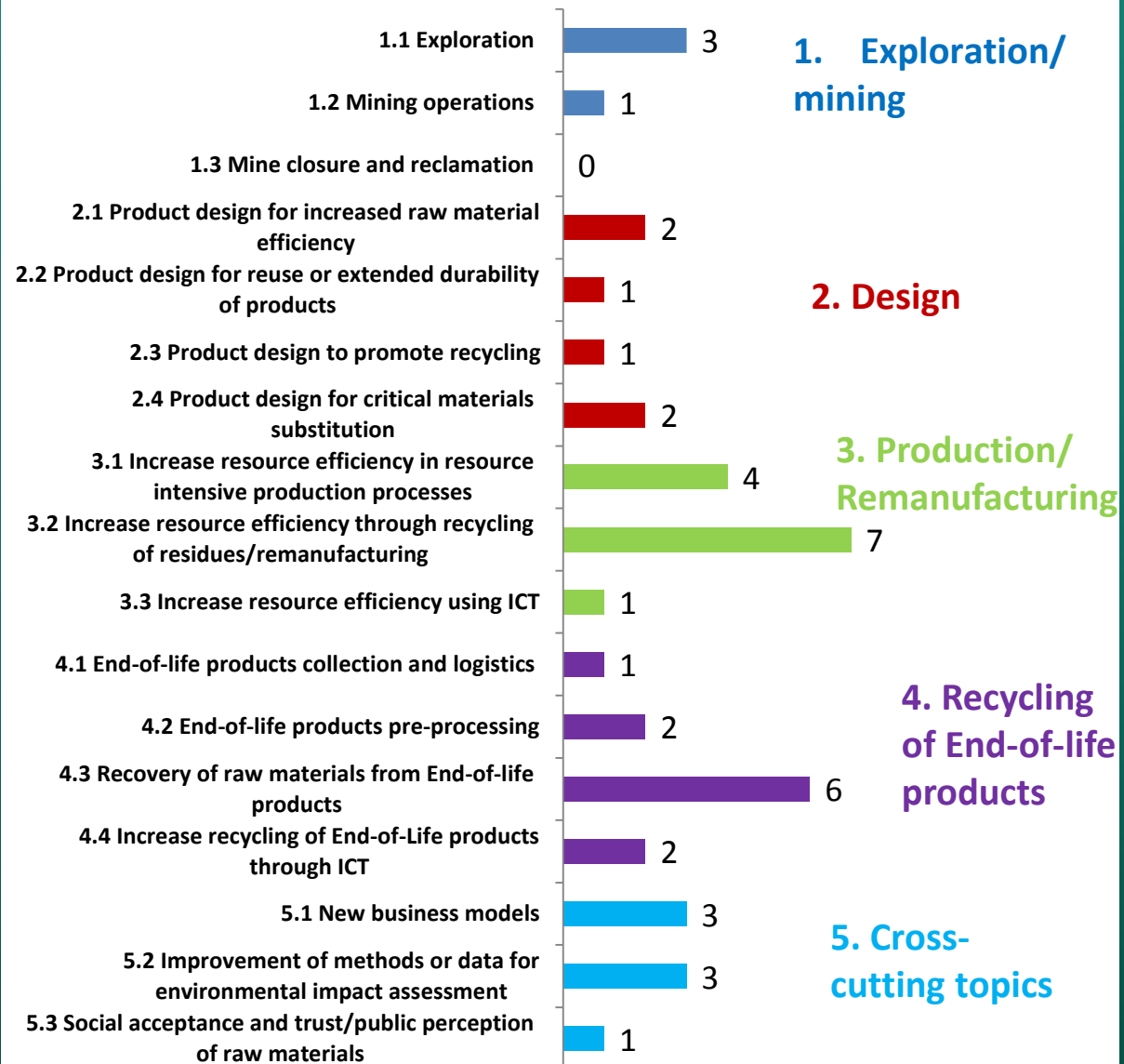
Partnerships established between partners of the 16 funded projects



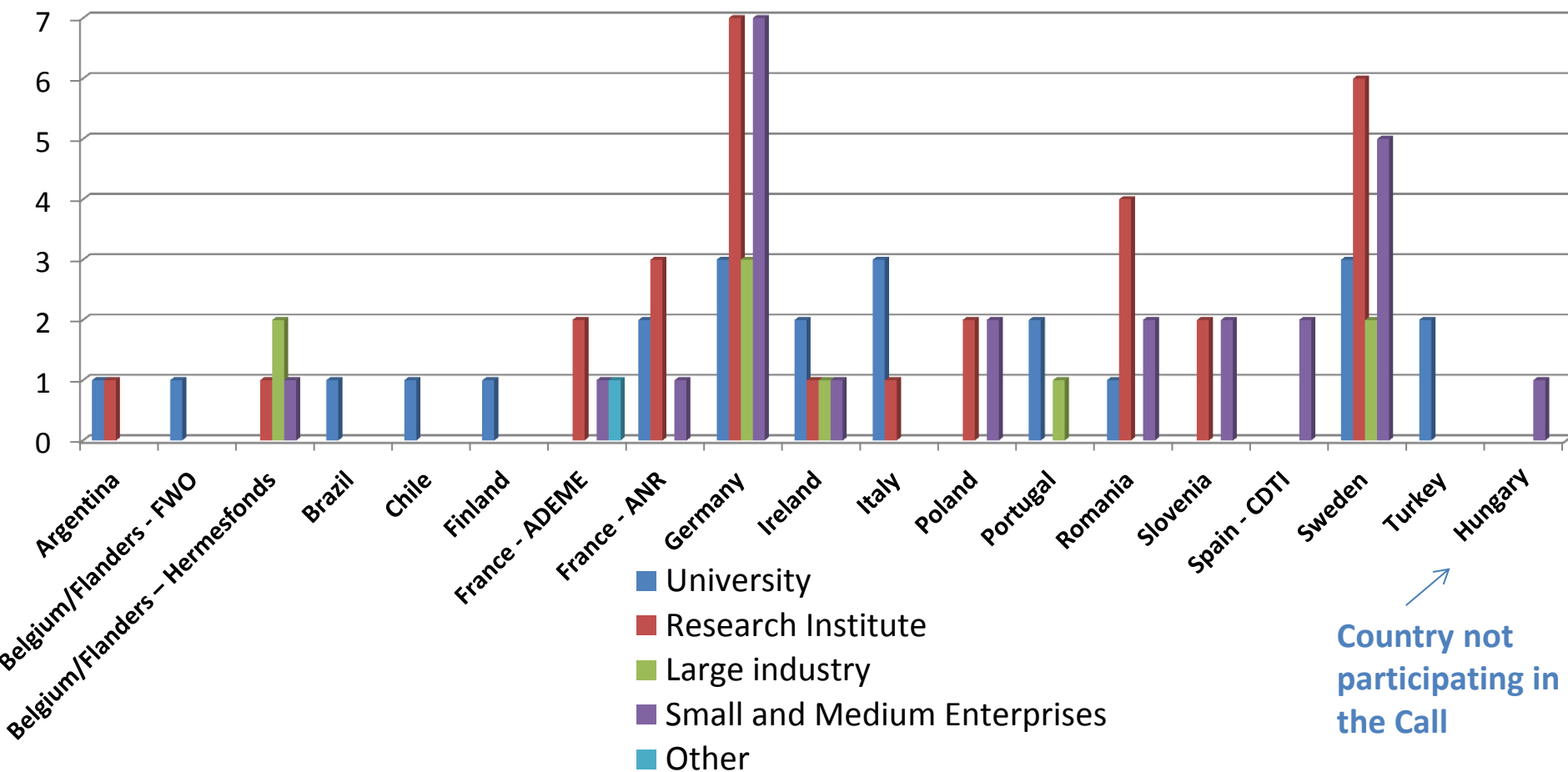
18 public research and innovation funding organisations
of 11 EU countries, 1 EU region, 1 EU Associated Country and 3 non-EU countries

ERA-MIN Joint Call 2017

Call sub-topics addressed by the 16 funded projects



ERA-MIN Joint Call 2017 – Type of applicants in funded projects



ERA-MIN Joint Call 2017 – 4 funded projects address **Topic 1. Supply of raw materials from exploration and mining**

Call sub-topics	Project Keywords	Countries /regions	Project acronym/title
1.1: Exploration	Li-deposit exploration , drone, SWIR, LIBS, integrated software solutions	France , Portugal, Germany	LIGHTS Lightweight Integrated Ground and Airborne Hyperspectral Topological Solution
1.1: Exploration	Exploration, magnetics, airborne, FTMG/3D-VM/OPM, high resolution	Germany , Sweden, Spain	AMTEG Advanced Magnetic full Tensor Gradiometer instrument
1.2: Mining operations	Sensor fusion, LIBS, multi energy X-ray, mining, geological modelling	Germany , Chile, Sweden	REWO-SORT Reduction of Energy and Water consumption of mining Operations by fusion of sorting technologies LIBS and ME-XRT
1.1: Exploration	Innovative, gold , targeting, 3D modelling, microanalysis	Ireland , Sweden	Gold_Insight Tracing Gold-Copper-Zinc with advanced microanalysis

ERA-MIN Joint Call 2017 – 1 funded projects address **Topic 2. Design**

Call sub-topics	Project identifier	Countries /regions	Project acronym/title
<p>2.1: Product design for increased raw material efficiency</p> <p>2.4: Product design for critical materials substitution</p>	<p>Monazite, rare earth oxides, doped zirconia, thermal barrier coatings, sintered zirconia</p>	<p>Romania, Italy, France</p>	<p>MONAMIX</p> <p>New concepts for efficient extraction of mixed rare earths oxides from monazite concentrates and their potential use as dopant in high temperature coatings and sintered materials</p>

ERA-MIN Joint Call 2017 – 7 funded projects address **Topic 3**.

Call sub-topics	Project identifier	Countries /regions	Project acronym/title
2.4: Product design for critical materials substitution; 3.2: Increase resource efficiency through recycling of residues or remanufacturing	Phosphorus recycling , P from manure ash, P-concentration, P-sustainability, Zero waste	Portugal , Brazil, Italy, Poland, Romania, Sweden, Turkey, France	Deasphor Design of a product for SUBSTITUTION of phosphate rocks
3.1: Increase resource efficiency in resource intensive production processes	Lithium , membrane electrolysis, water recovery, life cycle analysis, magnesium	Argentina , Belgium/Flanders, Sweden	Li-Water Membrane electrolysis for resource-efficient lithium and water recovery from brines
3.2: Increase resource efficiency through recycling of residues or remanufacturing	Waste recycling, slag , fibers, alkali activated foams	Slovenia , Finland, Italy	FLOW Lightweight alkali activated composite foams based on secondary raw materials
3.1: Increase resource efficiency in resource intensive production processes; 3.2: Increase resource efficiency through recycling of residues or remanufacturing	Mining wastes, mineral processing, hydrometallurgy, base and precious metals , economic and environmental assessment	France , Romania, Turkey, Poland	MINTECO Integrated eco-technology for a selective recovery of base and precious metals in Cu and Pb mining by-products

ERA-MIN Joint Call 2017 – 7 funded projects address **Topic 3. Processing, Production and Remanufacturing**

Call sub-topics	Project keywords	Countries/ regions	Project acronym/ title
<p>2.1: Product design for increased raw material efficiency,2.2: Product design for reuse or extended durability of products,2.3: Product design to promote recycling ,3.2: Increase resource efficiency through recycling of residues or remanufacturing,3.3: Increase resource efficiency using information and communication technologies (ICT),4.1: End-of-life products collection and logistics ,4.2: End-of-life products pre-processing: pre-treatment, dismantling, sorting, characterisation,4.3: Recovery of raw materials from End-of-life products,4.4: Increase recycling of End-of-Life products through information and communication technologies (ICT),5.1: New business models,5.2: Improvement of methods or data for environmental impact assessment</p>	<p>Circular economy, magnet recycling, NdFeB magnets, end-of-life magnets, Eco-labelling</p>	<p>Slovenia, Germany, Sweden</p>	<p>MaXcycle A novel circular economy for sustainable RE-based magnets</p>

ERA-MIN Joint Call 2017 – 7 funded projects address **Topic 3. Processing, Production and Remanufacturing**

Call sub-topics	Project keywords	Countries /regions	Project acronym/title
<p>3.1: Increase resource efficiency in resource intensive production processes,</p> <p>3.2: Increase resource efficiency through recycling of residues or remanufacturing,</p> <p>5.2: Improvement of methods or data for environmental impact assessment</p>	<p>Bottom Ash, Metal Recovery, Construction Minerals, Recycling, Waste Minimization</p>	<p>Germany, Italy, Sweden</p>	<p>BASH-TREAT Optimization of bottom ash treatment for an improved recovery of valuable fractions</p>
<p>3.2: Increase resource efficiency through recycling of residues or remanufacturing,</p> <p>4.3: Recovery of raw materials from End-of-life products</p>	<p>Rare earth elements, recycling, magnetic nanomaterials, e-waste, selectivity</p>	<p>Slovenia, Sweden, Argentina, France</p>	<p>MetRecycle Recycling of metals using functionalized magnetic nanoparticles (FMNP)</p>

ERA-MIN Joint Call 2017 – 4 funded projects address **Topic 4. Recycling of End-of-Life products**

Call sub-topics	Project keywords	Countries /regions	Project acronym/title
<p>3.1: Increase resource efficiency in resource intensive production processes,3.2: Increase resource efficiency through recycling of residues or remanufacturing,4.3: Recovery of raw materials from End-of-life products,5.1: New business models,5.2: Improvement of methods or data for environmental impact assessment ,5.3: Social acceptance and trust/public perception of raw materials</p>	<p>Critical Raw Materials, biometallurgi, sulfate reduction, bauxite residue, fly ash</p>	<p>Sweden, Germany, Ireland, Hungary</p>	<p>BIOMIMIC Innovative biotechnological methods for effective mining of secondary material</p>
<p>4.3: Recovery of raw materials from End-of-life products</p>	<p>Precious metals recovery, supercritical CO₂, complexing surface-active polymers, spent catalysts, secondary resources</p>	<p>France, Romania, Germany</p>	<p>SUPERMET Recovery of Precious Metals from Spent Catalysts by Supercritical CO₂ Extraction Assisted by Polymers</p>

ERA-MIN Joint Call 2017 – 4 funded projects address Topic 4. Recycling of End-of-Life products

Call sub-topics	Project keywords	Countries/ regions	Project acronym/title
<p>4.2: End-of-life products pre-processing: pre-treatment, dismantling, sorting, characterisation,</p> <p>4.3: Recovery of raw materials from End-of-life products,</p> <p>4.4: Increase recycling of End-of-Life products through information and communication technologies (ICT)</p>	<p>Bottom ash, sensor-based characterisation, sensor-based sorting, process model, optimization</p>	<p>Belgium /Flanders, Germany</p>	<p>INSTANT / INNOVATIVE SENSOR TECHNOLOGY FOR OPTIMIZED MATERIAL RECOVERY FROM BOTTOM ASH TREATMENT</p>
<p>4.3: Recovery of raw materials from End-of-life products,</p> <p>5.1: New business models</p>	<p>PCB, ASR, battery, critical metals, economic assessment full scale plant</p>	<p>Ireland, Belgium /Flanders, Germany, Spain</p>	<p>ReCEOL Recycling of End-of-Life Products (PCB, ASR, LCD)</p>

More information on the 16 **ERA-MIN 2 funded projects**
and the 17 ERA-MIN funded projects are available at

<https://www.era-min.eu/results>

ERA-MIN Research Agenda is available for download at:
<https://www.era-min.eu/publications>

ERA-MIN Joint Call 2018

Participating countries

Call calendar

ERA-MIN Joint Call 2018

Scope / Call thematic areas	Similar to Call 2017
<p>15 Participating countries/regions <i>(to be updated in September 2018)</i></p>	<p><u>Latin American Countries:</u> Argentina, Brazil and Chile <u>EU countries/regions:</u> Belgium-Flanders; Finland; France; Ireland; Poland; Portugal; Romania; Slovenia; Spain - Castilla y León; Sweden; <u>Non-EU countries:</u> South Africa; Turkey;</p>
<p>Call provisional budget <i>(to be updated later)</i></p>	<p>7.2 million Euros</p>

ERA-MIN Joint Call 2018

Submission procedure	One-stage submission procedure (only full proposals)
Call pre-announcement	September 2018
Call opens	31st October 2018
Full-proposal submission deadline	31st January 2019
Feedback to applicants	Mid May 2019
Earliest start date of projects	June 2019

HOW CAN YOU GET INVOLVED?

If you are a researcher from academia, SME, industry, NGO or public authority

- Apply, as coordinator or partner, in a transnational consortium to 2018 and 2019 ERA-MIN Joint Calls
- Apply as reviewer for the scientific peer-review of international R&D projects

If you are a Research Funding Organisation (Ministry or Agency) from European or non-European country or region

- Join the **2018/2019 joint calls** for transnational R& projects to support the internationalization of the researchers from your country or region

If you represent a raw materials initiative, Horizon 2020 project, industrial association or an international body

- Liaison with ERA-MIN 2 activities to ensure complementarity and avoid duplication of efforts



Our project ERA-MIN2
was made possible
thanks to #H2020 funding

€30 billion is still
available in the 2018-20
Work Programme!

#InvestEUresearch



Coordination: FCT- Fundação para a Ciência e a Tecnologia – Portugal
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