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Annex VII

Horizon Europe

Work Programme 2026-2027

7. Digital, Industry and Space

DISCLAIMER

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Industry part, first draft, 18/04/25

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Calls

Call - INDUSTRY

HORIZON-CL4-2026-01

Overview of this call[1]

Proposals are invited against the following Destinations and topic(s):

Topics	Type of Action	Budgets (EUR million)		Expected EU contribution per project (EUR million)[2]	Indicative number of projects expected to be funded
		2025	2026		
Opening: 06 Jan 2026 Deadline(s): 08 Apr 2026					
Destination: Leadership in materials and production for Europe					
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-21: New advanced materials and chemicals – reducing dependencies on CRM and substances of concern (IA) (IAM4EU and Processes4Planet partnerships)	IA		40.00	6.00 to 7.50	6
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-23: Accelerating the discovery of chemicals and advanced materials through artificial intelligence and digitalisation (IA) (IAM4EU partnership)	IA		60.00	10.00 to 12.00	5

[1] The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.
The Director-General responsible may delay the deadline(s) by up to two months.
All deadlines are at 17.00.00 Brussels local time.
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for 2026 and 2027

[2] Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-01: Advanced manufacturing for key products (including use of advanced or secondary raw materials) (IA) (Made in Europe and IAM4EU partnerships)	IA		84.00	5.00 to 7.00	12
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-04: Optimise the usage of resources in the production phase of the circular economy (RIA) (Processes4Planet and Clean Steel partnerships)	RIA		70.00	5.00 to 7.00	10
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-05: Circular advanced materials: facilitating the transition from design to markets (RIA) (IAM4EU and Made in Europe partnerships)	RIA		40.00	5.00 to 6.50	6
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-31: More efficient and/or scalable conversion processes for electrification (RIA) (Processes4Planet and IAM4EU partnerships)	RIA		70.00	5.00 to 7.00	10
HORIZON-CL4-2026-01-CID-X1: R&I in Support of the Clean Industrial Deal: Decarbonisation of energy intensive industries (Processes4Planet and Clean Steel partnerships)	IA		125.00	20.00 to 25.00	5
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y1: Enhancing industry-academia knowledge exchange in Social Sciences and Humanities (SSH) (CSA)	CSA		2.00	Around 1.00	2
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y2:	CSA		2.00	Around	2

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Unlocking the potential of intellectual assets for industry, SMEs and startups (CSA)				1.00	
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y3: Breakthrough innovations in industrial technologies	CSA		20.00	Around 3.00	7
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y4: Integration of Technology Infrastructure capacities (CSA)	CSA		3.00	Around 3.00	1
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y5: Pilot access programme to Technology Infrastructures for European startups and scaleups (CSA)	CSA		3.00	Around 3.00	1
Raw Materials					
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-11: Innovative technologies and tools for exploration and data modelling of raw materials (RIA)	RIA		20.00	5.00 to 7.00	3
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-12: Technologies for innovative extraction of critical raw materials (RIA)	RIA		20.00	5.00 to 7.00	3
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-13: Monitoring of secondary raw materials (CSA)	CSA		5.00	Around 2.50	2
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-14: Improving availability of secondary raw materials through recycling (IA)	IA		30.00	6.00 to 7.50	4
HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-15:	RIA		25.00	Around	5

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Technologies for innovative processing and refining of raw materials (RIA)				5.00	
Destination 4: Achieving open strategic autonomy in digital and emerging enabling technologies					
HORIZON-CL4-2026-01-DIGITAL-EMERGING-61: Co-funded AI in Science Fellowships (RAISE pilot) (CO-FUND)	COFUND	30.00		Around 10.00	3
HORIZON-CL4-2026-01-DIGITAL-EMERGING-51: AI improved advanced manufacturing and production processes in factories (RIA) (Made in Europe and ADRA partnerships)	RIA		30.00	4.00 to 6.00	5
Overall indicative budget		30.00	649.00		

General conditions relating to this call	
Admissibility conditions	The conditions are described in General Annex A.
Eligibility conditions	The conditions are described in General Annex B.
Financial and operational capacity and exclusion	The criteria are described in General Annex C.
Award criteria	The criteria are described in General Annex D.
Documents	The documents are described in General Annex E.
Procedure	The procedure is described in General Annex F.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G.

Call - INDUSTRY-two-stage

HORIZON-CL4-2026-02

Overview of this call[3]

Proposals are invited against the following Destinations and topic(s):

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
Opening: 06 Jan 2026 Deadline(s): 08 Apr 2026, 27 Oct 2026				
Overall indicative budget				

General conditions relating to this call	
Admissibility conditions	The conditions are described in General Annex A.
Eligibility conditions	The conditions are described in General Annex B.
Financial and operational capacity and exclusion	The criteria are described in General Annex C.
Award criteria	The criteria are described in General Annex D.
Documents	The documents are described in General Annex E.
Procedure	The procedure is described in General Annex F.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G.

[3] The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.
The Director-General responsible may delay the deadline(s) by up to two months.
All deadlines are at 17.00.00 Brussels local time.
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for 2026 and 2027

Call - INDUSTRY

HORIZON-CL4-2027-01

Overview of this call[4]

Proposals are invited against the following Destinations and topic(s):

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)[5]	Indicative number of projects expected to be funded
		2027		
Opening: 22 Sep 2026 Deadline(s): 02 Feb 2027				
Destination: Leadership in materials and production for Europe				
HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-22: New advanced materials and chemicals – reducing dependencies on CRM and substances of concern (IA) (IAM4EU and Processes4Planet partnerships)	IA	40.00	6.00 to 7.50	6
HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-02: Circular production - technologies, systems and business models (IA) (Made in Europe, Textiles for the Future and Processes4Planet partnerships)	IA	56.00	5.00 to 7.00	8
HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-03: Factory processes and automation for de- and re-manufacturing (RIA) (Made in Europe partnership)	RIA	40.00	5.00 to 6.50	6
HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-32: More efficient and/or	RIA	70.00	6.00 to 8.00	9

[4] The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.
The Director-General responsible may delay the deadline(s) by up to two months.
All deadlines are at 17.00.00 Brussels local time.
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for 2026 and 2027

[5] Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

scalable conversion processes for capture, storage and use of clean energy carriers and heat sources (RIA) (Processes4Planet and IAM4EU partnerships)				
HORIZON-CL4-2027-01-CID-X2: R&I in Support of the Clean Industrial Deal: Decarbonisation of energy intensive industries (Processes4Planet and Clean Steel partnerships)	IA	125.00	20.00 to 25.00	2
Raw Materials				
HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-16: Technologies for innovative processing of raw materials (IA)	IA	52.00	10.00 to 12.50	4
HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-17: Expert network on Critical raw materials (CSA)	CSA	3.00	Around 3.00	1
Destination 4: Achieving open strategic autonomy in digital and emerging enabling technologies				
HORIZON-CL4-2027-01-DIGITAL-EMERGING-62: Scientific Laboratory Automation (RAISE pilot) (RIA)	RIA	30.00	Around 10.00	3
HORIZON-CL4-2027-01-DIGITAL-EMERGING-52: New approaches for Human/AI collaboration for the workforce of the future (RIA) (Made in Europe and ADRA partnerships)	RIA	30.00	4.00 to 6.00	5
Overall indicative budget		446.00		

General conditions relating to this call	
Admissibility conditions	The conditions are described in General Annex A.
Eligibility conditions	The conditions are described in General Annex B.
Financial and operational capacity and exclusion	The criteria are described in General Annex C.

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Award criteria	The criteria are described in General Annex D.
Documents	The documents are described in General Annex E.
Procedure	The procedure is described in General Annex F.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G.

Call - INDUSTRY-two-stage

HORIZON-CL4-2027-02

Overview of this call[6]

Proposals are invited against the following Destinations and topic(s):

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
Opening: 22 Sep 2026 Deadline(s): 02 Feb 2027 (First Stage), 02 Sep 2027 (Second Stage)				
Overall indicative budget				

General conditions relating to this call	
Admissibility conditions	The conditions are described in General Annex A.
Eligibility conditions	The conditions are described in General Annex B.

6 The Director-General responsible for the call may decide to open the call up to one month prior to or after the envisaged date(s) of opening.
The Director-General responsible may delay the deadline(s) by up to two months.
All deadlines are at 17.00.00 Brussels local time.
The budget amounts are subject to the availability of the appropriations provided for in the general budget of the Union for 2026 and 2027

Financial and operational capacity and exclusion	The criteria are described in General Annex C.
Award criteria	The criteria are described in General Annex D.
Documents	The documents are described in General Annex E.
Procedure	The procedure is described in General Annex F.
Legal and financial set-up of the Grant Agreements	The rules are described in General Annex G.

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Destinations

Destination: Leadership in materials and production for Europe

Sustainable Advanced Materials, Raw Materials and Chemicals

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-21: New advanced materials and chemicals – reducing dependencies on CRM and substances of concern (IA) (IAM4EU and Processes4Planet partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 6.00 and 7.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 40.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Reducing dependencies of critical raw materials and substances of concern through partial or total substitution by safe and sustainable advanced materials and chemicals;
- Speeding up the innovation cycle within a value chain important for European industry;
- Enhancing competitiveness of the industries by reducing regulatory and operational costs, while making supply chain more secure;
- Production processes, chemicals, materials and products that are inherently safer and more sustainable for a clean and autonomous economy; and
- Demonstrating how the SSbD framework guides innovation.

Scope: [*NB: this topic is repeated in 2027; an alternative is to focus on reducing dependencies in one year and on substances of concern in the other year.*]

The focus of this topic is on alternatives for the substitution or more efficient use of critical raw materials (CRMs)[7], as well as for substances of concern (SoCs). Alternatives can be in the form of new chemicals or innovative advanced materials. The design and development of

[7] https://rmis.jrc.ec.europa.eu/eu-critical-raw-materials

these alternatives should lead to an innovation cycle covering the (re)design, development and new production processes, to minimise waste and emissions in production, avoid critical by-products or unwanted components, and lead to the integration into products in manufacturing. Integrating the requirements of the process and manufacturing industries, as well as the necessary changes these industries would need to make early on in the innovation process, will be crucial for speeding up market access.

The approach should foster collaboration among stakeholders along the whole value chain, to accelerate the development and adoption of synthesis, production and manufacturing solutions.

The SSbD framework is to be used to guide the innovation process towards safer and more sustainable chemicals and advanced materials.

Application case studies should support strategic policy interests e.g. alternatives of substances of concern or lean use or substitution of critical raw materials in the fields of energy, mobility, construction and electronics.

[The portfolio approach may be used to prioritise certain alternatives and application areas.]

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-22: New advanced materials and chemicals – reducing dependencies on CRM and substances of concern (IA) (IAM4EU and Processes4Planet partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 6.00 and 7.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 40.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Reducing dependencies of critical raw materials and substances of concern through partial or total substitution by safe and sustainable advanced materials and chemicals;
- Speeding up the innovation cycle within a value chain important for European industry;
- Enhancing competitiveness of the industries by reducing regulatory and operational costs, while making supply chain more secure;

- Production processes, chemicals, materials and products that are inherently safer and more sustainable for a clean and autonomous economy; and
- Demonstrating how the SSbD framework guides innovation.

Scope: Scope:

[*NB: this topic is repeated in 2027; an alternative is to focus on reducing dependencies in one year and on substances of concern in the other year.*]

The focus of this topic is on alternatives for the substitution or more efficient use of critical raw materials (CRMs)[8], as well as for substances of concern (SoCs). Alternatives can be in the form of new chemicals or innovative advanced materials. The design and development of these alternatives should lead to an innovation cycle covering the (re)design, development and new production processes, to minimise waste and emissions in production, avoid critical by-products or unwanted components, and lead to the integration into products in manufacturing. Integrating the requirements of the process and manufacturing industries, as well as the necessary changes these industries would need to make early on in the innovation process, will be crucial for speeding up market access.

The approach should foster collaboration among stakeholders along the whole value chain, to accelerate the development and adoption of synthesis, production and manufacturing solutions.

The SSbD framework is to be used to guide the innovation process towards safer and more sustainable chemicals and advanced materials.

Application case studies should support strategic policy interests e.g. alternatives of substances of concern or lean use or substitution of critical raw materials in the fields of energy, mobility, construction and electronics.

[The portfolio approach may be used to prioritise certain alternatives and application areas.]

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-23: Accelerating the discovery of chemicals and advanced materials through artificial intelligence and digitalisation (IA) (IAM4EU partnership)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 10.00 and 12.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.

[8] https://rmis.jrc.ec.europa.eu/eu-critical-raw-materials

Indicative budget	The total indicative budget for the topic is EUR 60.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Accelerating the discovery process for advanced materials and chemicals through digital tools developed in Europe;
- Supporting the operationalisation of the SSbD framework;
- Taking advantage of and contributing to the Materials Commons for Europe; and
- A step change in the risk assessment of chemicals and advanced materials in Europe.

Scope: Proposals should accelerate the pathway to market of new substances (chemicals or advanced materials) with superior or novel functionalities by making use of the Materials Commons for Europe and new digital tools applicable to the design, development, production, manufacturing, use and end of life phases. These tools may include the use of artificial intelligence and self-driving labs and their interconnection. These tools should also drive innovation in risk assessment and supporting and facilitating the operationalisation and use of the SSbD framework.

By doing so, new cutting-edge advanced materials with superior or novel functionalities and alternatives to substances of concern should be developed more rapidly in Europe. In addition, digital feedback loops ranging from requirements and information from production processes and scale-up, to manufacturing and integration into products, should be developed to accelerate market uptake. Innovative digital tools to speed up risk assessment and thereby market access of chemicals and advanced materials may also be addressed.

Interoperability (in particular with the Materials Commons for Europe) should help to reduce the cost of the digital transition for industry with respect to circularity and safe and sustainable by design, e.g. by reducing the risk for adopters and vendors, and through modular tools that can be extended to new application domains without a major redesign. Tools should foster workflows in that ensure high-quality, well-structured and documented primary FAIR data, enabling the re-use and/or streamlining of large data sets, facilitating academic and industrial collaborations and integrating AI and other digital technologies.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-24: Cooperation on innovative advanced materials with Japan (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per	The Commission estimates that an EU contribution of around EUR 0.80 million would allow these outcomes to be addressed appropriately.

project	Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 0.80 million.
Type of Action	Coordination and Support Actions

Expected Outcome:

- European-Japanese cooperation in the filed of innovative advanced materials is strengthened.

Scope: In the context of the Communication 'Advanced Materials for Industrial Leadership' and the recent cooperation with Japan in this area, the purpose of this action is to enable researchers in innovative advanced materials from Member States and Associated Countries to make research visits to related Japanese institutions.

Fast-tracking Circularity

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-01: Advanced manufacturing for key products (including use of advanced or secondary raw materials) (IA) (Made in Europe and IAM4EU partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 84.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Advanced manufacturing technology and machinery becomes available in Europe for the manufacturing of key and high-performance products;
- Production becomes increasingly circular through the reuse of secondary raw materials;
- Resource efficiency in terms of materials and energy is increased significantly;
- Advanced materials are incorporated in manufactured products, leading to better performance and quality;

- Circularity and competitiveness are increased and hence resilience of European industry is enhanced.

Scope: This topic addresses technologies and machinery for advanced manufacturing, focusing on manufacturing excellence and on increasing circularity, through the better use of advanced and secondary raw materials. The focus is on key components and products that are competitive and have enhanced performance, and which are at risk of being lost to Europe or rely on raw materials or parts whose supply is mostly coming from outside Europe.

Proposals should develop technologies and machinery to enable the manufacturing of these components with a minimal use of critical raw materials [reference to overall targets] or imported materials. This includes an increased use of secondary raw materials or revalorised components.

Where appropriate to enhance performance and quality, proposals should target the use of advanced materials (such as lightweight, functionalised or self-healing materials). In this case, the development of the advanced materials should not be the main focus of proposals, nevertheless the necessary steps to adapt such advanced materials to the needs of the manufacturing application should be included.

Examples of advanced manufacturing technologies include, but are not restricted to:

- Complex additive manufacturing;
- Hybrid manufacturing (additive, subtractive, photonics);
- Advanced joining technologies;
- Polymer composite manufacturing;
- Advanced technologies for surface treatment and structuring, to tailor surface properties for specific applications; and
- Manufacturing of components with lightweight materials; and
- In-line testing.

[The portfolio approach may be used, to ensure that at least one proposal focusing on the automotive industry, e.g. the production of batteries, is funded.

An alternative approach is dedicated support for the manufacturing of batteries (not only automotive) in a joint topic with BATT4EU partnership. In this case, batteries would be excluded from this MiE topic, and the portfolio approach would apply to non-battery aspects of the automotive industry, e.g. circularity or lightweighting.]

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-02: Circular production - technologies, systems and business models (IA) (Made in Europe, Textiles for the Future and Processes4Planet partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 56.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Production becomes increasingly circular along the entire value chain;
- Circularity is enabled through FAIR data and tools;
- Resource efficiency in terms of materials and energy is increased significantly;
- Business models for industry-wide best practices in circular economy become available;
- Circularity and resilience of European industry is enhanced.

Scope: Proposals should demonstrate circular production, manufacturing and recycling networks and use cases along (and optionally across) entire value chains, including the associated logistics.

Proposals need not develop all necessary elements of the value chain, however they should consider providers beyond the production and discrete manufacturing context, such as the process industry, product designers, recyclers, remanufacturers and logistic agents. Proposals should carry out research and innovation to develop missing elements and achieve the necessary integration, including economic viability. Hence, synergies with, or using results from, other projects may be appropriate.

The mere integration of existing technologies or processes is outside the scope of this topic.

Proposals should create new FAIR data and tools (including AI) and propose solutions to enable their use, and address difficulties in integrating disparities in data sources across product lifecycles, due to their variable reliability, quality, frequency and associated technologies. Coherence between datasets provided by material producers, recyclers and product manufacturers should be ensured.

Proposals should address technologies and methodologies necessary to comply with associated requirements and standards (examples include Digital Product Passport deployment, LCA for circular economy, B2B circular data spaces, and users' behaviour). Hence, appropriate contributions of SSH specialists should be included.

The portfolio approach will be used, to ensure that at least two proposals focusing on **textiles** are funded, with the following scope:

Improving processability and the resulting product quality when utilizing recycled or alternative bio-based fibres instead of virgin conventional fibres is very important for textile manufacturing. Attributes such as recyclability and recycled material content are expected to be part of the textile-specific requirements under the Ecodesign for Sustainable Products Regulation. The objective in this caseis to develop innovative processing technologies to facilitate the efficient utilisation of recycled, regenerated and bio-based fibres in textile manufacturing, for example during spinning, weaving, knitting or dyeing.

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-03: Factory processes and automation for de- and re-manufacturing (RIA) (Made in Europe partnership)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 6.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 40.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- An industrial ecosystem for circularity in manufacturing industries emerges, enhancing both circularity and resilience;
- De-manufacturing technologies and practices become available, making decisive contributions to a European remanufacturing industry and market;
- Functions of products are retained, reused, upgraded or adapted through de-manufacturing and re-manufacturing; and
- Skills and standards relevant to remanufacturing are developed.
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Scope: Proposals should focus on developing de-manufacturing and re-manufacturing technologies at the factory level, addressing at least two of the following:

- Technologies to efficiently analyse part condition, including for components of lower value, e.g. combining sensor data and AI with human inputs;
- AI and robotic-assisted technologies to de-manufacture products and components, including handling, sorting and extended logistics;
- Model-based systems, to allow de-manufacturing and re-manufacturing operators to use CAD data and digital twins related to the original parts; and
- Solutions allowing local repair or re-manufacturing of high-added value components (applied to e.g. wind turbines, aircraft and vessels).

[The portfolio approach may be used in this topic to prioritise particular sectors.]

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-04: Optimise the usage of resources in the production phase of the circular economy (RIA) (Processes4Planet and Clean Steel partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 70.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Material recycling and upcycling are significantly enhanced through process optimisation;
- Dependencies are reduced and yields are increased, through the optimisation of the recovery of critical or strategic raw materials or ferroalloys;
- The usage of water is decreased, through technologies to reduce or eliminate the use of water (including recovery); and
- The effect of impurities in materials produced for special applications is reduced.

Scope: The R&I will optimise efficiency in terms of materials, water and energy along the value chain, making production more competitive, safer and sustainable.

The continuity and high resource demand in term of materials and energy media of the industrial processes require a dependable availability of resources. This priority addresses the re-integration and valorisation of industrial side-streams from materials processing (formerly called production waste) into the process industries as novel feedstock. Priority should be given to streams that contain critical and scarce raw materials as well as biomaterials. Hard to recycle, mixed, and impurified waste streams should be considered as well as the elaboration and demonstration of suitable new, efficient, and competitive industrial scale processes. The developments must consider the real conditions of such re-integration with varying amounts and compositions and the efficiency and cost of the processing to enhance the chance of deployment in industrial environments. Moreover, the limitations of water use should be optimised in these processes and the re-use of water vapor from cooling processes should be considered. Proposals should consider technologies for water saving and water management that should be driven towards implementation with additional support.

Proposals should aim at increasing the share of sustainable feed streams of the process industries and foster circular material flows avoiding thermal utilisation as well as disposal.

Digital technologies and data sharing should be developed where needed and applied to support such integration but are not targeted independent of the development and demonstration of the necessary process technologies. The reintegration can take place within one sector or across sectors (industrial symbiosis). Impacts of regulations must be considered and proposals for their modification should be made where required.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-05: Circular advanced materials: facilitating the transition from design to markets (RIA) (IAM4EU and Made in Europe partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 6.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 40.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Advanced materials designed for circularity are adopted in products, through production and technology uptake;
- Business models become available to enhance the use of circular advanced materials in strategic value chains; and

- Resource efficiency is increased significantly through a focus on circular advanced materials.

Scope: [This topic is opened in both 2026 and 2027.]

The focus of this topic is on enabling circularity through R&I in advanced materials, in particular recyclable polymers and composites and magnets, taking into account from the start the related production processes and technologies in which they should be integrated. Proposals should also develop business models considering the cost of changes needed along the life cycle of these new materials to facilitate their uptake.

The scope covers the full innovation cycle from the design, development scaleup, to industrial uptake and integration into products as well as the transfer of developed solutions to other applications or sectors.

The SSbD framework is to be used to guide the innovation process towards safer and more sustainable materials.

Best use of digital tools and FAIR data throughout the innovation process should support the circular transition for industry. This includes sharing FAIR and interoperable data and tools across value networks, to foster circularity, including data needed for materials and component development, production and circular product design.

The approach should foster collaboration among stakeholders along the innovation chain and value networks to accelerate the development and adoption of new circular solutions.

Proposals should support strategic value chains in the fields of energy, mobility, construction and electronics and/or have major impact/leverage for the circular economy.

[The portfolio approach may be used to focus on particular strategic priorities.]

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-06: Circular advanced materials: facilitating the transition from design to markets (RIA) (IAM4EU and Made in Europe partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 6.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 40.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Advanced materials designed for circularity are adopted in products, through production and technology uptake;
- Business models become available to enhance the use of circular advanced materials in strategic value chains; and
- Resource efficiency is increased significantly through a focus on circular advanced materials.

Scope: Scope:

[This topic is opened in both 2026 and 2027.]

The focus of this topic is on enabling circularity through R&I in advanced materials, in particular recyclable polymers and composites and magnets, taking into account from the start the related production processes and technologies in which they should be integrated. Proposals should also develop business models considering the cost of changes needed along the life cycle of these new materials to facilitate their uptake.

The scope covers the full innovation cycle from the design, development scaleup, to industrial uptake and integration into products as well as the transfer of developed solutions to other applications or sectors.

The SSbD framework is to be used to guide the innovation process towards safer and more sustainable materials.

Best use of digital tools and FAIR data throughout the innovation process should support the circular transition for industry. This includes sharing FAIR and interoperable data and tools across value networks, to foster circularity, including data needed for materials and component development, production and circular product design.

The approach should foster collaboration among stakeholders along the innovation chain and value networks to accelerate the development and adoption of new circular solutions.

Proposals should support strategic value chains in the fields of energy, mobility, construction and electronics and/or have major impact/leverage for the circular economy.

[The portfolio approach may be used to focus on particular strategic priorities.]

Disruptive technologies for clean energy

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-31: More efficient and/or scalable conversion processes for electrification (RIA) (Processes4Planet and IAM4EU partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 70.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Clean energy usage is given a boost through new technologies for energy storage, carriers and management; and
- A reliable energy flow for a fluctuating energy demand is enabled through improved management of a combination of energy sources.

Scope: R&I on resilient storage and management of clean energy adapted to the need of the process industry including R&I on new advanced materials for membranes and carriers and storage (e.g. for batteries and hydrogen).

This topic focusses on boosting electrification by efficient and/or scalable energy conversion and storage processes. Research will develop targeted solutions for the needs of the energy intensive industries considering their different energy supply mechanisms, storage possibilities, as well as release requirements. Proposals should consider the most relevant gaps to focus on in the frame from materials design to technology deployment and ensure adequate feedback loops between different steps to drive forward innovative solutions which can be easily deployed. Scalability and requirements from application/industry need to be considered early on in the innovation process.

The SSbD framework is to be used to guide the innovation process towards safer and more sustainable chemicals and advanced materials. The approach should accelerate cost-reduction and market uptake, as well as collaboration across the innovation chain, including end-users.

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-32: More efficient and/or scalable conversion processes for capture, storage and use of clean energy carriers and heat sources (RIA) (Processes4Planet and IAM4EU partnerships)

Call: INDUSTRY

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 6.00 and 8.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 70.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Clean energy usage is given a boost through new technologies for heat capture, storage and usage;
- Heat dependent processes will become cleaner and less costly due to better management of heat; and
- A significant increase of the efficiency and scalability of energy carrier conversion processes.

Scope: R&I on resilient capture, storage and management of heat energy adapted to the need of the process industry including R&I on new advanced materials.

This topic focusses on boosting the usage of clean energy by efficient and/or scalable conversion processes for capture, storage and use of green heat sources. Research will develop solutions targeted at high temperature processes in energy intensive industries considering their heat production, storage capacities and heat release needs. Industrial symbiosis for heat recuperation can be envisaged. Proposals should consider the most relevant gaps to focus on in the frame from materials design to technology deployment and ensure adequate feedback loops between different steps to drive forward innovative solutions which can be easily deployed. Scalability and requirements from application/industry need to be considered early on in the innovation process.

The SSbD framework is to be used to guide the innovation process towards safer and more sustainable chemicals and advanced materials. The approach should accelerate market uptake, networking between academia and industry as well as collaboration across the innovation chain, including end-users.

Decarbonisation of Energy-intensive Industries

This section is a contribution to the cross-cutting call supporting the Clean Industrial Deal. This cross-cutting call will be included in a separate part of the WP 2026-27.

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-CID-X1: R&I in Support of the Clean Industrial Deal: Decarbonisation of energy intensive industries (Processes4Planet and Clean Steel partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 20.00 and 25.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 125.00 million.
Type of Action	Innovation Actions
Technology Readiness Level	Activities are expected to achieve TRL 7-8 by the end of the project.
Procedure	The procedure is described in General Annex F. The following exceptions apply: To contribute to a balanced portfolio covering the three technology areas described in the scope below, grants will be awarded to applications not only in order of ranking, but also in a manner to ensure that there is at least one proposal selected for funding for each technology area, provided that the applications attain all thresholds.

Expected Outcome: Proposals are expected to contribute to **all** of the following expected outcomes:

- Accelerate the use of innovative processes to decarbonise industrial processes and bring to the market more cost-effective clean products to strengthen the competitiveness and resilience of EU industries (with quantifiable contribution);
- Create new innovative first-of-a-kind operational demonstrators and/or optimise newly installed industrial decarbonisation solutions in Europe; and
- Demonstrate the market readiness of the envisaged future clean products and their innovative processes via a credible business plan and an exploitation strategy for industrialisation, including market-tested use cases.

Scope: The **Clean Industrial Deal** aims to secure the EU as an attractive location for manufacturing, including for energy-intensive industries, and to promote clean tech and new circular business models in order to meet Europe's ambitious decarbonisation and climate

neutrality targets. It focuses primarily on the competitive decarbonisation of EU industry and on the production of clean technologies in the EU.

The following three technology areas on energy intensive industries having a strong and promising growth potential in Europe are in scope of this call:

- Managing of carbon cycle (CCU and/or CCUS)
- Clean energy usage in production (electrification of the processes, integration of alternative clean energy carriers, demand side management including more effective on-site renewable energy storage solutions)
- Resource efficiency (material, energy, water) of production processes

As part of bringing the above tech solutions closer to the market, proposals may also address step-change in relevant network and infrastructure deployment to facilitate scale up. Use of advanced materials, safe and sustainable materials and processes, and circularity are also to be addressed as part of the selected processes.

Applicants are **free to decide on the specific technological area they wish to strengthen** within an industrial sector, provided that it is innovative and can lead to low carbon solutions. The choice of the specific technologies addressed in the proposal is left to the project applicants who should include a thorough justification of the choices both in technological and business terms.

Proposals are expected to:

- demonstrate an **adequate integration of relevant technological solutions** in support of the Clean Industrial Deal, and to ensure a clear and quantifiable impact on competitiveness and reduction of GHG emissions. The integration can either be demonstrated in a direct (e.g. reduction of greenhouse emissions of a process) or an indirect (e.g. production of a new green/clean product) manner. The use of relevant results of R&I projects previously funded at EU, national or regional level is encouraged.
- show **industrial leadership** in the deployment after the project. To this end, they must also put together an industry driven consortium composition to ensure a quantifiable impact on competitiveness. In view of future deployment and market readiness, the sizes of the consortia must be manageable, while still being able to ensure an adequate integration across the chosen specific technological approach. As an indicative figure, **consortia should not exceed ten participants,** and the size of the consortia should be justified. The participation of SMEs is encouraged.
- seek synergies with relevant existing projects, initiatives and structures, such as European Partnerships / Joint Undertakings.

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Proposals are expected to provide a sound and convincing **business plan** and **market-readiness strategy** (cf. intro) on how to prepare and support the deployment of the proposed tech solution across relevant EU industrial sectors, and/or ensure a high potential for market uptake through further private/public investment (including relevant EU deployment programmes, such as the Innovation Fund). Proposals should include a sound analysis of the critical barriers (technological and non-technological) for the successful market deployment and the corresponding plan to address them.

Proposals are expected to include a clear **go/no go moment** ahead of the deployment phase of the demonstrator. Before this go/no-go moment, the proposal has to deliver a techno-economic assessment, a complete implementation plan (with all needed permits for the deployment of the project). The proposal is expected also to demonstrate how it will get a financial close for the whole action.

HORIZON-CL4-2027-01-CID-X2: R&I in Support of the Clean Industrial Deal: Decarbonisation of energy intensive industries (Processes4Planet and Clean Steel partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 20.00 and 25.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 125.00 million.
Type of Action	Innovation Actions
Technology Readiness Level	Activities are expected to achieve TRL 7-8 by the end of the project.
Procedure	The procedure is described in General Annex F. The following exceptions apply: To contribute to a balanced portfolio covering the three technology areas described in the scope below, grants will be awarded to applications not only in order of ranking, but also in a manner to ensure that there is at least one proposal selected for funding for each technology area, provided that the applications attain all thresholds.

Expected Outcome: Proposals are expected to contribute to **all** of the following expected outcomes:

- Accelerate the use of innovative processes to decarbonise industrial processes and bring to the market more cost-effective clean products to strengthen the competitiveness and resilience of EU industries (with quantifiable contribution);

- Create new innovative first-of-a-kind operational demonstrators and/or optimise newly installed industrial decarbonisation solutions in Europe; and

- Demonstrate the market readiness of the envisaged future clean products and their innovative processes via a credible business plan and an exploitation strategy for industrialisation, including market-tested use cases.

Scope: The **Clean Industrial Deal** aims to secure the EU as an attractive location for manufacturing, including for energy-intensive industries, and to promote clean tech and new circular business models in order to meet Europe's ambitious decarbonisation and climate neutrality targets. It focuses primarily on the competitive decarbonisation of EU industry and on the production of clean technologies in the EU.

The following three technology areas on energy intensive industries having a strong and promising growth potential in Europe are in scope of this call:

- Managing of carbon cycle (CCU and/or CCUS)

- Clean energy usage in production (electrification of the processes, integration of alternative clean energy carriers, demand side management including more effective on-site renewable energy storage solutions)

- Resource efficiency (material, energy, water) of production processes

As part of bringing the above tech solutions closer to the market, proposals may also address step-change in relevant network and infrastructure deployment to facilitate scale up. Use of advanced materials, safe and sustainable materials and processes, and circularity are also to be addressed as part of the selected processes.

Applicants are **free to decide on the specific technological area they wish to strengthen** within an industrial sector, provided that it is innovative and can lead to low carbon solutions. The choice of the specific technologies addressed in the proposal is left to the project applicants who should include a thorough justification of the choices both in technological and business terms.

Proposals are expected to:

- demonstrate an **adequate integration of relevant technological solutions** in support of the Clean Industrial Deal, and to ensure a clear and quantifiable impact on competitiveness and reduction of GHG emissions. The integration can either be demonstrated in a direct (e.g. reduction of greenhouse emissions of a process) or an indirect (e.g. production of a new green/clean product) manner. The use of relevant

results of R&I projects previously funded at EU, national or regional level is encouraged.

- show **industrial leadership** in the deployment after the project. To this end, they must also put together an industry driven consortium composition to ensure a quantifiable impact on competitiveness. In view of future deployment and market readiness, the sizes of the consortia must be manageable, while still being able to ensure an adequate integration across the chosen specific technological approach. As an indicative figure, **consortia should not exceed ten participants,** and the size of the consortia should be justified. The participation of SMEs is encouraged.

- seek synergies with relevant existing projects, initiatives and structures, such as European Partnerships / Joint Undertakings.

Proposals are expected to provide a sound and convincing **business plan** and **market-readiness strategy** (cf. intro) on how to prepare and support the deployment of the proposed tech solution across relevant EU industrial sectors, and/or ensure a high potential for market uptake through further private/public investment (including relevant EU deployment programmes, such as the Innovation Fund). Proposals should include a sound analysis of the critical barriers (technological and non-technological) for the successful market deployment and the corresponding plan to address them.

Proposals are expected to include a clear **go/no go moment** ahead of the deployment phase of the demonstrator. Before this go/no-go moment, the proposal has to deliver a techno-economic assessment, a complete implementation plan (with all needed permits for the deployment of the project). The proposal is expected also to demonstrate how it will get a financial close for the whole action.

Technology infrastructure, knowledge valorisation and support for scaleups and startups

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y1: Enhancing industry-academia knowledge exchange in Social Sciences and Humanities (SSH) (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 1.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 2.00 million.

Type of Action	Coordination and Support Actions

Expected Outcome:

- Increased innovation capabilities for industry by harnessing the potential of Social Sciences and Humanities, including the Arts, to provide effective solutions to companies' research and innovation challenges and organisational development.
- By facilitating industry exposure, SSH researchers' better understanding of industry needs and opportunities for collaboration.

Scope: This action aims to leverage the strengths of social sciences, humanities and arts (SSH) to address companies' specific needs, fostering a dynamic and productive industry-academia co-creation for knowledge valorisation. This action will support SSH–industry co-creation (hackathons, team-based approaches etc) focussing on specific challenges from industry and SMEs including, but not limited to understanding the socio-technical implications of new technologies and innovations, broadening the perspectives of companies' strategic actions, creating a deeper understanding of customer requirements, developing new ideas and innovations and contributing to organisational development, sustainability and long-term profitability.

The action will cover the following activities:

- Developing a methodology for understanding how various needs from industry and SMEs can be addressed by knowledge exchanges with SSH researchers and students.
- Service to industry and SMEs including spinoffs and startups to support solving company challenges with international teams of SSH researchers and students.
- A study to tackle the key questions concerning the technical and conceptual feasibility of Industry-Academia knowledge exchange with SSH to improve innovation management and organisational development.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y2: Unlocking the potential of intellectual assets for industry, SMEs and startups (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 1.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 2.00 million.

Type of Action	Coordination and Support Actions

Expected Outcome:

- Enhanced valorisation of intellectual assets, including dormant patents, from universities and public research organisations to support the adoption of green and digital technologies by industry, SMEs and start-ups/spinoffs.
- Development of entrepreneurial skills and increased involvement of students, researchers, and innovators in the valorisation of research results.
- Uptake of effective models and tools to facilitate valorisation of unused IP and intellectual assets and access by startups, SMEs, and innovative companies to this untapped knowledge in public research organisations.

Scope: Aligned with the European Union's policy priorities, this action will contribute to overcoming the innovation paradox by maximising the impact of public spending in R&I through improved knowledge valorisation practices, and facilitating the uptake of green and digital technologies by start-ups, spinoffs, and innovative SMEs. By unlocking the untapped potential of intellectual assets within universities and public research organisations, and leveraging the creativity of students, researchers, and innovators, the action seeks to improve value creation opportunities deriving from these assets and bolster the competitiveness of European industry.

The action should explore strategies and implement pilots for actively involving students and researchers (including those in social sciences and humanities) in valorising academic IP and intellectual assets. These should include hackathons, workshops and larger-scale “summer camp” programmes, and foresee the involvement of interested industry partners than can be potential adopters.

The action should also identify and test models and tools for easier IP access and utilisation by startups and SMEs. These should cover innovative licensing and other valorisation approaches, especially tackling the issue of unused academic patents, as well as the use of AI to manage and valorise research results and IP.

The action should exploit synergies with other EU-funded projects covering intellectual assets management, entrepreneurship, and AI for knowledge valorisation.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y3: Breakthrough innovations in industrial technologies

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per	The Commission estimates that an EU contribution of around EUR 3.00 million would allow these outcomes to be addressed appropriately.

project	Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 20.00 million.
Type of Action	Coordination and Support Actions

Expected Outcome:

- Enable open-ended breakthrough innovations in industrial technologies, feeding the pipeline of knowledge

Scope: This is an open topic, intended to cover breakthrough innovations within the scope of the strategic research agendas of the partnerships Made in Europe, Process4Planet, Clean Steel, Innovative Advanced Materials (IAM4EU) and Textiles.

It will be implemented using the Fast Track to Innovation instrument.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y4: Integration of Technology Infrastructure capacities (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 3.00 million.
Type of Action	Coordination and Support Actions

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-Y5: Pilot access programme to Technology Infrastructures for European startups and scaleups (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 3.00 million.

Type of Action	Coordination and Support Actions

Raw Materials

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-11: Innovative technologies and tools for exploration and data modelling of raw materials (RIA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 20.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Increase information on the European Union raw materials, particularly critical raw materials occurrences and deposits, while contributing to the implementation of the National exploration programmes (article 19 of the Critical Raw Materials Regulation).
- Improve knowledge base of EU critical raw materials to identify new areas for exploration and resource estimation;
- Accelerate development of EU domestic raw materials exploration projects integrating innovative technologies that can form the basis for new EU SMEs;
- Develop innovative exploration data processing and modelling and mineral system analysis for identification of critical raw materials deposits in the EU;
- Strengthen EU Geological Surveys capacities and skills to implement the National Exploration programmes as defined in the Critical Raw Materials Act.
- Accelerate development of EU domestic critical raw materials exploration projects by junior mining / exploration companies.

Scope: Actions should develop and deploy advanced geological modelling and mineral system analysis using multi-source data (geological, geophysical, and geochemical) from ground-based and remote-sensing techniques to develop high-resolution 3D models of CRM deposits. The integration of new (AI and machine learning) and conventional methods will be

necessary to predict with the greatest accuracy the location of mineral deposits of critical raw materials and their carrier minerals.

Actions should develop new knowledge and conceptual models, supported by innovative technologies to strengthen and secure the EU's supply of primary raw materials by:

- Generating better geological understanding (i.e. characterization, modelling, mapping) of known mineral deposits to identify critical mineral resources and inform discovery of new resources;
- Developing new genetic models for ore deposit types that host critical minerals in order to identify areas for exploration, especially in previously underexplored regions;
- Advancing mineral prospectivity modelling processes;
- Facilitate the integration of existing multi-datasets with newly acquired data.

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-12: Technologies for innovative extraction of critical raw materials (RIA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 5.00 and 7.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 20.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Innovative and cost-effective technologies for extraction of raw materials in the European Union become available;
- The domestic EU sourcing of raw materials is increased;
- The responsible supply of raw materials to the EU is improved, contributing to the Critical Raw Materials Act objectives (Article 1).-Substantially reduced the Green House Gases (GHGs) emissions intensity of extraction per ton of the material (metal, metal content, concentrate, mineral).

Scope: Actions should develop new sustainable concepts and technological solutions, including alternative approaches, for mining of complex or difficult to access mineral deposits, including abandoned mining sites, particularly addressing the challenges of

accessibility, industrial viability, safety and environmental impacts, including water use and GHG intensity of extraction.

Actions should be driven by industry and raw materials users. The actions should duly justify the relevance of all targeted minerals and metals. Priority are the EU critical raw materials. Deap sea mining is not in the scope of this topic.

Actions should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the introduction to this Destination.

International cooperation is encouraged with countries with which the EU has signed Strategic Partnerships on raw materials, especially with Ukraine.[9]

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-13: Monitoring of secondary raw materials (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 2.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 5.00 million.
Type of Action	Coordination and Support Actions

Expected Outcome:

- Improved knowledge base of EU and third country secondary raw materials (potential, resource estimation, production and refining);
- Accelerated commercial exploitation development of EU secondary resource recovery projects EU;
- Developed reports on future trends in raw materials markets.
- Identified supply and demand bottlenecks of future secondary raw materials supply;

[9] https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/raw-materials-diplomacy_en

- Improved EU raw materials intelligence, strategic planning and foresight capacity.

Scope: A successful transition to a climate-neutral, circular and digitised EU economy relies heavily on a secure supply of raw materials. In order to strengthen EU autonomy and reduce over-dependency, we must boost domestic sourcing, both for primary and secondary raw materials.

Actions should be based on a common understanding of relevant terms and codes, and develop an understanding of anthropogenic resources and derive the needed aspects for classification of recovery projects and to develop criteria for a transparent, consistent and objective classification, needed to establish a comprehensive resource classification approach.

Actions should acquire new data on secondary raw materials via in situ sampling from different regions across the EU, collect existing data and present in a harmonised UNFC format. The action should build on and advance further the work of UNECE – UNFC expert group on Anthropogenic resources regarding the classification of secondary raw materials and the work of Horizon Europe project FUTURAM regarding collection of data and information on secondary raw materials. The action should develop a proposal for EU statistics for secondary raw materials.

The action should focus on the following streams of secondary raw materials, with particular attention to critical raw materials: waste batteries, WEEE, mining waste, slags and ashes, and construction and demolition waste.

All the data and information generated through these actions should be shared in open formats on a free of charge basis with the European Commission, for its own use and for publication.

The action should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

International cooperation is encouraged with countries with which the EU has signed Strategic Partnerships on raw materials, especially with Ukraine.[10]

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-14: Improving availability of secondary raw materials through recycling (IA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per	The Commission estimates that an EU contribution of between EUR 6.00 and 7.50 million would allow these outcomes to be addressed

[10] https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/raw-materials-diplomacy_en

project	appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 30.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Raw materials recycling and re-use of components and/or products from end-of-life products technologies and urban mines, including cost-effective and efficient sorting technologies for separation and recycling and the sustainable embedment of the process regarding energy, resource and water efficiency; and
- Improved responsible supply of raw materials to Europe contributing to the Critical Raw Materials Act objectives (Article 1).

Scope: **The focus is on raw materials (metals only), particularly on critical raw materials.**

Actions should demonstrate new or improved systems located in the EU developing material efficient high-quality recycling of raw materials.

Actions should focus on the whole chain of recycling processes and procedures - from collection, logistics, characterisation, sorting, cleaning, refining and purification of secondary raw materials and quality of produced outputs.

Recycling and re-use where the recycled material is of lower quality and functionality than the original material (downcycling), is not in the scope of the topic.

Actions should envisage clustering activities with other projects aiming at second life, re-use, repurposing, remanufacturing of products and/or components relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the introduction to this Destination. For TRLs 6-7, a credible strategy to achieve future full-scale deployment in the EU is expected, indicating the commitments of the industrial partners after the end of the project.

International cooperation is encouraged with countries with which the EU has signed Strategic Partnerships on raw materials, especially with Ukraine.[11]

[11] https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/raw-materials-diplomacy_en

HORIZON-CL4-2026-01-MATERIALS-PRODUCTION-15: Technologies for innovative processing and refining of raw materials (RIA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 5.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 25.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Increased recovery rates of valuable raw materials, particularly critical raw materials from low grade or complex ores and/or from extractive waste;
- Increased economic performance in terms of higher material-, water-, energy- and cost-efficiency and flexibility in minerals processing and metallurgical processes; and
- Improved health, safety and environmental performance of the operations throughout the whole life cycle that is considered, including a reduction in waste, wastewater and emissions generation and a better recovery of resources from generated waste.

Scope: Actions should develop pilot demonstrators located in the EU integrating relevant processing and refining technologies for better recovery of raw materials from low grade and/or complex ores from extractive wastes, reduction of waste, higher energy efficiency. The action can also reduce the content of toxic elements or compounds in the resulting material products. The actions should target minerals and metals, particularly critical raw materials.

The solution proposed should be flexible enough to adapt to different or variable ore grades and extractive waste streams 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.

Actions should develop intelligent and innovative production systems which better utilise natural resources by minimising losses during waste-rock separation in an optimised and energy-efficient process and by minimising use of water.

Recycling of end-of-life products is not in the scope of this topic.

Actions should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of

results as well as participating in joint meetings and communication events. To this end proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the introduction to this Destination.

International cooperation is encouraged with countries with which the EU has signed Strategic Partnerships on raw materials, especially with Ukraine.[12]

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-16: Technologies for innovative processing of raw materials (IA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 10.00 and 12.50 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 52.00 million.
Type of Action	Innovation Actions

Expected Outcome:

- Increased recovery rates of valuable raw materials, particularly critical raw materials from low grade or complex ores and/or from extractive waste;
- Increased economic performance in terms of higher material-, water-, energy- and cost-efficiency and flexibility in minerals processing and metallurgical processes; and
- Improved health, safety and environmental performance of the operations throughout the whole life cycle that is considered, including a reduction in waste, wastewater and emissions generation and a better recovery of resources from generated waste.

Scope: Actions should develop pilot demonstrators located in the EU integrating relevant processing and refining technologies for better recovery of raw materials from low grade and/or complex ores from extractive wastes, reduction of waste, higher energy efficiency. The action can also reduce the content of toxic elements or compounds in the resulting material products. The actions should target minerals and metals, particularly critical raw materials.

The solution proposed should be flexible enough to adapt to different or variable ore grades and extractive waste streams and should be supported by efficient and robust process control.

[12] https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/raw-materials-diplomacy_en

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.

Actions should develop intelligent and innovative production systems which better utilise natural resources by minimising losses during waste-rock separation in an optimised and energy-efficient process and by minimising use of water.

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

Actions should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

Actions 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. The action should also include the analysis of financial opportunities ensuring the market exploitation and replication of the circular business model behind the developed solutions as new processes, products and/or services.

Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the introduction to this Destination.

International cooperation is encouraged with countries with which the EU has signed Strategic Partnerships on raw materials, especially with Ukraine.[13]

HORIZON-CL4-2027-01-MATERIALS-PRODUCTION-17: Expert network on Critical raw materials (CSA)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 3.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 3.00 million.
Type of Action	Coordination and Support Actions

Expected Outcome:

[13] https://single-market-economy.ec.europa.eu/sectors/raw-materials/areas-specific-interest/raw-materials-diplomacy_en

- Strengthening the expert capacity in the EU in a wide range of raw materials along the whole value chain;
- Better informed and more effective decision-making by the EU and National policy makers and the producers and users of raw materials regarding the supply and demand of raw materials and the associated environmental and social aspects;
- Improved EU official statistics and building the EU knowledge base of primary and secondary raw materials.

Scope: Actions should strengthen an EU expert network and community covering all raw materials screened in the CRM assessment of 2027. Flexibility in screening additional raw materials will be an added value.

The consortium should build the EU expert community covering each screened raw material with expertise on primary and secondary resources; production, including exploration, mining, processing, recycling and refining; substitution of CRMs; raw materials markets; future demand and supply; supply risk management and stress tests; materials flows; raw materials standardisation; socio-economic analysis, and strategic value chains and end-use sectors, including batteries, e-mobility, renewable energy, electronics, security and aerospace.

The actions should flexibly support the Commission in policy making related to Critical Raw Materials in general or linked to specific applications or sectors; as well in the relevant events organised by the Commission.

The actions should also improve data and knowledge on all screened raw materials; and support the Commission in the analysis of the future supply and demand of raw materials, technology gaps and innovation potential along the raw materials value chains.

The action should update the data and information fact sheets from the previous criticality exercise for all screened raw materials, and ensure their quality by relevant raw material experts. Factsheets are to be finalised by the end of 2029, and could be fine-tuned before publication expected in 2030.

The action is expected to organise two expert validation workshops in 2029 to support the EU criticality assessment, and validate draft factsheets for all screened materials. On request of the Commission, organise in-depth workshops on several strategic metals (agreed with the Commission) for renewable energy, e-mobility and security with recognised commodity experts from industry and other organisations.

The action should provide policy briefs and analyses based on requests from the Commission and proposed work should be coordinated with the Commission's work and relevance reviewed in the light of policy development and needs.

The action should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end

proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

Innovative Advanced Materials

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-04-MATERIALS-PRODUCTION-40: New or enhanced IAM-enabled sensing functionality

Call: DIGITAL	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR N/A million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 24.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- New technological solutions with improved performance and reduced energy consumption providing significant advances towards the emergence of competitive value chains in IAM-based sensing components in Europe.
- Widespread adoption of low-cost IAM-based sensing solutions in e.g. environmental monitoring, industrial safety, and next-generation smart sensing applications.

Scope: Proposals should address at least one of the following two areas.

A. IAM-enabled multifunctional surfaces able to detect and respond to environmental changes, like temperature, pH, moisture, and converting these signals into measurable outputs. Such surfaces should demonstrate high performance in terms of sensitivity, selectivity, response time, durability and cost-effectiveness. Proposals should target applications in e.g. environmental and chemical sensing, touch and pressure sensing.

B. The development of enhanced IAM-based sensor demonstrators, that enable miniaturization and integration into application systems e.g. into portable IoT devices. These sensors must meet key performance requirements, e.g. compatibility with silicon technology, operation at ambient conditions with low power consumption, high sensitivity (low limit of detection), high selectivity and fast detection speed.

Proposals should integrate the value chain and incorporate the relevant manufacturing technologies needed to bring the developed devices towards the market.

Proposals should include activities aiming at facilitating future exploitation of results.

Compliance with the safe and sustainable by design framework will boost the confidence of industry and end-users and enhance the Innovative Advanced Materials ecosystem and uptake.

Cooperation with the activities funded under the Chips Joint Undertaking and photonics partnership are encouraged as well as other related application initiatives.

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Destination 4: Achieving open strategic autonomy in digital and emerging enabling technologies

AI for manufacturing

Proposals are invited against the following topic(s):

HORIZON-CL4-2026-01-DIGITAL-EMERGING-51: AI improved advanced manufacturing and production processes in factories (RIA) (Made in Europe and ADRA partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 4.00 and 6.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 30.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Innovative AI-enabled advanced manufacturing processes and operations leading to increased competitiveness and productivity; and
- Reduction of emissions and alignment with Green Deal objectives.

Scope: AI approaches in manufacturing processes hold the potential to significantly enhance both the process and operational efficiency as well as sustainability of modern factories. Current state-of-the-art technologies have already paved the way for more streamlined operations, yet there remains untapped value in e.g. real-time optimisation, intelligent automation, and dynamic process control. Applications such as deep learning, digital twins, and data-driven quality control allow manufacturers to improve line efficiency, elevate product quality, and proactively address critical challenges in energy consumption and carbon footprint. With innovative AI approaches, manufacturers can not only optimise production lines and elevate product quality but also address environmental concerns. This dual focus on operational excellence and sustainability ensures that factories can maintain competitive advantage while also contributing to broader environmental goals.

Proposals should produce dedicated innovative explainable AI based applications/solutions in advanced manufacturing for all of the following scopes:

- improve processes and operational efficiency of the production line in the factory through e.g. deep learning models, real-time process simulation and digital twins. Improvements should also focus on reduction of CO2-footprint.

- detection of process drift and process correction to avoid defects and potentially correction of defects in real time during the manufacturing process execution

- improve decision-making and collaboration thanks to e.g. employing AI for exploiting data from interconnected systems at factory level that provide real-time data analytics

The portfolio approach will be used, to ensure that at least one proposal focusing on textiles is funded, with the following scope:

- AI approaches for efficient automated manufacturing for complex technical textiles made of advanced materials;

- Digital and AI-supported solutions for design, simulation & prototyping of complex advanced textile products and maximised use of renewable materials.

HORIZON-CL4-2027-01-DIGITAL-EMERGING-52: New approaches for Human/AI collaboration for the workforce of the future (RIA) (Made in Europe and ADRA partnerships)

Call: INDUSTRY	
Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of between EUR 4.00 and 6.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 30.00 million.
Type of Action	Research and Innovation Actions

Expected Outcome:

- Industrial jobs are transformed through AI-based human-machine interactions which enhance flexibility, safety, well-being, up-skilling, career evolution and knowledge sharing;

- More attractive jobs are created in the EU, attracting and retaining talents;

- Human-centric aspect of the Industry 5.0 model is fostered; and

- Increased competitiveness and sustainability of advanced manufacturing industries.

Scope: Innovative AI approaches are poised to revolutionise human-machine collaboration in factories by fostering an environment where technology and human expertise synergistically enhance each other. AI can facilitate knowledge sharing between senior professionals and newer employees by capturing and disseminating expert insights and best practices in real-time. This dynamic exchange supports up-skilling, enabling the workforce to adapt to evolving technological landscapes, reduce onboarding time, maintain high standards and meet emerging industry demands. Additionally, by leveraging AI's capabilities, engineers can be supported in product configuration and customization, potentially leading to increased sustainability throughout the production lifecycle. New AI approaches can also enhance human-machine teamwork by offering intuitive interfaces and real-time feedback and natural modes of interaction, ensuring seamless collaboration.

Proposals should produce dedicated innovative AI approaches for human-machine collaboration in advanced manufacturing to be applied in at least two of following fields:

- Innovative methods for product configuration and customisation (or potentially product design), including production and process planning (e.g. optimization of toolpath planning), also leading to increased sustainability.
- Human-AI Co-Learning and knowledge capture to share competences, capture expert knowledge, up-skill the workforce, support re-qualification and continuous training, leading to increased knowledge at factory level and avoiding loss of know-how
- Human-AI teamwork thanks to e.g. standardised modules for Human-Digital Twin, interactive mentoring and innovative natural interaction models, enabling to control complexity in cognitive cooperating production systems, hence improving safety and well-being of workers.

Appropriate consideration should be given to gender aspects and contribution of social sciences and humanities (SSH).

Proposals are invited against the following topic(s):

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Other actions not subject to calls for proposals

Public procurements

3. Study on the societal benefits in the use of collaborative licensing models for intellectual assets management

Form of Funding: Procurement

Type of Action: Public procurement

Indicative budget: EUR 0.20 million from the 2026 budget

4. Comparative study on practices and tools for knowledge valorisation in five jurisdictions outside the EU

Form of Funding: Procurement

Type of Action: Public procurement

Indicative budget: EUR 0.15 million from the 2026 budget

5. Framework for effective licensing of intellectual assets stemming from publicly funded research

Form of Funding: Procurement

Type of Action: Public procurement

Indicative budget: EUR 0.20 million from the 2026 budget

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