European Commission

#InvestEUresearch

Horizon 2020 Work Programme for Research & Innovation 2018-2020

Societal Challenge 5 - Raw Materials

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UNIT B2 – B2.4 Raw Materials Sector

European Commission - EASME

Research and Innovation

EASME

- One of the 6 Executive Agencies of the EU
- Established in December 2003 as the Intelligent Energy Executive Agency (IEEA)
- 2007-2013: Executive Agency for Competitiveness and Innovation (EACI)

  -Remit extended to the Competitiveness and Innovation Framework Programme (CIP) and Marco Polo

- January 2014: EACI became EASME

  -COSME, part of Horizon 2020, EMFF and LIFE added to the programme portfolio.

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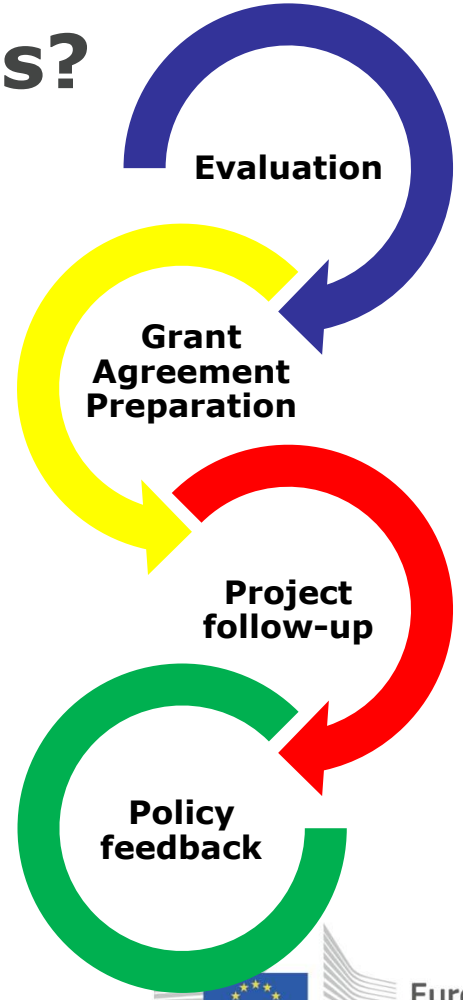
What are our core activities?

- Implementing H2020 SC5: 'Climate action, environment, resource efficiency and raw materials'
- The whole Project life-cycle
- Follow up - Audits



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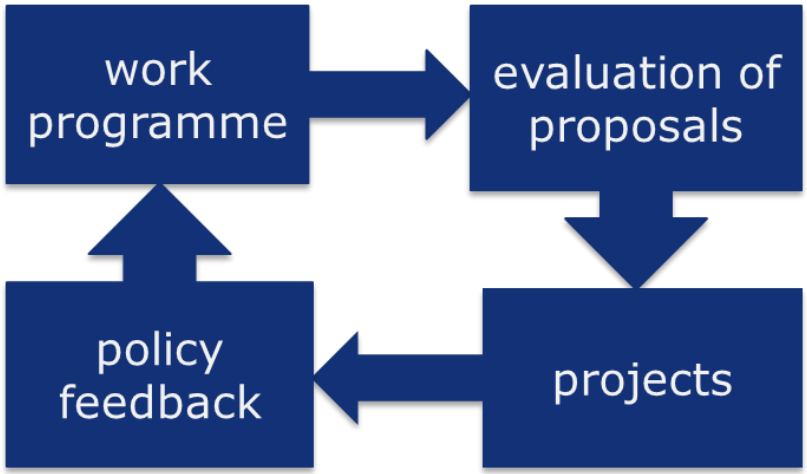
Working together

- Agency focuses on project management
- Allows DG's to concentrate on policy
- Regular exchange



- Parent DG's define policy objectives in designing the programmes
- Executive Agencies feed into the policy making process with project stories and results

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Call "Greening the economy in line with the Sustainable Development Goals (SDGs)"

- ✓ Connecting economic and environmental gains - the circular economy
- ✓ Raw materials
- ✓ Water for our environment, economy and society
- ✓ Innovating cities for sustainability and resilience
- ✓ Protecting and leveraging the value of our natural and cultural assets: Earth observation; nature-based solutions, disaster risk reduction and natural capital accounting; heritage alive

- **Budget in** 2018 €219.7 million
- **2018 topics open:** 7 November 2017
- **First call deadline:** 27 Feb 2018

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Raw Materials - Objectives

- ✓ respond to the objectives of the Strategic Implementation Plan of the EIP on Raw Materials, and the Circular Economy Action Plan;
- ✓ deliver breakthrough research concepts, as basis of tomorrow's innovations;
- ✓ deliver pilot actions demonstrating sustainable production of primary and secondary raw materials, particularly CRMs or other scarce high-tech metals;
- ✓ contribute to building EU knowledge base of primary and secondary raw materials for solid decision making; further development of EC Raw Materials Information System – RMIS;
- ✓ improve framework conditions for sustainable development of and investment in innovative solutions for raw materials in the EU;

Raw Materials - Expectations

- In the long term, positive impact on:
  - Know-how (patents and publications)
  - downstream industries' access to raw materials;
  - employment in and competitiveness of EU raw materials and related manufacturing industries, including SMEs;
  - environmental and social performance of the sector;
  - improved public awareness, acceptance and trust;

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		Topic	2018	2019	2020
IA TRL 6-7	€8-13M	CE-SC5-07-2018-2019-2020: Raw materials innovation for the circular economy: sustainable processing, reuse, recycling and recovery schemes	€20M a) Sustainable processing and refining of primary and/or secondary raw materials b) Recycling of raw materials from end-of-life products c) Recycling of raw materials from buildings d) Advanced sorting systems for high-performance recycling of complex end-of-life products	€30M	Subject to updates Budget to be defined
		SC5-10-2019-2020: Raw materials innovation actions		€20M a) Integrated exploration solutions b) Services and products for the extractive industries life cycle	Mining pilots Pilots on substitution of Critical Raw Materials
RIA TRL 3-5	€3-7M	CE-SC5-06-2018: New technologies for the enhanced recovery of by-products	€15M New technologies for the enhanced recovery of by-products		
		SC5-09-2018-2019: New solutions for the sustainable production of raw materials	€20M a) Breakthrough concepts and solutions for sustainable exploration, mining and/or processing	€30M b) Digital mine c) Recovery of metals and minerals from sea resources	
CSA		CE-SC5-08-2018-2019-2020: Raw materials policy support actions for the circular economy	€5M a) Voluntary scheme for certification of treatment facilities for key types of wastes b) Resource efficiency in wood processing, recovery and recycling	€3M c) Responsible sourcing of raw materials in global value chains	Expert network on Critical Raw Materials

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WHAT KIND OF PROJECTS ARE WE LOOKING FOR?

Research & innovation
actions that establish new knowledge or develop more resource-efficient technologies and solutions.

EU funding rate: **100%**

Innovation
actions that demonstrate the viability of new technologies and solutions or support their first deployment in the market.

EU funding rate: **70%**

Coordination & support
actions that improve skills, mobilise large-scale investments or facilitate EU policy implementation.

EU funding rate: **100%**

In addition, Horizon 2020 supports small businesses in the areas of climate action, environment, resource efficiency & raw materials via **SME Instrument** € 52 m.

Research and innovation actions (RIA)

- primarily consisting of activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution.
- may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment.
- may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.

Funding rate: 100%

Technology Readiness Levels (TRL) 3-5

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Research and innovation actions (RIA) should:

- develop sustainable **systemic/resource-efficient** solutions through industrially- and user-driven multidisciplinary consortia covering the relevant value chain

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International cooperation is encouraged.

Indicative size of proposals: EUR 3 to 7 million.

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CE-SC5-06-2018 RIA

New technologies for the enhanced recovery of by-products

- Actions should evaluate the potential **by-products*** existing in primary or secondary raw materials and should develop energy-, material- and cost-efficient new **sustainable mineral processing and/or metallurgical** technologies and processes to increase the selectivity and the recovery rates of valuable by-products, particularly critical raw materials.
- The importance of the targeted sources of by-products* for the EU economy should be duly demonstrated in the proposal.
- **Recycling of end-of-life products** is **excluded** from this topic.

* The term "**by-products**" should be interpreted here as the constituents usually accompanying the major component(s) of a raw material at low concentrations.

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CE-SC5-06-2018 RIA

New technologies for the enhanced recovery of by-products

- expectations:
  - increased process selectivity, broader range and higher recovery rates of valuable raw materials (particularly CRM)
  - higher material-, water-, energy- and cost-efficiency and flexibility of processes
  - Don’t forget the general expectations mentioned before!

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SC5-09-2018-2019 RIA

New solutions for the sustainable production of raw materials:

a) Breakthrough concepts and solutions for sustainable exploration, mining and/or processing (2018)

- Actions should develop ground-breaking concepts and solutions for exploration, mining and/or raw materials processing to secure the sustainable access to abiotic raw materials for the EU in the long term and to gain the trust of society in clean and safe production of raw materials.

- Recycling of **end-of-life** products is **excluded** from this topic.

- Solutions for **marine mineral resources** are also **excluded** from this sub-topic.

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SC5-09-2018-2019 RIA

a) Breakthrough concepts and solutions for sustainable exploration, mining and/or processing (2018)

- expectations:
  - creation of a base for radical innovations in the next decades
  - Don’t forget the general expectations mentioned before!

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Innovation actions (IA)

- Description: Action primarily consisting of activities directly aiming at producing plans and arrangements or designs for new, altered or improved products, processes or services.

For this purpose they may include prototyping, testing, demonstrating, piloting, large-scale product validation and market replication.

A 'demonstration or pilot' aims to validate the technical and economic viability of a new or improved technology, product, process, service or solution in an operational environment, whether industrial or otherwise, involving where appropriate a larger scale prototype or demonstrator.

Projects may include limited research and development activities.

- Funding rate: 70% (except for non-profit legal entities, where a rate of 100% applies)
- Technology Readiness Levels (TRL) 6-7.

Innovation actions (IA) should:

- make sure that research and innovation **end up on the market**,
- **strengthen the competitiveness of the European raw materials industries**,
- meet ambitious **energy and climate targets for 2030**,
- **minimise health & safety as well as environmental impacts and risks**,
- **gain the trust of EU citizens** in the raw materials sector.
- **seek additional or follow-up funding** within the projects, including from relevant regional/national schemes under the European Structural and Investment Funds (ESIF)

Innovation actions (IA) should:

- facilitate the **market uptake of solutions developed through industrially- and user-driven multidisciplinary consortia** covering the relevant value chain and should consider standardisation aspects when relevant.
- justify the **relevance of selected pilot demonstrations in different locations within the EU** (and also outside if there is a clear added value for the EU economy, industry and society).
- include an outline of the **initial exploitation and business plans** (with indicated **CAPEX, OPEX, IRR and NPV**) with clarified management of intellectual property rights, and commitment to the first exploitation.

Innovation actions (IA):

International cooperation is encouraged.

Indicative size of proposals: EUR 8 to 13 million.

CE-SC5-07-2018-2019-2020 IA

a) Sustainable processing and refining of primary and/or secondary raw materials (2018, 2019)

- demonstrate **new or improved systems integrating relevant processing and refining technologies for better recovery of minerals and metals** at increased efficiency in terms of better yield and process selectivity as well as better utilisation of resources (hence reducing wastes).
- include **processing of and recovery from low grade and/or complex ores and/or from industrial or mining wastes, and/or the reduction of the content of toxic elements or compounds in the resulting materials**.
- demonstrate the **importance of the targeted raw materials and their sources for the EU**.

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a) Sustainable processing and refining of primary and/or secondary raw materials (2018, 2019)

The solution proposed should be **flexible enough to adapt to different or variable ore/secondary raw material grades** and should be **supported by efficient and robust process control**.

Where relevant, any solution proposed for the reduction of the content of toxic elements or compounds in the resulting materials should also include the appropriate management of the hazardous substances removed.

Recycling of end-of-life products is excluded.

b) Recycling of raw materials from end-of-life products (2018, 2019)

- develop and demonstrate **novel and environmentally sound solutions for a higher recycling and recovery of secondary raw materials from end-of-life products** such as waste electrical and electronic equipment (WEEE), batteries, wood-based panels, multi-material paper packaging, end-of-life tyres, etc.

These products can contain a multitude of minerals, metals, wood and wood-fibre, rubber, etc. (including critical raw materials and other technology metals).

c) Recycling of raw materials from buildings (2018, 2019)

- develop and demonstrate **novel solutions for a high-value recovery of raw materials from buildings**.
- **benchmark against a series of comparative case studies of construction and demolition waste (C&DW) management** in deconstruction of buildings of representative size categories in countries with different types of end-of-life building stocks, showcasing the appropriate use of the following:

  the EU C&DW Management Protocol, pre-demolition audit, smart demolition practices, using appropriate technical equipment, and sorting/processing and quality management of waste fractions such as metals, aggregates, concrete, bricks, plasterboard, glass, polymers and plastics and wood.

d) Advanced sorting systems for high-performance recycling of complex end-of-life products (2018, 2019)

- develop and demonstrate **innovative dismantling and sorting systems enabling functional recycling of CRMs**, or **other types of highly efficient recovery of metals, minerals** or **construction materials, from complex end-of-life products and scrap thereof**.

The advanced sorting systems should achieve very high throughput rates in order to allow their economically viable operation on the European market.

Innovation actions (IA):

Expectations:

- Improved economic viability & market potential
- Better recovery of resources from waste
- Increased efficiency and effectiveness of exploitation of complex and heterogeneous deposits 'urban mines' (sub-topic b)
- Wider application of smart demolition techniques, standardisation and traceability of materials in the construction sector (sub-topic c)

Coordination and support actions (CSA)

- Description: Actions consisting primarily of accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies, including design studies for new infrastructure and may also include complementary activities of strategic planning, networking and coordination between programmes in different countries.

- Funding rate: 100%

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CE-SC5-08-2018-2019-2020 CSA

a) Voluntary scheme for certification of treatment facilities for key types of wastes (2018)

- develop and launch a voluntary scheme for certification – including verification – of treatment facilities for key types of waste/recyclates containing significant amounts of **CRMs** (e.g. electronic waste and/or waste batteries).
- integrate measurable and verifiable minimum quality standards and a verification procedure based on **traceability** through the supply chain from collection to end-processing.
- Participation of relevant stakeholders – including waste holders, dealers, brokers and operators of treatment facilities – from the conception phase of the scheme should be ensured.
- Full compliance with applicable WTO rules and with the rules and principles of the Basel Convention should be ensured, and existing certification schemes for waste should be taken into account.

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CE-SC5-08-2018-2019-2020 CSA

a) Voluntary scheme for certification of treatment facilities for key types of wastes (2018)

International cooperation is encouraged.

Indicative size of proposals: up to EUR 2 million.

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CE-SC5-08-2018-2019-2020 CSA

a) Voluntary scheme for certification of treatment facilities for key types of wastes (2018)

Expectations:

- strengthening the enforcement of the Waste Shipping Regulation;
- Improving access to CRM, reducing dependency;
- Increased recovery rates of key waste containing significant amounts of CRM

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CE-SC5-08-2018-2019-2020 CSA

b) Resource efficiency in wood processing, recovery and recycling (2018)

- identify, assess and **document existing practices** in a representative set of EU Member States/Associated Countries and possibly third countries, and **create a network** to widely disseminate and transfer good practices covering **both issues**: **resource-efficient wood processing** and wood **waste recycling**.
- Involve relevant stakeholders across value chains
- Assess trade-offs between wood waste use for material and energy (life cycle analysis)

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CE-SC5-08-2018-2019-2020 CSA

b) Resource efficiency in wood processing, recovery and recycling (2018)

Proposals should include the participation of industrial SMEs, as far as possible.

Indicative size of proposals: up to EUR 3 million.

b) Resource efficiency in wood processing, recovery and recycling (2018)

Expectations:

- Increased competitiveness of EU woodworking industries;
- Increased wood waste recycling;
- Better informed decision making at EU and national (local) level; improved knowledge of EU stakeholders about proposed solutions

Opening dates, deadlines, indicative budgets

Topics (type of actions)	EUR million	Opening dates	Deadlines
CE-SC5-08-2018-2019-2020 (CSA)	5.00	07 Nov 2017	27 Feb 2018
CE-SC5-06-2018 (RIA)	15.00		27 Feb 2018 (First Stage) 04 Sep 2018 (Second Stage)
SC5-09-2018-2019 (RIA)	20.00		
CE-SC5-07-2018-2019-2020 (IA)	20.00		

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Thank you!

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www.ec.europa.eu/research

Participant Portal:

www.ec.europa.eu/research/participants/portal/desktop/en/home.html

Draft Work Programme 2018-2020:

https://ec.europa.eu/programmes/horizon2020/en/climate-action-environment-resource-efficiency-and-raw-materials-work-programme-2018-2020

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EASME

Executive Agency for Small and Medium-sized Enterprises

Best practices for a successful proposal

Dimitrios Biliouris
Horizon 2020 – Environment and Resources

Information day
Lisbon, 31 October 2017

Executive Agency for SMEs

Eligibility and Admissibility

Ensure that you are meeting the Eligibility and Admissibility conditions

- Standard - Annex B and C of the work programme
- Specific - In the section Conditions for the call of each call section

Three evaluation criteria

- Excellence
- Impact
- Implementation

Equal weight, except for in Innovation Actions (IA) where Impact has a weighting of 1.5


Excellence

Excellence

Objectives

- Quantitative and clear targets
- Formulated to maximize impact

Innovation Actions (IA)

- Focusing on demonstration / market replication, possibly with limited research and development
- Appropriate demonstration scale, responding to the call
- Demonstrating the maturity of the proposed solution – Technology Readiness Level (TRL)

Excellence

Concept and Methodology

- Clear descriptions giving sufficient details while avoiding jargon
- Keeping it transparent, identifying data sources, assumptions and possible hurdles
- Address the gender dimension when relevant (not to be confused with gender balance and equality)
  (check if the topic is gender-flagged in the H2020 online manual)
- Using stakeholder knowledge and including convincing end-user involvement – interaction, co-design & co-creation throughout the project rather than mere consultation

Excellence

Innovation potential and progress beyond the state of the art

- Describing the state of the art, including previous and ongoing projects and patents, and explaining how the project builds on and goes beyond the previous work
- Convincingly describe the novel and innovative solutions that can actually be deployed by users to tackle the specific challenge
- Credibly describe the advancement of TRL

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Impact

- Supporting the expected impact with quantitative information
- Appropriate measurable indicators to convincingly demonstrate how the projects will contribute to all the expected impacts
- Respond to the expected impact of the work programme
- Justify the reasons for focusing on a specific area of the call and how this is reflected in the expected impacts
- Explain how innovation capacity will be enhanced
- Explain any impacts beyond those expected by the call

Impact

Exploitation, dissemination and Communication

- Clearly explain how IP will be managed (with the details for the Consortium Agreement)
- Justify confidential deliverables and why dissemination is not hampered
- Explain how open access will be ensured
- Credibly describe exploitation and uptake beyond the project and how long-term sustainability is accomplished
- Measures tailored to project and target audience
- Clearly define the different target audiences, including media and public

Impact

Innovation Actions (IA)

- Demonstrating interest among potential end-users and defining an adequate role for them
- Business model
- Address the relevant legal and market barriers

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Implementation

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Implementation

Work plan and resources

- Activities and resources responding to the Type of Action, the challenge and methodology
- Clear and credible interactions and integration between WPs and partners, including for interdisciplinary work
- Linkage between responsibilities – tasks – deliverables – resources
- Clear roles with task allocation corresponding to partner profiles and adequate number of actors
- Adequate use and number of deliverables and milestones for proper monitoring of progress
- Appropriate management resources for the size and complexity of the project
- Budget for collaboration with other projects
- Innovation Actions (IA) – Timing of the demonstration

Implementation

Risk management

- Key risks covered and risk level indicated
- Effective mitigation measures and contingency plans

Management structure

- Tailored to size, nature and complexity of the project
- Clearly identified roles, composition and interaction of management and advisory bodies, including decision making
- Appropriate to deal with the innovation process - Innovation management
- Credible mechanisms for quality assurance and performance monitoring

Implementation

Consortium

- responding to the needs of the project and challenge, as described in the call (e.g. expertise, transdisciplinarity, industrial and end-user involvement)

Innovation Actions (IA)

- represent the actors that can make that specific innovative solution happen
- include actors with a commercial interest in the solution being developed

No 1 Best practice:
Prepare and submit well in advance

- FAQ on proposal submission and evaluation: http://ec.europa.eu/research/participants/docs/h2020-funding-guide/grants/applying-for-funding/submit-proposals_en.htm
- More info on cross-cutting issues: http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/cross-cutting-issues_en.htm

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THANK YOU
FOR YOUR ATTENTION

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Technology readiness levels (TRL)

Where a topic description refers to a TRL, the following definitions apply, unless otherwise specified:

- TRL 1 – basic principles observed
- TRL 2 – technology concept formulated
- TRL 3 – experimental proof of concept
- TRL 4 – technology validated in lab
- TRL 5 – technology validated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 6 – technology demonstrated in relevant environment (industrially relevant environment in the case of key enabling technologies)
- TRL 7 – system prototype demonstration in operational environment
- TRL 8 – system complete and qualified
- TRL 9 – actual system proven in operational environment (competitive manufacturing in the case of key enabling technologies; or in space)