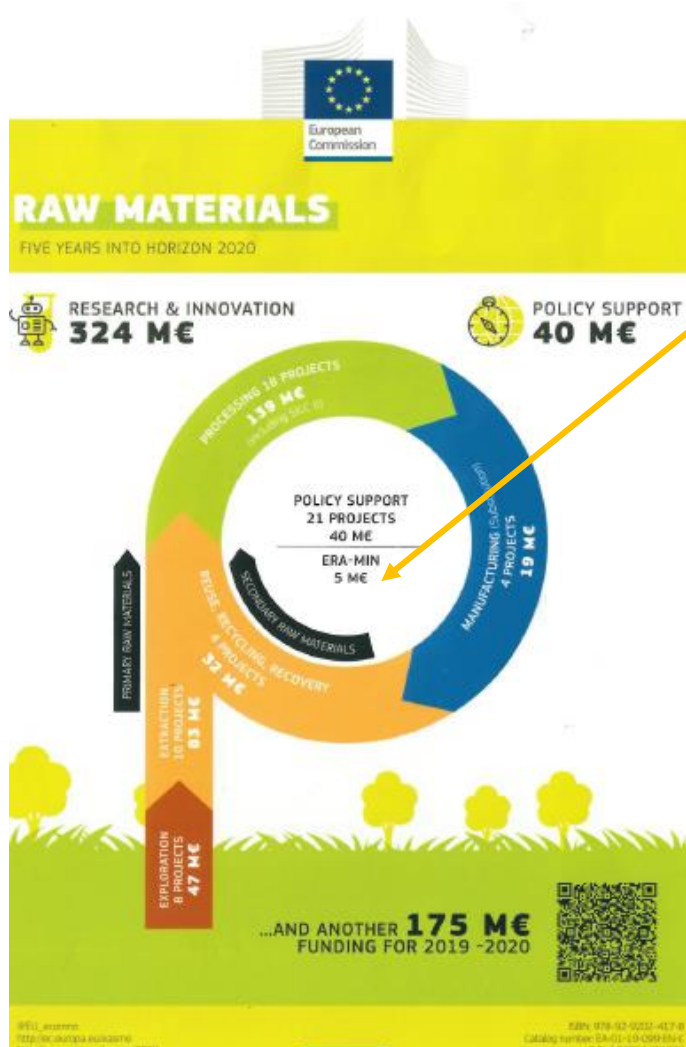


Implement a European-wide coordination of research and innovation programs on raw materials to strengthen the industry competitiveness and the shift to a circular economy (ERA-MIN 2)

Dina Carrilho, ERA-MIN 2 project coordinator
FCT- Foundation for Science and Technology (Portugal)

***Match-making webinar: A holistic approach to circular manufacturing (CM):
Exploring collaboration between European PPP initiatives and Portuguese stakeholders
(Centro & Norte regions), 23th June 2020***

Horizon 2020 ERA-MIN 2 €5 Million EU funding



Forthcoming Horizon 2020 ERA-MIN3 €5 Million EU funding

CONSORTIUM

Pan-European network of
21 public research and innovation
funding organisations from:

11

EU Member States countries

Finland	Italy	Slovenia
France	Poland	Spain
Germany	Portugal	Sweden
Ireland	Romania	

2

EU Member States regions

Belgium - Flanders
Spain - Castille y León

4

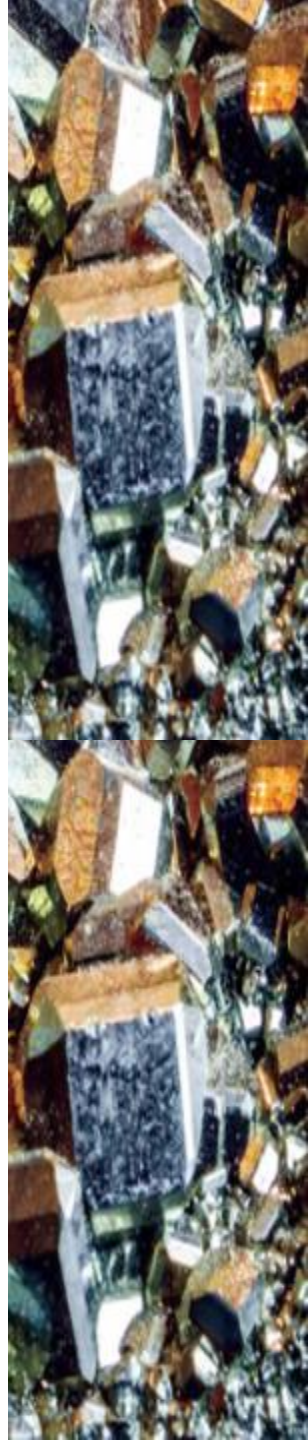
4 non-EU countries

Argentina	Chile
Brazil	South Africa

1

EU Associated Country

Turkey



1. Secure the sustainable and responsible industrial supply of **non-energy mineral raw materials** for a **carbon-neutral and a circular economy**

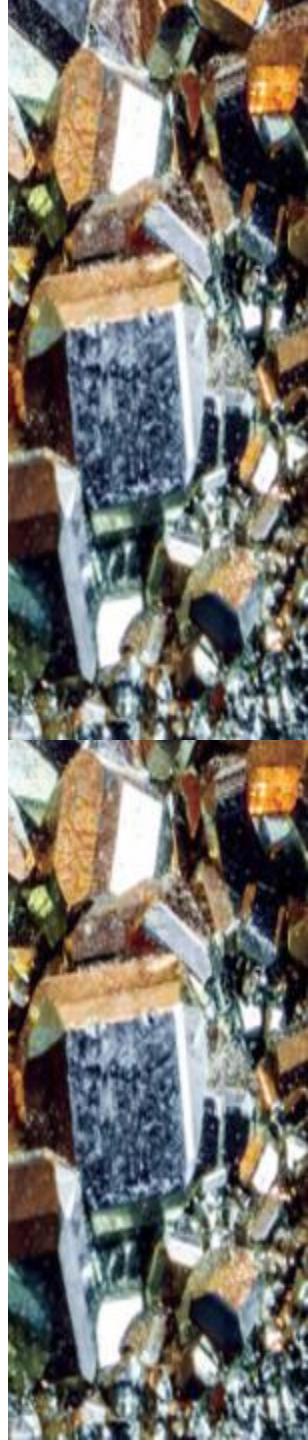
2. Promote **world-wide** research and innovation (R&I) cooperation through **coordinated funding**

3. Reduce the fragmentation of R&I **funding** across Europe and globally

PAN-EUROPEAN, INNOVATIVE AND FLEXIBLE NETWORK
OF PUBLIC RESEARCH AND INNOVATION FUNDING ORGANISATIONS

4. Implement 3 **Joint Calls** for transnational R&I projects on “*Raw materials for the sustainable development and the circular economy*”

5. Support **international R&I projects** between universities, research institutes, small, medium and large enterprises, NGOs, public authorities, etc



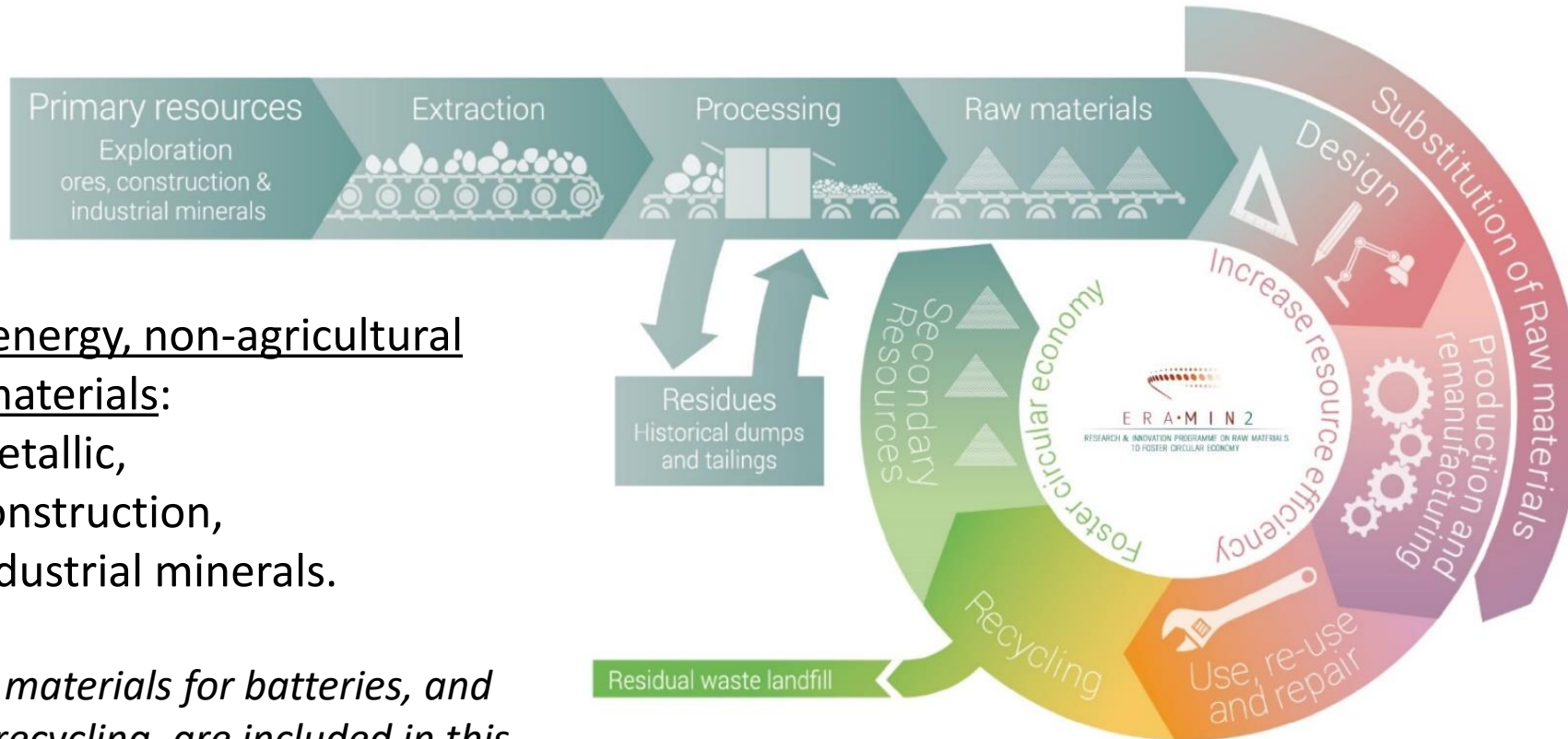
ERA-MIN Joint Calls scope

Raw materials for the sustainable development and the circular economy

Non-energy, non-agricultural raw materials:

- Metallic,
- Construction,
- Industrial minerals.

Raw materials for batteries, and their recycling, are included in this framework



ERA-MIN Joint Call topics

Raw materials for the sustainable development and the circular economy

Topic 1



Supply of raw materials from exploration and mining

Topic 2



Product design for increased resource efficiency

Topic 3



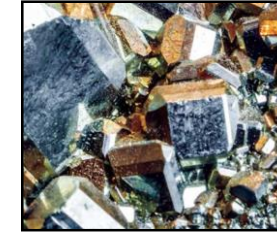
Processing, Production and Re-manufacturing

Topic 4



Recycling and Re-use of End-of-Life products

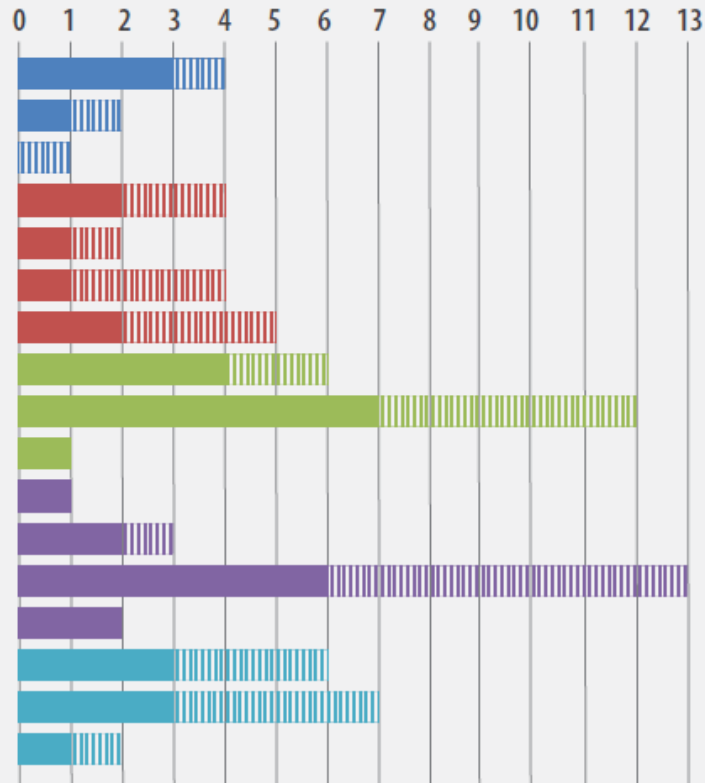
Topic 5



- Cross-cutting topics;
- New business models;
- Environmental impact assessment
- Social acceptance and public perception

ERA-MIN Joint Calls 2017 & 2018

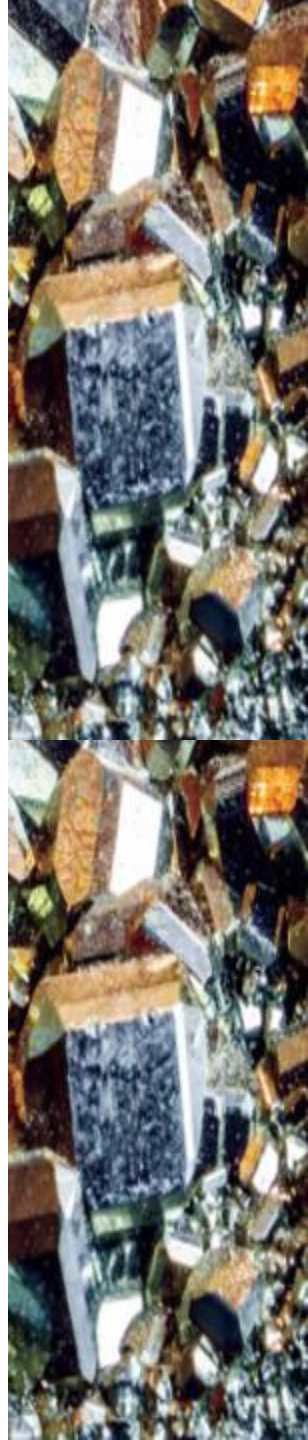
FUNDED PROJECTS



- 1.1. EXPLORATION
- 1.2. MINING OPERATIONS
- 1.3. MINE CLOSURE AND RECLAMATION
- 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 MATERIALS SUBSTITUTION
- 3.1. INCREASE RESOURCE EFFICIENCY IN RESOURCE INTENSIVE PRODUCTION PROCESSES
- 3.2. INCREASE RESOURCE EFFICIENCY THROUGH RECYCLING OF RESIDUES OR REMANUFACTURING OF USED PRODUCTS AND COMPONENTS
- 3.3. INCREASE RESOURCE EFFICIENCY USING ICT
- 4.1. END-OF-LIFE PRODUCTS COLLECTION AND (REVERSE) 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 ICT
- 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

 CALL 2017
 CALL 2018

TOPIC 1 Supply of raw materials from exploration and mining
 TOPIC 2 Design
 TOPIC 3 Processing, Production and Remanufacturing
TOPIC 4 Recycling and Re-use of End-of-Life products
 TOPIC 5 Cross-cutting topics



R&I collaborative international projects

Raw materials for the sustainable development and the circular economy

Li-deposit exploration

Gold mining in EU

Recycling of Critical Raw Materials (e.g. REE, V, phosphorus) from End-of-Life products (magnets, WEEE) and waste (slag, ash)

Hydrometallurgy and biometallurgy

new eco-innovative solutions for mining infrastructures

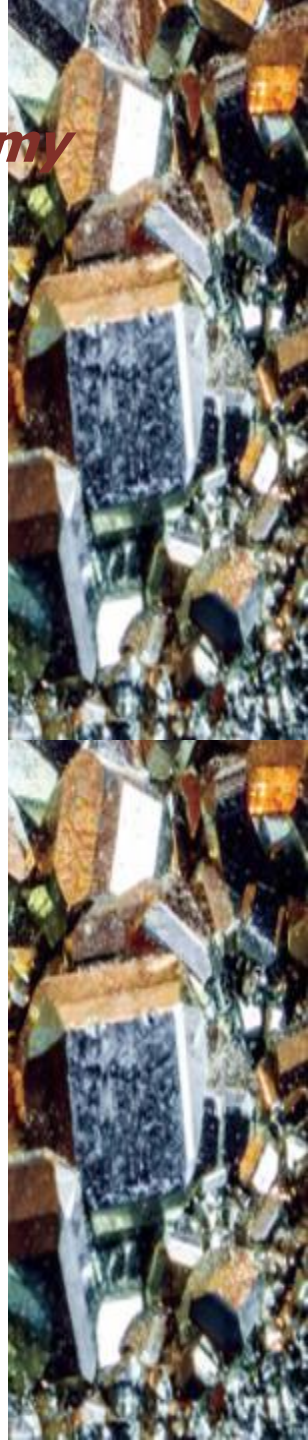
Recovery of base/precious metals in mining by-products

Recycling of construction materials

Substitution of phosphate rocks and natural graphite

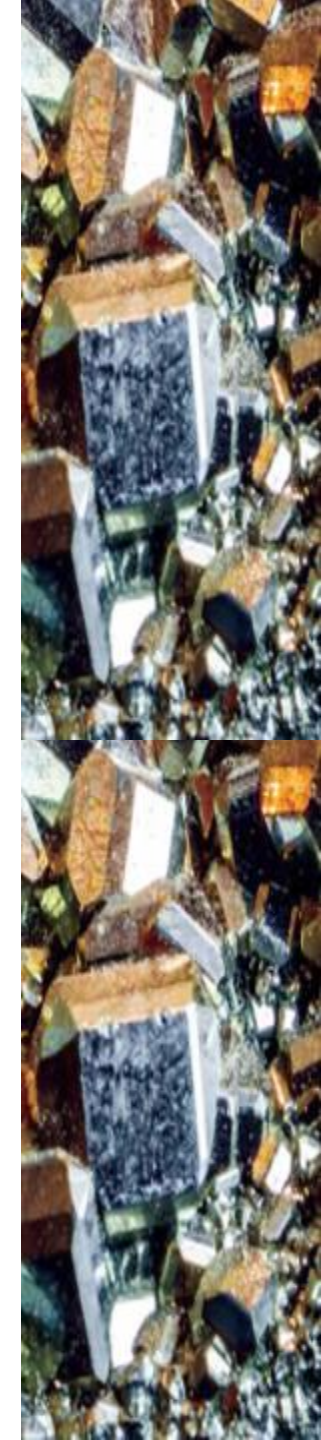
6 Battery related projects (€4 million)

ERA-MIN Joint Calls (2015, 2017, 2018)



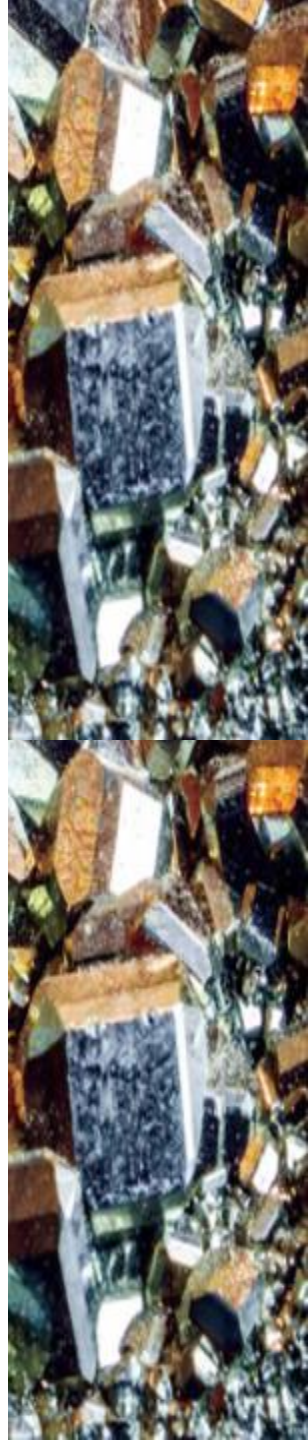
ERA-MIN & ERA- MIN 2 Joint Calls

FP7 ERA-MIN Joint Calls			H2020 ERA-MIN 2 Joint Calls	
2013	2014	2015	2017 (EU co-funded)	2018
45 funded projects (total)				
25% enterprises (average)				
€34 Million total public funding				
€48 Million total project costs				



ERA-MIN Joint Transnational Calls

- Joint proposal application & evaluation but **national/regional funding**
 - **National and regional thematic priorities** apply
 - **National and regional funding rules and regulations** apply:
 - Applicants from academia, industry, SMEs, NGOs, public authorities requesting funding must be eligible
 - Type of research: fundamental, applied or experimental research (**Technology Readiness Level TRL 1-9**)
 - Selection of projects for funding based on a ranking list from **international scientific assessment** of proposals
- H2020 evaluation criteria:** 1) Excellence, 2) Impact and 3) Implementation.



ERA-MIN Joint Calls results

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

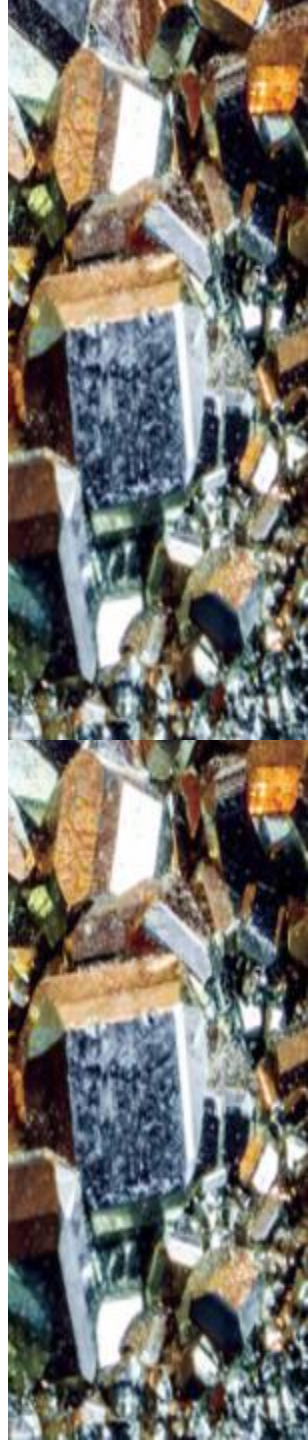
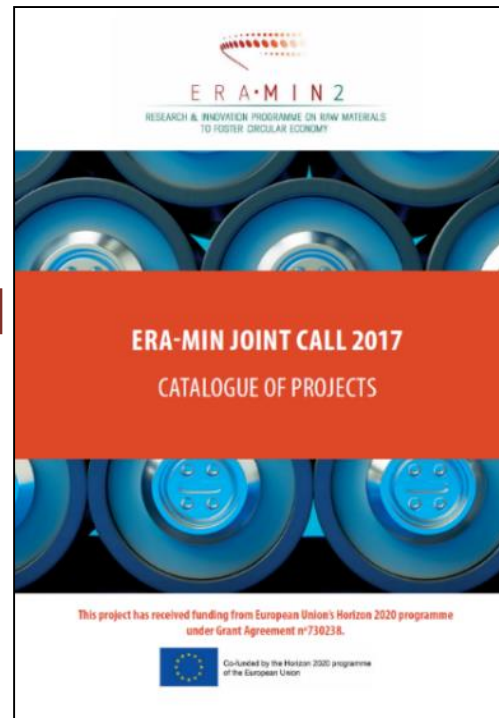
•16 Summary final reports

ERA-MIN Joint Calls: 2013, 2014 and 2015

- ✓ 333 publications + **6 patents/licenses**
- ✓ Ferrovan **start-up**
- ✓ 140 temporary + 19 permanent **jobs**

•28 Project's abstracts

ERA-MIN Joint Calls: 2017 and 2018



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FCT Fundação
para a Ciência
e a Tecnologia

ERA-MIN 2

Implement a European-wide coordination of research and innovation programs on raw materials to strengthen the industry competitiveness and the shift to a circular economy