Draft proposal for a European Partnership under Horizon Europe:

European Partnership for Raw Materials for the Green and Digital Transition

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1 General information

Draft title of the European Partnerships

Raw Materials for the Green and Digital Transition

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Summary (max 500 characters)

The proposal for the Critical Raw Materials Act (CRMA) stresses the need of synergies with Member States R&I programmes. Therefore, the Partnership will serve as a tool to align Member States' and third countries R&I efforts on raw materials by engaging national R&I funding organisations through development of a joint Strategic Research and Innovation Agenda and developing joint calls for proposals on raw materials, co-funded by the EU.

The partnership will focus on research with TRL 1 to 6. Particularly, TRL 1 to 3is generally not covered by calls for proposals under Cluster 4. Project results from the partnership would serve then as a basis for future uptake by Horizon projects or by EIT Raw Materials.

This is a synergy with the CRM Act which stresses the need to scale up projects from lab to commercialization.

Finally, the partnership will serve as an instrument to involve third countries on joint work on R&I topics and involve their stakeholders in joint projects. This targets specifically countries with which the EU has established or will establish strategic partnerships on raw materials. In this respect, the proposal for the CRM Act stresses the importance to add local value, notably through R&I cooperation on raw materials.

The target focus are minerals and metals, especially critical and strategic raw materials. The thematic scope includes resilient primary and secondary raw materials supply(exploration, extraction, processing, refining and recycling), efficient use of raw materials in design and production, sustainable use and reuse of products, as well as effective policy and governance, maximizing societal benefits and world-class innovation capacity.

2 Context, objectives, expected impacts

2.1 Context and problem definition

- Please explain the **context** in which the Partnership is considered: Why is this initiative being proposed now? What current **problems and/or strategic opportunities** does the initiative aim to tackle? What are the **causes ("drivers") of the problem and their relative importance**?

With the transition of Europe's industry to climate-neutrality, the reliance on available fossil fuels will progressively be replaced with reliance on non-energy raw materials that are indispensable for clean technologies. Under this partnership, the ones in question are metals, minerals, bio-based materials and elementary gases used in manufacturing, with a focus on materials analysed in the context of the assessment of the EU Critical Raw Materials list.

For many of them, the EU sources from abroad and global competition is fierce. Those raw materials that are very important economically and have a high supply risk are called critical raw materials. Critical raw materials are essential to the functioning and integrity of a wide range of industrial ecosystems.

Access to raw materials has been identified as strategic security question to achieve the Green Deal objectives and ensure the green and digital transformation of the EU economy[1]. Critical raw materials are essential prerequisites for the development of strategic sectors such as renewable energy, electric mobility, defence and aerospace, medical devices and digital technologies.

Current supply risks, demand for multiple raw materials is expected to strongly increase across different sectors and technologies, especially renewables, e-mobility sectors, defence and aerospace as well as digitalisation (e.g. handheld devices use batteries, sensors and motors; data is stored on drives containing permanent magnets; etc.).

The EU's own production accounts for only 4% of the global supply chain of critical raw materials used in the production of digital equipment, such as palladium, tantalum, or neodymium[2]. At the same time, reaching our clean energy goals will require increasing amounts of various raw materials, e.g. a 3500% increase in the use of lithium, a key component for electric mobility. Chile currently holds 40% of lithium deposits, while China hosts 45% of its refining facilities worldwide[3]. In addition, a 330% increase in the use of cobalt, and a 30-35% increase in the use of aluminium and copper are expected[4].

Under the 2021 Industry Strategy, in-depth reviews of EU's strategic dependencies were performed[5]. They revealed EU's high dependency on raw materials, classified in the energy intensive ecosystem as well as with wider importance and implications across several other ecosystems. This was furthered analysed in the second in-depth review in 2022 with rare earths and magnesium as showcases[6]. Furthermore, the review states that developing domestic capacities and diversifying sources of supply along the value chain will be instrumental to significantly reduce the existing strategic dependencies and avert the risk of replacing them with new ones, particularly in the area of critical raw materials[7].

The COVID-19 pandemic and Russian invasion of Ukraine resulted in several disruptions in supply chains, providing a need for more consideration of raw materials supplies for security, defence and aerospace. Therefore, the European Council stressed the need for more streamlined action on raw materials in March 2022[8].

In the 2022 State of the Union speech, President von der Leyen announced the work on the Critical Raw Materials Act, underlining that soon, lithium and rare earths will become more important that oil and gas[9]. The Act will set a new scene for EU action to secure supplies of raw materials.

The Green Deal Investment Plan announces the need to massively increase the technological development, manufacturing production and installation of net-zero products and energy supply in the next decade. To make this happen access to relevant critical raw materials is required[10].

[1] COM(2019) 640 final
[2] China alone accounts for 86% of the global supply of neodymium. Palladium is mostly provided by Russia (40%), and tantalum by the Democratic Republic of the Congo (33%). European Commission (2020). Critical Raw Materials for Strategic Technologies and Sectors in the EU: a foresight study.
[3] European Commission (2020). Critical Raw Materials for Strategic Technologies and Sectors in the EU: a foresight study.
[4] Metals for Clean Energy: Pathways to solving Europe's raw materials challenge, KU Leuven and Eurometaux, 2022
[5] https://commission.europa.eu/system/files/2021-05/swd-strategic-dependencies-capacities_en.pdf
[6] https://ec.europa.eu/docsroom/documents/48878/attachments/2/translations/en/renditions/native
[7] COM(2022) 289 final
[8] https://www.consilium.europa.eu/media/54773/20220311-versailles-declaration-en.pdf, Informal meeting of the Heads of State or Government, Versailles Declaration, 11 March 2022
[9] https://ec.europa.eu/commission/presscorner/detail/ov/SPEECH_22_5493
[10] COM(2023) 62 final

- Include **data and evidence on the state and scale of the problems and/or strategic opportunities** currently (status quo), and possible results from foresight on how this is expected to evolve in the future. In establishing and analysing this, **draw clear links with previous Framework Programme intervention** and results in this priority area – both in the context of work programmes, as well as R&I partnerships, if applicable;
- Describe the **underlying research, innovation, deployment or systemic bottlenecks and/or market failures** that are to be addressed by the Partnership and how this serves both private and public interest and delivery of public goods, including dissemination and exploitation issues;

As the European Union transitions from a fossil-based economy to a near-zero waste and emission economy, the focus on importance of secure and sustainable Raw Materials value chain is getting more strategic attention.

The demand for Raw Materials is higher and ever increasing, with the European Union overly dependent on few third countries as suppliers bringing about new challenges that endanger the green and digital transition alongside the already existing ones that are interdependent with the raw materials availability, such as climate change, environmental degradation, and social sustainability.

The products that the EU needs are most often made on other continents, while waste products that could be a resource are shipped out of the EU to be deposited in landfills in third countries. On the other hand, CRMs are faced with increasing export restrictions, ca. five-fold since 2009 with about 10 % of them behind some measure of export restriction[1]. The availability of raw materials has a large impact on product pricing and, in extension, the potential economic sustainability of EU industries. While global production of raw materials has doubled since 1990, the demand is still bound to increase substantially the coming decades[2].

Known mining and recovering potential exists in the EU for many of the strategic and critical raw materials, but investment projects are often faced with a variety of challenges in the development phase, for example, due to lack of incentives, long and uncertain time frames for permitting processes, need for technical development or the large risks associated with the substantial investments required.

The global competitiveness of the European industry and its global economic sustainability are key to develop an increasingly sustainable supply and use of raw materials. For example, while a growth on locally produced raw materials will lead to lower climate impact from transportation, this also connects to stronger environmental control as the EU will be able to implement effective sourcing practices among the member states[3]. This has an impact on recycling and (re)use of secondary raw materials, where a larger control on the ratio of recycled material in the production sector will be an important factor. Recycling will play an important role both now and in the future; however, forecasts indicate that mining will continue to grow and dominate the supply of raw materials, only projected to decouple and decrease after 2030 in favour of a large increase in recycling[4].

Raw materials extraction and processing, whether from primary or secondary sources, have an impact on the environment. While recycling can release pollutants through, for example, pre-processing of paints or plastics, it is generally more environmentally friendly than extracting virgin material[5]. For instance, recycled steel contributes to 86% less air pollution, 40% less water use, and 76% less water pollution compared to extracting virgin material. Energy savings can be up to 20 times compared to extracting from primary

sources. Generally, higher ratios of recycled raw materials in products are more sustainable and release less greenhouse gases[6]. A key objective of the Partnership is to enable the circular economy of raw materials.

While producing more raw materials from both primary and secondary sources is important to supply EU production industries and meet EU growing needs, one essential goal of the circular economy is to keep products and resources (at their highest value) in use for as long as possible. For this reason, efforts and awareness actions that promote product longevity, repair as well as sustainable use and reuse are included within the scope of the Partnership.

Some of the most obvious and severe environmental challenges within industry are found related to mining activities. Some of the main environmental challenges within the mining sector relate to[7]:

- Acid mine drainage (AMD)
- Water contamination
- Dam bursts and flooding
- Waste production
- Air pollution
- Soil erosion and contamination
- Water availability
- Ecosystem destruction
- Radioactive radiation
- Submarine / riverine tailings disposal

As the EU strives to solve the current challenges related to the supply of raw materials, for example by innovating within industrial operations policy instruments and environmental management, extra care must be taken to not create new challenges especially related to social sustainability for local communities. To secure the raw materials needed for the green and digital transition, mining operations within the EU will have to expand their production, recycling factories will have to be built, and the way we use and reuse products will have to change. All these activities will impact local communities and even the public.

There are several challenges related to social sustainability when planning the green and digital transition linked to the raw materials sector. Due to the pressing need to accelerate the transition, and consequently produce more raw materials at a faster pace to propel the technology implementation needed, additional risks to human rights violations and the lack of environmental protection arise. Therefore, emphasis is needed to develop tools and methods that prevent social and environmental risks. Important aspects for the SRIA and the partnership in this context are, for example, increased public participation, communication and transparency, impact assessment, data collection, monitoring and remediation.

[1] Kowalski, P., Legendre, C. (2023) Raw materials critical for the green transition: Production, international trade and export restrictions. OECD Trade Policy Papers 269, OECD Publishing, Paris. https://doi.org/10.1787/c6bb598b-en

[2] International Energy Agency (2021) The Role of Critical Minerals in Clean Energy Transition. IEA, Paris. www.iea.org/reports/the-role-of-critical[2]minerals-in-clean-energy-transitions

[3] Nelen, D., Bakas, I., Le Blévennec, K., Goelen, T., zu Castell-Rudenhausen, M., Korpijärvi, K. (2021) Improving the climate impact of raw material sourcing. European Environment Agency (EAA) Report 2021/08. https://www.eea.europa.eu/publications/imp roving-the-climate-impact-of

[4] Organisation for Economic Co-operation and Development, OECD (2019) Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences. OECD Publishing, Paris. https://doi.org/10.1787/9789264307452-en

[5] Organisation for Economic Co-operation and Development, OECD (2019) Global Material Resources Outlook to 2060: Economic Drivers and Environmental Consequences. OECD Publishing, Paris. https://doi.org/10.1787/9789264307452-en

[6] European Recycling Industries´ Confederation, EuRIC AISBL (2020) Metal Recycling Factsheet. https://circulareconomy.europa.eu/platform/ sites/default/files/euric_metal_recycling_fac tsheet.pdf
[7] Dolega, P., Degreif, S., Buchert, M., Schüler, D. (2016) Outlining environmental challenges in the non-fuel mining sector. Strategic Dialogue on Sustainable Raw Materials for Europe (STRADE), 1–11. https://www.stradeproject.eu/home
[8] European Environmental Bureau, EEB (2023) A Turning Point: The Critical Raw Material Act's needs for a Social and Just Green Transition. A Position Paper on the Critical Raw Materials Legislation. https://eeb.org/library/a-turning-point-the[8]critical-raw-material-acts-needs-for-a[8]social-and-just-green-transition/
[9] Business & Human Rights Resource Centre, BHRRC (2023) Transition Minerals Tracker – Tracking the human rights implications of mining for key minerals for the transition to a net-zero carbon economy. https://www.business[9]humanrights.org/en/from-us/transition[9]minerals-tracker/

- Demonstrate how it will take into account and build on the experience and outcomes of previous R&I Partnerships and the results of **evaluations and assessments**, if relevant. - EC

2.2 Common vision, objectives and expected impacts

*Partnerships allow to **pool additional private and public R&I investments on EU priorities** (additionality) and **align them towards common objectives** (directionality), thus facilitating the achievement of impacts that cannot be realised by other Framework Programme actions or national action alone. This requires a **common vision and a corresponding firm commitment** from partners from the beginning, with a clear idea of the impacts and objectives that need to be achieved, and the necessary resources, investments and activities. Since partnerships are by definition only receiving financial support from the Framework Programme for a limited duration, they have to also provide a clear concept on the **expected time necessary to achieve the objectives**, and the possible **phasing out from Union funding**. The common vision is an important element demonstrating the envisaged benefits for the partners and the society at large stemming from the desired additionality and directionality of the public and private R&I investments.*

- Describe the **general, specific and operational objectives of the proposed partnership**, based on a **clear intervention logic**. In establishing the objectives, link them to broader policy objectives, in particular priorities set by the European Commission, including links with global strategies and agreements such has SDGs where EU has committed itself, where relevant. What is the expected timeframe to achieve the specific objectives? –

More than ten years have passed since the publication of the ERA-MIN Research and Innovation Agenda[1] and the Raw Materials landscape has considerably changed since then. As the world, and in particular the EU, transitions from a fossil-based economy to a near-zero waste and emission economy, the

Demand for many raw materials skyrockets. Expert predictions indicate up to 20 times the current demand by 2040.
Geopolitical risks are higher than anticipated a couple of decades ago, thus threatening the sustainable and resilient raw materials supply to European industries and straining the raw materials value chain.
Recycling of raw materials will only meet a fraction of the demand and there is a need to act on both short- and long-term strategies to increase European Union resilience.

With new research and innovation endeavours, as well as actions under the framework of Horizon Europe, the Partnership on Raw Materials, together with other RM related initiatives and a growing network of stakeholders, can continue the journey that began with ERA-MIN in 2011, towards achieving the common mission of Sustainable Raw Materials Supply and Use for the Green and Digital Transition.

The SRIA outlines a set of themes for the Partnership with the aim to build up the R&I system and establish leadership towards environmental and social sustainability goals, while at the same time ensuring economic sustainability and global market competitiveness of the European raw materials industry. These themes have been selected carefully to be in line with the challenges and objectives detailed in relevant policy documents such as the CRM Act[2], the European Technology Platform on Sustainable Mineral Resources (ETP SMR) SRIA[3] and the ERA-MIN research agenda. The themes are not only connected with EU policies and regulations, but also strongly intertwined with the Sustainable Development Goals (SDGs).

Relation between the six themes and the SDGs.

Due to the rapid progress of modern technology and societal development, to the increase needs and old and new challenges, the intention is to create a SRIA that is a dynamic and flexible document with a broad mission approach as well as thematic scope and intervention logic that can be implemented during the Partnership. The SRIA focus is not exclusive on CRM and strategic raw materials[4], it also considers the dynamics and regular updates of the EU CRM list[5][6][7][8]. R&I on non-fuel, non-food raw materials (with priority on metals and minerals) currently not considering CRM are explicitly included in the scope of this SRIA, since it is an equally crucial challenge to prevent non-critical raw materials from becoming critical in the future.

The SRIA comprises six themes, three of which are technical, business-focused addressing economic activity (so-called core themes) and will tackle the main research and innovation challenges in the field:

- Core Theme 1: Resilient primary and secondary raw materials supply
- Core Theme 2: Efficient use of raw materials in design and production
- Core Theme 3: Sustainable use and reuse of products

The remaining three themes have a focus on policy development, social and environmental sustainability, as well as international cooperation and skills (so-called transversal themes), and will enable the development of a strong innovation system:

- Transversal Theme 1: Effective policy development and governance
- Transversal Theme 2: Maximizing societal benefits
- Transversal Theme 3: World-class innovation capacity

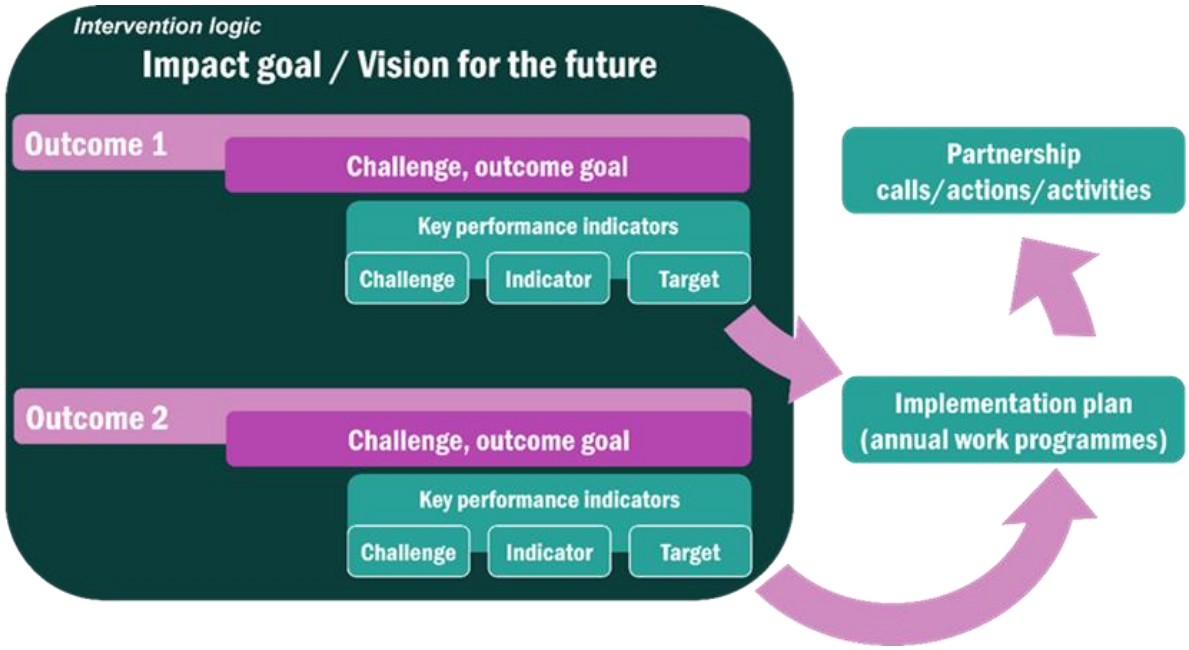
Below is a description of each sub-section of each theme, including the **intervention logic** and aspects for a specific theme as follows:

Vision and Impact Goal 2040. This section represents the desired vision and impact from the Partnership for each theme. While the Partnership actions will be aligned to produce impacts towards the vision, these are also heavily influenced by external effects. The visions and impact goals are ambitious, as many synergies within and outside of the Partnership will contribute to them.

Outcomes. The outcomes represent the implementation of results from the Partnership, its projects and activities in live environments, combined with influences from external effects and synergies with other initiatives. The outcomes are often qualitative rather than quantitative and are envisaged to be achieved within a timeframe of 5 years after the end of the Partnership. Each outcome is aligned with the vision and impact goals of the specific theme.

Key performance indicators (KPIs). The objectives of the Partnership, including the funded projects and actions/activities, are monitored using a selection of measurable and quantitative Key Performance Indicators (KPIs). The challenges behind each KPI, its quantitative target value and justification are outlined.

Since the KPIs monitor the implementation and achievement of actions and activities within the Partnership, they do not consider external effects. However, they depend in many cases on effects and results within the wider innovation system and stakeholder community, which the Partnership can stimulate but ultimately not control through its actions. Each KPI detailed below is aligned with a specific outcome and, in turn, with a Vision and Impact Goal 2040 for a specific theme.



Intervention logic structure applied to the Thematic Scope.

The sections below summarize the more detailed description and intervention logic for each thematic area, which are provided in full in the attached SRIA, also including references.

Core Theme 1 – Resilient Primary and Secondary Raw Materials Supply

Raw materials are needed to produce virtually everything in use in society, and it is possible to identify the role of metals and minerals within the life cycle of virtually every product needed for modern life[9]. Essentially all industrial value chains, such as the ones for batteries, permanent magnets, wind and solar power, electric engine, advanced material and semiconductor production, rely on a resilient and sustainable supply of RM, with special emphasis on the risky and drastic supply of CRM[10]. As countries economy and population grow, societies develop, and the increased need for a twin transition to new green and digital technology, the demand for raw materials is expected to skyrocket toward the year 2100[11][12].

Vision and Impact Goal 2040

By 2040, raw materials used in Europe are sustainably sourced through resilient value chains. New techniques and exploitation of a variety of deposit types and other sources allow high yields and recovery of every raw material needed. Supply chains are resilient and as short as possible, enabled by a scaled appropriately and within our planetary boundaries raw materials industry (both primary and secondary). The European raw materials sector is seen as a vital pre-requisite and instrumental in achieving European climate targets and securing a reliable and sustainable supply of minerals and metals required by European industries in environmentally, socially, and economically ways, not only by policy makers but also by local communities and society as a whole.

Outcome: Technological advances to increase raw materials extraction and recovery
Five years after the end of the Partnership, collaboration between industry and the research community across Europe has enabled important, cost-effective, and economically viable technological advances to increase sustainable raw materials extraction and recovery, ranging from exploration to recycling.

The Partnership and complementary initiatives are deeply aligned with and contribute to the legislative implementation of the CRM Act, achievement of its benchmarks and implementation of other programmes based on the Act such as the national exploration programmes of the EU member states. System innovation partnerships across traditional boundaries between different stakeholders and segments of the raw materials value chain have been established, resulting in ground-breaking R&I in exploration, extraction, and recovery that is scaled up and implemented together with the industry. Novelty and value of the R&I is demonstrated through patents held by European stakeholders, based on the results of various projects.

Through further development, upscaling and implementation initiatives by the industry and complementary funding bodies, a large part of the Partnership project results and prototypes lead to novel industrial technologies as well as products and services on the market, increasing the overall economic sustainability and resource efficiency of the raw materials sector. System innovation, collaboration between stakeholders and needs-driven R&I are strengthened by a well-integrated and large network of cutting-edge and easily accessible research infrastructure including demonstrators, test beds and pilot facilities.
This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):

KPI C1.1: Number of EU Member States exploration programmes impacted by project results.
KPI C1.2: Number of funded projects in exploration, extraction, and recovery for a resilient raw materials supply.
KPI C1.3: Number of patent applications related to raw materials extraction and recovery resulting from projects.
KPI C1.4: Number of new system prototype demonstrations in operational environment by projects related to raw materials extraction and recovery.
KPI C1.5: Number of new demonstrators, test beds or pilot facilities in an industry-specific context, or new utilization of current research infrastructure in an industry context.

Outcome: Sustainability of extraction and recovery processes
Within five years after the end of the Partnership, extraction and recovery of raw materials are increasingly sustainable, for example adopting principles such as full electrification and automation, CO_2-neutrality, zero accidents, closed-loop systems, no-enter mines, etc.

Industrial implementation of project results in exploration, extraction, and recovery have led to a measurable improvement of the ecological and societal footprint as well as resource efficiency

of the raw materials sector. Digital and automated process solutions with efficient monitoring and interlinking to an increasing degree implemented in Europe and worldwide have its basis on R&I projects of the Partnership. This contributes to the economic viability and sustainability of raw materials operations with positive impacts on resource, water, and energy efficiency, environmental footprint, process monitoring, workplace safety and health as well as social performance.
Despite numerous novel technologies that improve the environmental, social, and economic sustainability of the sector, there is a high level of standardization, and awareness of the need thereof, across the raw materials value chain, resulting in improved cost efficiency, flexibility, and scalability of production.

Proactive communication by projects and stakeholders towards the public has increased its knowledge and awareness of the necessity for a sustainable raw materials supply and increase of circular economy processes. The participation of local and regional stakeholders affected by raw material operations in strategic R&I projects, activities, and decisions ensures a broad system involvement, acceptance, and social sustainability.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI C1.6: Number of projects on minimizing the ecological and/or societal footprint of exploration, extraction, and recycling operations.
KPI C1.7: Number of projects on resource-efficient technologies in exploration, extraction, and recycling.
KPI C1.8: Number of projects that contribute to standardization processes of sustainable practices relevant for raw materials extraction and recovery.
KPI C1.9: Number of communication activities by projects for the broader public to raise awareness of the need of exploration and mining activities to ensure a resilient sustainable raw material supply.
KPI C1.10: Number of projects addressing digitalization and automation of the raw materials industry.

Core Theme 2 – Efficient use of raw materials in design and production
Using a systemic approach, the Partnership focuses on the entire Raw Materials value chain and not only on the supply (covered by Core Theme 1). Therefore, this Core Theme addresses the production industry and covers all segments of the value chain where raw materials from both primary and secondary sources are converted into new materials and products. Hence, the production industries strongly rely on a resilient supply of primary and secondary raw materials (see Core Theme 1). On the other hand, design and production affect the sustainable use of products by determining most of their environmental impact (see Core Theme 3). Core Theme 2 has its focus at the centre of the raw materials value chain, being both a driver and subject to the green and digital transition.

Vision and Impact Goal 2040
By 2040 the European production industry embraced a circular economy approach to raw materials use, integrating it from the initial design phase to the technical development of production processes phase. Through extensive R&I, significant reductions in raw material consumption are achieved while simultaneously maintaining or enhancing product quality. Domestic production increased to contribute to Europe's autonomy for strategic technologies. At the same time, the European industry made big steps towards climate neutrality and circular economy which will be fully achieved by 2050.
Circular economy principles are adopted throughout the entire production value chain so that RM consumption is reduced to a minimum. Knowledge about different approaches to increase

resource efficiency increased and provides a sound basis for designing resource-efficient production value chains in an environmentally, socially, and economically sustainable way.

Outcome: Efficient use of raw materials in production through technological innovations
Within five years after the end of the Partnership, technological advances in production and design processes have made the industry take steps towards to more resource-efficient practices. This includes the reduction of RM use especially of those considered critical, the closing of material loops, and the increase of resource-efficiency through optimisation of production processes.
The Partnership during its lifetime and in parallel and/or consequent complementary initiatives contribute to the green and digital transformation of the European processing and production industry. Collaboration between stakeholders from the RM value chain, from the production value chain, and from end-users of products ensures a responsible use of RM throughout the entire value chain. The R&I activities involve participation of partners from science background, industry sector, and potential end-users to pave the way for scaling up for new concepts and technologies validated in the lab and future uptake by the market. Research activities contribute to an increase of the TRL for technologies addressing circular design, the substitution of CRM, and resource efficient production. Several prototypes and patents resulting from the partnerships funding projects demonstrate the potential for upscaling and market uptake. For new emerged technologies, such as e-mobility, the product circular design is already integrated in an early stage of development to realize a great potential for closed-loop systems.
This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI C2.1: Number of projects on design for circularity (e.g., durability, repair, re-use, and recyclability)
KPI C2.2: Number of projects addressing resource-efficient and circular production processes.
KPI C2.3: Number of projects on substitution of CRM for a sustainable production
KPI C2.4: Number of new system prototype demonstrations in operational environment by projects related to circular design and resource efficient production
KPI C2.5: Number of patent applications for technical innovations in resource-efficient design and production

Outcome: Enabling an efficient use of raw materials in the production industry.
Awareness of raw materials' importance increases in the production industry, particularly for CRM, leading to greater emphasis on responsible sourcing, diversification, and adoption of alternative (non-critical) or secondary RM, design for circularity or technologies for resilient and sustainable value chains.
This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI C2.6: Number of publications in media relevant to the manufacturing industry addressing design for circularity or technologies for resilient and sustainable value chains in projects.
KPI C2.7: Number of projects including a partner operating in manufacturing industry or product design.
KPI C2.8: Number of events on topics relevant to the manufacturing industry organized by the partnership.
KPI C2.9: Number of projects involving a business to consumer supplier or an OEM (Original Equipment Manufacturing).
KPI C2.10: Number of communication activities to the broader public (society) to promote circular economy in production processes (events, website publications, social media channels, webinars, training) by projects.

Core Theme 3 – Sustainable use and reuse of products

Whereas Core Themes 1 and 2 address the supply of RM and the conversion into products or immovable assets, Core Theme 3 complements the RM value chain by looking at the use of products containing RM while strongly linked to the former themes. With an approach covering the entire value chain, increasing the service life of products is an essential element of a sustainable use of RM. Therefore, the focus will shift from industry to the consumer. During production (Core Theme 2) the service life of a product will already be determined to a large extent. The supply of RM (Core Theme 1) strongly relies on secondary sources including end-of-life products as resource to be used again.

Sustainable use and reuse of products are not a core concern of the CRM Act. However, the Act sets a clear and ambitious benchmark to increase the EU recycling capacity to at least 25% of the Union's annual consumption of strategic RM. End-of-life products are an important source of strategic raw materials hence it will be essential to establish a strong link between the use of products and the supply of RM to close the loop and thus return RM from end-of-life products to the supply chain as secondary RM.

Vision and Impact Goal 2040

By 2040, RM are recognized for their significant value, prompting both industry and consumers to embrace new and sustainable norms regarding use, reuse, repair, refurbishing, remanufacturing, and repurposing of products and components. Through the adoption of innovative technologies and business models, circular economy becomes increasingly feasible. Progressively, actors and stakeholders from entrepreneurs to citizens, are involved in the transformation into Circular Society. Circular economy is adopted by the whole society resulting in a decrease of consumption of RM. A strong knowledge base in combination with easy-to-use tools allow to monitor products to support the necessary decisions for an environmentally, socially, and economically use of products and components. High level approaches which increase the product service life are widely adopted and have led to the establishment of new businesses. However, if products further use is not feasible these are returned to the supply chain by closing the loop between end-of-life and supply of secondary RM through recycling.

Outcome: Research and innovation for a sustainable use and re-use of products

R&I in business models, technologies, and methods propel the development of sustainable approaches for the utilization of products and components containing critical RM. Technological advances have been made to promote efficient use, reuse, repair, refurbishing, remanufacturing, and repurposing of products and components. Tools for product monitoring are established to support the decision to optimise the strategy to increase the service life of products and components. Improved technological solutions for collection and sorting of products and components enable that these will be returned to the RM supply chain at the end of their life reducing secondary RM losses to a minimum. Digital tools enable an exchange of data between different actors in the RM value chain including producers, consumers, and the recycling industry.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):

KPI C3.1: Number of projects addressing the sustainable use of RM in products and components by increasing their service life (e.g., through re-use, repair, refurbishing, remanufacturing, repurposing products, and returning them to the supply chain for recycling).

KPI C3.2: Number of prototypes for technologies and methods to increase the life of products, and components by addressing sustainable use of RM (e.g., through repair, refurbishing, remanufacturing, and repurposing).

KPI C3.3: Number of projects addressing new business models for sustainable use and re-use of products and components (e.g., Product-Service-Systems or shared use)

Outcome: Effective communication of the importance of a sustainable use and re-use of products

Projects and activities of the Partnership must effectively communicate the circular economy's significance and increase perceived the value of RM in society. This in turn influences both industry and consumers to embrace more sustainable practices. Communication activities must take into consideration that consumers play a key role when it comes to the sustainable use of products and for returning RM from products to the supply chain through recycling. The projects funded and activities implemented under the Partnership umbrella address the "two primary stakeholder roles that are defined in the literature: (i) connecting businesses and other actors in multiple coalitions and (ii) influencing the development of and experimentation with novel business practices related to the circular economy[13].

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):

KPI C3.4: Number of communication activities towards consumers to promote projects on circular economy (in collaboration with other stakeholders)

KPI C3.5: Number of communication activities to promote circular economy per funded project (e.g., events, website publications, social media channels, webinars, training).

KPI C3.6: Number of projects involving a business to consumer's supplier (or OEM)

Transversal Theme 1 – Effective policy development and governance

Globalization has increased economic interdependence among nations, leading to complex geopolitical dynamics that impact trade policies, international cooperation, and diplomatic relations. National laws and regulations provide the legal framework for policy development, implementation, and enforcement within a country. Policy development often involves aligning domestic laws with international obligations and commitments, including treaties, conventions, and agreements. Legal frameworks for natural resource management, including land tenure rights, property rights, and indigenous rights, influence policies related to resource extraction, energy development, and sustainable practices of land use.

Vision and Impact Goal 2040

By 2040, new and effective policy and governance models are developed and facilitated by data-driven insights and expert networks within the research community. Through innovative interdisciplinary processes and analysis, trust in policy formulation and adoption has increased among all stakeholders.

Effective policies across Europe and worldwide are developed by fostering continuous novel collaborations and platforms for generating data. The involvement of strategic partner countries with relevant experiences and expertise in policy for raw-materials-related issues is a core aim of the partnership. Policy decisions are informed by robust evidence and responsive to the needs and priorities of stakeholders and society as a whole.

Outcome: Generating data for the development of effective policies

Within five years after the end of the Partnership, continuous novel collaborations with collection of data and platforms that host said data for future use are contributing to the development of effective policies across Europe and worldwide.

By establishing an open science database for policy development, stakeholders leverage scientific knowledge and evidence to inform decision and policy makers, foster collaboration and knowledge sharing across disciplinary boundaries, and promote transparency and

accountability in the policy process. Data sharing, reuse, and redistribution is promoted encouraging researchers to contribute with their findings to the database and thus allowing policymakers to freely access and use the information for policy development purposes. Database content is accessible to all users free of charge and without restrictions, adhering to open access principles.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI T1.1: Number of projects on generation of data for policy development
KPI T1.2: Number of citations of generated data in EU policy documents
KPI T1.3: Number of projects contributing to the Raw Materials Information System (RMIS)

Outcome: Evidence-based insights and solutions from R&I projects
Within five years after the end of the partnership, R&I projects play a crucial role in the formulation of effective and forward-thinking policies and governance frameworks, by providing evidence-based insights and solutions. Policy decisions are based on robust evidence and policymakers may require evidence that is directly applicable to their decision-making processes and policy goals, which may not always be available from R&I projects.

Establishing mechanisms for ongoing dialogue, knowledge exchange, and feedback help to bridge the gap between research and policy and facilitate the integration of evidence into policy development processes. Policymakers must remain flexible and responsive to evolving circumstances, updating data sources, methodologies, and analyses as needed. Policymakers use workshop discussions to gather insights, perspectives, and evidence that inform the development of policy proposals, strategies, and action plans. Workshops offer stakeholders a chance to engage directly in the policy development process, fostering collaboration, transparency, and inclusivity in the policymaking process.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI T1.4: Number of projects contributions to policy documents development
KPI T1.5: Number of partnership participations in workshops organised by policy makers.
KPI T1.6: Number of partnership participations in policy documents development.

Transversal Theme 2 – Maximizing societal benefits
Society's sustainable development depends on how the current challenges that arise from climate change and fundamental value chains disruptions are addressed while not creating new challenges that endanger the aim of reaching a green and digital transition.

Transversal theme 2 focus on the social dimension of the sustainable development framework, and for the purposes of this SRIA it is important to define social concepts and principles. In 2021, the EU defined two social principles for sustainable RM: (i) extraction and processing support human rights, communities, and sound governance, and (ii) extraction and processing support decent work for the workforce[14], both align with the concept of Social Sustainability as a pre-condition for environmental and economic sustainability[15] that is the aim of a RM value chain with a strong focal point on circular economy. Social sustainability meaning depends on environmental and economic pillars while sustainable development should be considered as a process of reconciling competing social equity, economic development, and environmental protection priorities.

Vision and Impact Goal 2040

Industry and society need to collaborate to maximize value from new investments, balancing economic development and social progress. Local communities impacted by the RM industry receive equitable opportunities to influence and benefit, while research and innovation foster robust civil engagement. It is key to reach a balance between a sustainable RM value chain that includes green mining and social sustainability that involves all types of communities that are directly and indirectly affected by the changes needed to achieve the green and digital transition.

Outcome: Outreach & Community Engagement

Through proactive outreach and community engagement, the Partnership raises awareness among the public by promoting a better understanding of sustainable practices. Furthermore, by placing a strong emphasis on transparency and open communication, the funded projects and activities foster trust-based relationships with local communities thus creating a mutually beneficial environment for sustainable development.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI T2.1: Number of partnership newsletter subscribers not affiliated with academia and industry.
KPI T2.2: Number of awareness actions for local communities organised by funded projects (e.g., events at schools, social media channels, websites, newsletters)
KPI T2.4: Number of stakeholder engagement actions aimed at local and regional communities.
KPI T2.5: Number of participants outside projects in communication and dissemination events organised by the partnership.
KPI T2.6: Number of workshops/conferences for exchange of experiences on social sustainability organised by the partnership.
KPI T2.7: Number of views of social media videos and posts from projects.

Outcome: Collaborations with Civil Society

Initiatives drive the development of improved and sustainable processes within the raw materials sector, for example within traceability and waste management, in active collaboration with civil society organizations by enhancing accessibility and public understanding of science.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI T2.8: Number of activities/projects contributing to social sustainability.
KPI T2.9: Number of civil society organisations involved in projects.
KPI T2.10: Number of stakeholder engagement actions aimed at civil society and NGOs, organized by the partnership.

Transversal Theme 3 – World-class innovation capacity

Historically, Europe has provided some of the greatest academic advances in the fields of extraction and processing of RM[16]; continuing to be at the forefront of technological advances in all these fields is an asset Europe cannot afford to lose, thus a focus on expanding networks and collaboration across the world is key, and particularly with leading and friendly resource rich countries in a mutually beneficial way. It is paramount that EU continues to be an exporter of good practices and sustainable sourcing wherever EU works, with the aim to bring the most efficient and environmentally friendly techniques to all places that are willing to provide and contribute to Europe's green and digital transition.

Vision and Impact Goal 2040

By 2040, the vision is to position Europe at the centre of a world-class innovation ecosystem in RM, and this relies on adopting a strategic stance that balances open international collaboration

with the preservation of Europe's economic and strategic interests. Supporting EU's strategic partnerships on RM with non-EU countries remains crucial to continue to help Europe in promoting global networks and prioritise engagements that benefit its RM sector, ensuring that technology transfer, knowledge sharing, and collaborations enhance Europe's competitive edge and raw material security.

The Partnership will consolidate a framework that helps coordinate national and regional funding bodies to support international projects and collaborations that nourish the R&I ecosystems in Europe and its strategic partners. National and regional funding agencies across Europe are to continue playing a pivotal role in catalysing international collaborations that advance raw materials R&I.

The vision is of a more dynamic work-force of researchers in the RM sector. Placing special attention to encouraging education and training programs that aim to create a versatile talent pool that can meet the sector's evolving needs. Emphasising on interdisciplinary approaches that combine engineering, environmental science, and socio-economic disciplines, will more likely ensure a well-equipped talent pool to tackle the complex challenges of sustainable RM extraction, processing, and recycling. Empowering young researchers, fostering vocational training and lifelong learning opportunities will transpire to a society with the adaptability needed in such changing sector. If EU invests in human capital, promoting a culture of innovation and excellence, it will attract top talent from around the world.

Outcome: R&I: the catalyst of a more sustainable raw materials sector world-wide.
Within five years after the end of the Partnership, expectation is to have initiated and facilitated expert networks focused on RM, leveraging workshops and conferences to foster meaningful connections between Europe and third countries. These proactive collaborations will be geared towards collectively addressing future challenges in the RM sector.

For this reason, there is a plan to develop activities in line with the increasing engagements of those countries within and outside the EU; countries which are willing to contribute to the strengthening of R&I capacities in RM in Europe and beyond. The Partnership envisages different ways of collaboration with different countries and regions, which can range from full-membership as partners (in the case of RFOs and other institutions contributing to implementing the partnerships tasks), to all stakeholders along the RM value chain, which will be directly or indirectly affected by the partnership's activities.

In this sense, the KPIs established aim to go beyond the involvement and increased participation of applicants from third countries but to also monitor and delve into deeper collaborations with the partnership.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI T3.1: Number of third countries engaged with the Partnership.
KPI T3.2: Number of third country stakeholders collaborating with EU entities.
KPI T3.3: Number of joint activities promoted by the Partnership including both European and third country industrial partners.

Outcome: Supporting the young talent in raw materials R&I
Within five years after the end of the Partnership, through innovation projects and collaborative networks involving higher education and industry, Europe has bolstered its position as a leader in RM research and innovation. Through job, professional education, and mobility opportunities

as well as gender equality, the sector becomes more appealing to young talent, inspiring interest and participation.

It is thus the Partnership's goal to foster actions that influence the R&I ecosystem across all the RM value chain. Encouraging joint transnational R&I projects to give young researchers more responsibilities and fostering exchanges between institutions at all levels will help build a solid community with a global approach.

Projects will be also geared to generate impacts that go beyond performing excellent science. It will be important that they consider other impacts on society, which include training and educational activities, and engagement of broader range of stakeholders (including more industry, society, and policymakers). One of the achievements will be to improve the societal perception of the RM sector and have the younger generations aspire to contribute more to it.

This outcome is assessed by monitoring the following KPIs (more information on background, target values etc. are provided in the attached SRIA):
KPI T3.4: Number of PhD students and young researchers in funded projects.
KPI T3.5: Number of peer-reviewed publications with young researchers as co-authors
KPI T3.6: Gender balance (percentage of female researchers) in projects
KPI T3.7: Number of jobs created within the funded projects.
KPI T3.8: Number of actions for professional education (e.g., lifelong learning)
KPI T3.9: Number of mobility exchanges in funded projects (e.g., visiting researchers, student exchanges).

[1] Vidal, O., Weihed. P., Hagelüken, C., Bol, D., Christmann, P., Arndt, N. (2013) ERA[1]MIN Research Agenda. https://www.era[1]min.eu/sites/default/files/publications/era[1]min_research_agenda.pdf
[2] European Commission (2023b) Proposal for a regulation of the European Parliament and of the Council establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020. https://single-market[2]economy.ec.europa.eu/publications/europe an-critical-raw-materials-act_en
[3] European Technology Platform on Sustainable Mineral Resources (2023) ETP SMR Strategic Research and Innovation Agenda. https://www.etpsmr.org/?post_documents=e tp-smr-strategic-research-and-innovation[3]agenda-2023

[5] European Commission (2011) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions Tackling the challenges in commodity markets on raw materials. COM(2011) 25 final. https://eur[5]lex.europa.eu/legal[5]content/EN/TXT/?uri=CELEX:52011DC002 5
[6] European Commission (2014) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions on the review of the list of critical raw materials for the EU and the implementation of the Raw Materials Initiative. COM (2014) 0297 final. https://eur[6]lex.europa.eu/legal[6]content/EN/TXT/?uri=CELEX:52014DC029 7
[7] European Commission (2017) Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee of the Regions on the 2017 list of Critical Raw Materials for the EU. COM (2017) 490 final. https://eur-lex.europa.eu/legal[7]content/EN/TXT/?uri=CELEX:52017DC049 0
[8] European Commission (2022) Regions in Europe – 2022 interactive edition. EUROSTAT publication. https://ec.europa.eu/eurostat/cache/digpub/ GERSTregions/
[9] Gerst, M.D., Graedel, T.E. (2008) In-Use Stocks of Metals: Status and Implications. Environmental Science & Technology 42, 7038–7045.
[10] European Commission (2023b) Proposal for a regulation of the European Parliament and of the Council establishing a framework for ensuring a secure and sustainable supply of critical raw materials and amending Regulations (EU) 168/2013, (EU) 2018/858, 2018/1724 and (EU) 2019/1020. https://single-market[10]economy.ec.europa.eu/publications/europe an-critical-raw-materials-act_en
[11] International Energy Agency (2021) The Role of Critical Minerals in Clean Energy Transition. IEA, Paris. www.iea.org/reports/the-role-of-critical[11]minerals-in-clean-energy-transitions
[12] Watari, T., Nansai, K., Nakajima, K. (2021) Major metals demand, supply, and environmental impacts to 2100: A critical review. Resources, Conservation and Recycling 164, 105107.

[13] Albareda L., Kimpimäki J.-P., (2023). How Did It Come to Be? Circular Economy as Collective Stakeholder Action, Stakeholder Engagement in a Sustainable Circular Economy - Theoretical and Practical Perspectives, Palgrave Macmillan.
[14] EC DG GROW (European Commission, Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs), 2021. EU principles for sustainable raw materials. Publications Office. https://data.europa.eu/doi/10.2873/27875
[15] Boyer et al (2016), Five Approaches to Social Sustainability and an Integrated Way Forward. Sustainability 8(9), p. 878. https://doi.org/10.3390/su8090878
[16] Resilient EU2030 (2023). A future-oriented approach to reinforce the EU's Open Strategic Autonomy and Global Leadership. Spain's National Office of Foresight and Strategy. https://futuros.gob.es/sites/default/files/202 3-09/RESILIENTEU2030.pdf

- Outline the **common vision and ambition of the partnership** that includes information and qualitative and quantitative data from socio-economic, environmental and industrial/technological studies, recent research results, policies and strategies, as well as data On identifiable business/investment plans, as appropriate. In case of a predecessor Partnership under H2020: please describe what will be different, reflecting notably the raised ambition to realise the economic, social and ecological systemic transitions that Europe needs;

The common vision and ambition of the Partnership can be summarized in its formulated mission:

The overarching **mission of the Partnership** is to enable the sustainable supply and use of Raw Materials for the green and digital transition, through a holistic perspective that covers the whole value-chain with a strong emphasis on circular economy by building the research and innovation system and network mainly through funding.

The Partnership builds on the experience of the existing ERA-NET ERA-MIN3 (2020–2025) and the experience gained during the implementation of its predecessors ERA-MIN2 (2016–2022) and ERA-MIN (2011–2015). Through a mission-based approach to establish a robust innovation system, coupled with a focus on all three dimensions of sustainability as well as all circular economy pillars and aspects, the vision and ambition of the Partnership reaches far beyond the goals of the ERA-MIN Research Agenda, originally published in 2013[1]. Specific examples of drastically raised ambition level are the integration of the Use phase of raw materials, which satisfies one important principle of the circular economy (i.e. *circulate materials at their highest value*). Transversal themes complement the more technical core themes, which appreciates the crucial role of *enabling* research and innovation through a focus on e.g. policy, social performance and innovation capacity. More details are given in the summarized **intervention logic** outlined above, as well as the **objectives of the partnership** and its sustainability pillars specified below.

The objectives of the Partnership

An important factor of the process is to target the current main challenges, while still being able to adapt to the future challenges, meaning that both the SRIA and the future Partnership must be flexible and adaptable enough to not limit the R&I community that it aims to support. While today's emerging technologies are closely monitored using the EU instrument of *Advanced Technologies for Industry*[2], the Partnership should stay agnostic in the sense of to where future technologies might evolve, and which technological path will become most competitive and dominant in the future.

The Partnership has the following proposed objectives (which will be further developed during the writing of the implementation plan for the Partnership) that ensure that its mission and the SRIA mission are achieved:

1. Support and promote R&I cooperation within and beyond Europe;
2. Reduce fragmentation and gaps of R&I funding in non-fuel, non-food raw materials value chain across Europe and globally;
3. Provide a pan-European support network and financial resources to improve synergies, coordination and collaboration;
4. Strengthen the raw materials value chain by ensuring secure, resilient and diverse supply of raw materials;
5. Enable the circular economy in value chain through reuse, repair, refurbishment of products and substitution of raw materials;

6. Improve economic, environmental and social sustainability within the green and digital transition;
7. Improve competitiveness, environmental, health, and safety performance of non-fuel, non-food RM operations.

The Partnership strives to build upon its objectives and to be in line with the established benchmarks by the CRM Act by increasing efforts in investing and funding R&I, but also in strengthening the research community and expert networks through a variety of complementary actions and activities.
The mission and objectives of the Partnership can be highlighted and supported by three pillars: Economic, Environmental, and Social Sustainability.

Pillar Economic Sustainability
Increasing the EU's competitiveness on the global market, as well as building a strong foundation for future technological advancements, is of great importance for the Partnership. The key objectives within this area are:

- Create opportunities for R&I to support raw materials supply from both primary and secondary sources.
- Promote international knowledge exchange by welcoming third countries in joining the Partnership and increasing the number of joint projects between continents.
- Provide science-based data and methodologies for policy and decision makers in the areas of financing, permitting and circular economy.

Pillar Environmental Sustainability
Safeguarding the planet and its inhabitants is central to the Partnership. Aspects of environmental sustainability will have to be at the core of each funded project and partnership activity, striving to provide a better future for coming generations. Key objectives within this pillar include:

- Through R&I, significantly lower the environmental and climate impact of industrial operations, both short- and long-term.
- Enable the circular economy through technological advancements, new business models and increased understanding of raw material value chains.
- Develop supporting data on circular economy, incentives and BAT to policy and decision makers.

Pillar Social Sustainability
Strengthening social sustainability is of key importance. The Partnership aims to build a strong foundation for actors within the R&I community, including public and private sectors as well as civil society members to come together and work towards common goals for a sustainable raw materials sector. Key objectives within this pillar aim to:

- Include the entire stakeholder system taking a quadruple-helix approach, in which actors within industry, academia, government and civil society all influence the Partnership and contribute to its impact goals.
- Increase the awareness of raw material issues in society by working on public outreach and stakeholder engagement.
- Increase efforts in social innovation and in technical R&I to engage with and create more positive impacts on society.

[1] Vidal, O., Weihed. P., Hagelüken, C., Bol, D., Christmann, P., Arndt, N. (2013) ERA[1]MIN Research Agenda. https://www.era[1]min.eu/sites/default/files/publications/era[1]min_research_agenda.pdf

[2] 9 Izsak, K., Paresa Markianidou, P., Siviero, A., Carosella, G., Micheletti, G., Magnani, I., Kroll, H. (2020) Advanced Technologies for Industry – General findings. Report on technology trends, technology uptake, investment and skills in advanced technologies. European Commission, Executive Agency for Small and Medium- sized Enterprises (EASME). https://monitor[2]industrial[2]ecosystems.ec.europa.eu/sites/default/files/ 2020-07/ATI%20General%20Findings%20report.pdf

- **Estimate how much R&I investments are overall necessary** to achieve the specific objectives, which parts will be contributed by partners, and which by other sources, in order to justify the investment from the Framework Programme (additionality, possible quantitative direct and indirect leverage effects). Explain how reaching those investment targets could be monitored throughout the programme;

Details on the budget are outlined in part 3.2 Resources.

ERAMIN funded 88 projects since 2013 with a total budget of the projects EUR 93.5 mln. This was achieved with 68 mln of public funding: EUR 11.5 mln from the EU and EUR 56.5 mln from Member States and other countries in ERAMIN consortium. Additionally, project partners contributed EUR 25.5 mln which was 37.5% of the public funding. The average project budget was EUR 0.5 mln – EUR 1.5 mln.

Based on this, the Commission estimates that EUR 300 mln devoted by the public institutions for the Partnership could result in a total of EUR 412.5 mln, if project partners devote a similar share (37.5%) as in ERAMIN.

The ambition outlined in the CRMA and the global competition for raw materials and technologies enabling their secure and sustainable supply require increasing the efforts on developing EU's technological capacity. Therefore, the Partnership not only strengthens the cooperation as such but also aims at matching the funding with these ambitions.

The investment targets will be closely monitored during the implementation of the Partnership by a thorough and timely analysis of the calls to be launched under this partnership. In case that some calls fail to achieve the targeted application and investment rates, the Commission and stakeholders will jointly discuss and propose solutions to address potential underperformance.

- Demonstrate how the proposed partnership is expected to trigger relevant **transformational changes in the broader R&I ecosystem** (qualitative impacts) at national and/or sectorial level;
- Include a **clear and realistic transition strategy** and measures for phasing-out from Framework Programme funding.

The long-lasting partnership of 3 ERA-MIN networks (from 2011 until 2025) and the proposed partnership (until 2032) is a valuable asset for the raw materials community. It will strengthen the efforts of national organisations in identifying R&I challenges and facilitating ways to address them in a most efficient ways through R&& programmes. Particularly, the close involvement with the Commission services will be important for identification of global trends, gaps and policy analysis and responses.

The funding organisations involved in the EU co-funded Calls will continue the monitoring of funded transnational R&I projects after the end of the Partnership with their own resources.
A low-effort online monitoring tool will enable the easy collection of data, secure information and an efficient centralization.

A follow-up cooperation beyond Horizon Europe will be discussed at a strategic workshop in interaction with other relevant stakeholders for the identification of the options and needs for coherence and cooperation between funding organisations, and definition of priorities at local, national, European and international level.

European Partnerships will be based on jointly developed SRIAs/roadmaps[1] with clearly identified milestones and outcomes and their planned uptake. ***The development of such a strategy is a precondition for launching a European Partnership[2]****. To meet the requirements set in Horizon Europe, the strategy process needs to be comprehensive, notably by ensuring strong and broad stakeholder involvement and by making connections to ongoing policy and strategy debates.* ***The SRIA/roadmap needs to be agreed with the Commission services****. It has to be sufficiently detailed to either build the basis for the drafting of work programmes, or otherwise clearly describe the process for further detailing the agenda of activities on an annual/multiannual basis. In the latter case, and depending on the area addressed and communities involved, it is appropriate to identify only high-level topics to be addressed, and describe the annual stakeholder consultation process in detail that translates this into the scope of annual activities. The level of detail should be agreed beforehand with the Commission Services.*

Depending on the progress in the preparation of the proposed partnership, please include an annex to the proposal that includes either:

- A description of the planned process for developing a SRIA/roadmap; or
- A SRIA/roadmap, including a description of the strategy process and evidence of the involvement of stakeholders in the identification of objectives.

The first draft of the Strategic Research and Innovation Agenda (SRIA), which will form the framework of the Partnership, is provided in the Annex. Please note that this represents a preliminary version of the SRIA, which is subject to several rounds of review through both public and expert (advisory group) consultation until the publication of the final SRIA version envisaged to take place in June 2024.

The SRIA has been elaborated by the consortium of ERA-MIN3, an ERA-NET scheme under Horizon 2020, using a co-creation methodology by engaging with stakeholders of the Raw Materials Research & Innovation Community and will be the guideline for the actions and activities implemented by the future Partnership. The co-creation approach was designed to gather feedback on the process and receive direct impact from the RM community on the actions and Key Performance Indicators (KPI[1]) designed to be implemented by the Partnership.

It involved both open and invite-only, physical and digital, workshops with participants from both the member states and international partners as well as RM relevant stakeholders. Validation of the content has been done through several steps as part of the co-creation process, especially as part of the final document drafting, where a selection of external experts (Advisory group) reviewed the document in detail.

Following the development of an initial SRIA structure and the suggestion for the thematic areas (see Appendix 1) during the spring of 2023, four workshops were held between June and November 2023 in order to follow a bottom-up approach with deep stakeholder engagement in the SRIA development process. The purpose of these workshops was to gather input and feedback from experts in the field of raw materials as well as from downstream industries, research funding organizations and other stakeholders, as well as to co-create impact goals, outcomes and key performance indicators (KPI´s). An overview of the dates, formats, participants and scope of these workshops is provided in the table below.

[1] identifies the foreseen portfolio of activities and measurable expected outcomes, deliverables and milestones within specific timeframes, as well as specific key scientific, economic and societal value for Europe. See ERA Learn for more information.

[2] ERA Learn provides a number of resources on SRIAs, including a guide for the SRIA development process.

Overview of workshops held for feedback and co-creation of SRIA aspects.

Workshop #	**Date**	**Format**	**Target participants**	**Scope**
1st workshop	28th June 2023	Online including moderated breakout groups	Research funding organizations, ca. 20 representatives present.	Input and feedback on SRIA structure and thematic areas
2nd workshop	29th August 2023	Physical during the RawMat 2023 conference in Athens, Greece	Academic and industry experts, ca. 40 participants.	Input and feedback on SRIA structure and thematic areas
3rd workshop	20th September 2023	Online including moderated breakout groups	Open to all stakeholders, ca. 50 participants.	Co-creation of impact goals, outcomes and KPI´s for the partnership
4th workshop	14th November 2023	Physical during the Raw Materials Week 2023 in Brussels, Belgium	Open to all stakeholders, ca. 120 participants (including through online connection).	Input and feedback on impact goals, outcomes and KPI´s for the partnership

A report on the general and specific stakeholder feedback received and the resulting improvements on the SRIA has been published and is available through the ERA-MIN website: https://www.era-min.eu/sites/default/files/publications/era-min3_sria_feedback_report_240129.pdf

Throughout the SRIA development process, we welcome continuous feedback and suggestions through teh contact information given on a dedicated website for the SRIA development: https://www.era-min.eu/ri-agenda

2.3 Necessity for a European Partnership

European Partnerships are established to address European or global challenges only in cases where they will more effectively achieve objectives of Horizon Europe than the Union alone and when compared to other forms of support from the Framework Programme. Therefore, ***the proposal needs to demonstrate convincingly that the envisaged partnership will indeed be more effective*** *in achieving the related objectives of the programme. Depending on the intervention logic of the proposed partnership, the proposal needs to address to different degrees the following aspects:*

- Demonstrate how **the Partnership addresses the objectives of Horizon Europe and common political priorities of the EU and its Member States and Associated Countries**, with cooperation extending well beyond transnational joint calls and R&I projects, thus ensuring that structural and societal impacts contributing to the overarching policy objectives can be achieved;

The Critical Raw Materials Act will introduce several measures to address these dependencies and supply risks.

1. Each MS will have to set up a national exploration programme for critical raw materials. This will require technologies for exploration, such as - mineral mapping, geochemical composition of soils, sediments, rocks, geoscientific surveys.

2. EU, domestic extraction at least 10% of annual consumption. Extraction technologies for Strategic Raw Materials.

3. EU, domestic processing at least 40% of annual consumption. Processing and refining of Strategic Raw Materials.

4. EU, domestic recycling of at least 25% of annual consumption. Recycling of Strategic Raw Materials. This is from electronic waste and mining waste. MS will have to develop a list of of mining waste facilities with a goal of identifying economically recoverable amounts of raw materials from extractive waste.

5. Diversifying sourcing from third countries – no more than 65% of a strategic raw material should come from a single country.

Detailed challenges related to Research and Innovation have been outlined in the CRM action plan[1]. The Partnership will serve as a tool of addressing them:

Under Action 3 of the action plan, research and innovation on waste processing, advanced materials and substitution will be undertaken. More research into waste reprocessing will help to avoid valuable materials ending up in landfill. Significant amounts of resources leave Europe in the form of wastes and scrap, which are potentially recyclable into secondary raw materials here. The extractive and processing industries must also become greener – reducing their planetary footprint, including greenhouse gas emissions. Many mining wastes are rich in critical raw materials and could be revisited to create new economic activity on existing or former mine sites. Replacing a critical raw material with a non-critical raw material that offers similar performance (substitution) is another way to alleviate critical raw materials dependency.

Action 6 – Develop expertise and skills in mining, extraction and processing technologies. Europe needs to improve its capacity to teach, train, upskill researchers and workers in the raw materials area. R&I programmes give direct support to universities and allow involving

students and researchers in meaningful activities, fostering their skills needed for developing new technologies and applying them in the industry.

Action 7 - Deploy Earth-observation programmes and remote sensing for resource exploration, operations and post-closure environmental management. The EU's earth-observation Copernicus Programme is a powerful tool to identify new critical raw material sites, monitor the environmental performance of mines during their operating life and after closure. New approaches to remote sensing and use of Earth Observation data are needed in order to optimize exploration, extraction, and post-closure activities, including safety of the operations, workers and local inhabitants.

Action 8 – Develop Horizon Europe R&I projects on processes for exploitation and processing of critical raw materials to reduce environmental impacts. Innovative technological solutions are transforming the mining and processing of critical raw materials. New technologies need to be developed for many raw materials, including critical raw materials. The EU needs to address all of them. Combining with digital technologies and solutions.

Action 9 – Develop strategic international partnerships and associated funding to secure a diversified and sustainable supply of critical raw materials. Working closely with like-minded countries is one of the priorities. R&I projects are one of the instruments that can foster the cooperation, giving access to new technologies for raw materials in third countries. Such cooperation will help reduce dependence from single countries and improve access to other 3rd country sources.

Action 10 - Promote responsible mining practices for critical raw materials through relevant international cooperation. The EU has the responsibility of promoting sustainable sourcing through technological development. Cooperation with researchers and industrial partners through R&I projects and initiatives increases the uptake of such technologies in third countries, enabling them to improve their operations and build scientific capacity to deliver those solutions.

Integration of R&I programmes for raw materials on international, EU, national and regional level is necessary to ensure access to novel technologies that will facilitate supply diversification from different sources. The EU needs to play a key role in coordinating joint efforts of Member States, Associated Countries and like-minded third countries.

The Partnership will contribute to the Strategic Plan of Horizon Europe 2025-2027[2], particularly to the Expected Impacts of Cluster 4 Digital Industry and Space:

- 15. Achieving global leadership in climate-neutral, circular and digitised industrial and digital value chains.

- 16. Achieving technological leadership for Europe's open strategic autonomy in raw materials, chemicals and innovative materials.

[1] COM(2020) 474 final
[2] https://op.europa.eu/en/web/eu-law-and-publications/publication-detail/-/publication/6abcc8e7-e685-11ee-8b2b-01aa75ed71a1

- Demonstrate how the partnership will establish a **meaningful collaboration with Member States /Associated Countries and relevant national/regional authorities and their respective commitments** (e.g. by identifying and connecting with relevant national activities and programmes that allow addressing common challenged more effectively).

The partnership builds on the existing ERA-NET ERA-MIN3 (2022 - 2025 and its predecessors ERA-MIN 2 (2016 – 2022) and ERA-MIN (2011-2015). ERA-MIN focused on low TRL innovative R&I projects of small scale in partnership with SMEs as well as large industry.
ERA-MIN3 covers the entire raw materials value chain, from sustainable exploration, extraction, and processing technologies to remining and recycling, as well as substitution of critical raw materials.

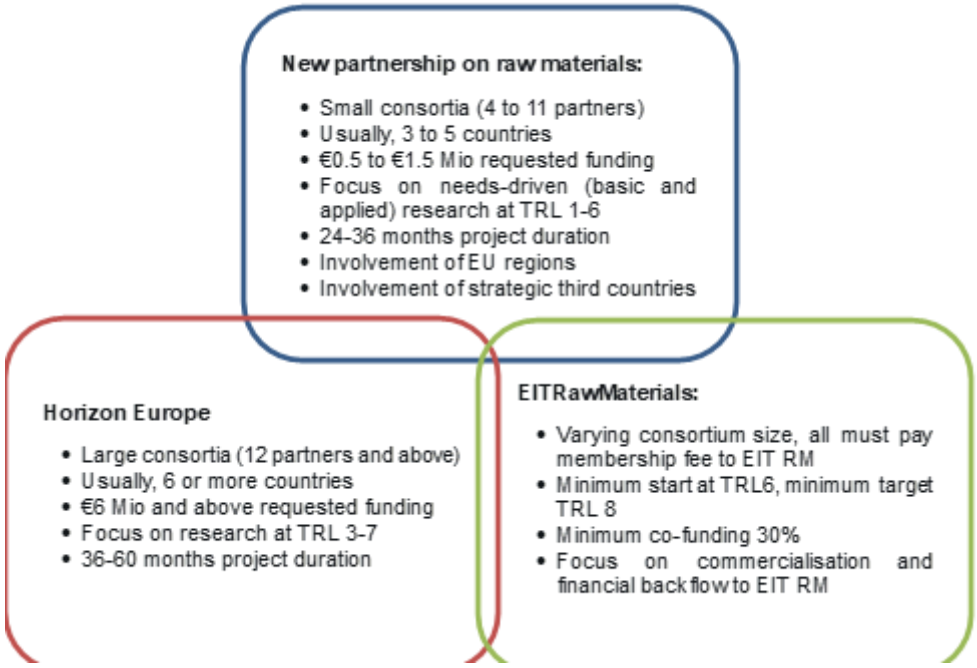
These initiatives contributed substantially to filling the existing gap in multiple ways; they enabled cooperation between national funding institutions, attracting more researchers to work together on an international level, improved the research skills of young researchers, allowing to work also on basic research in the raw materials area. This filled the gap of national funding complementarity and alignment with EU policy objectives. Moreover, the projects complemented high TRL projects supported by EIT Raw Materials and Horizon Europe. Therefore, this partnership actively builds on the results and agenda of its predecessors.
Exchange with Commission allowed to bring the national research closer to EU policy objectives, such as the CRM Action Plan and Battery Action Plan.

2.4 Partner composition and target group

- Describe how the partnership will **build, build upon, strengthen and/or expand collaboration networks and initiatives** that are currently existing at the EU level, beyond currently existing partnerships;

The Partnership has its roots in more than a decade of experience from the ERA-MIN network, The knowledge fostered and gathered throughout these years is available online on ERA-MIN's website.

The Partnership is a co-funding scheme between the EC and national/regional RFOs that implement funding programmes on RM, and it is complementary to both the Horizon Europe Calls and the EIT RawMaterials Calls.



Complementarity between the Partnership, Horizon Europe and EIT RawMaterials.

The Partnership takes into consideration the Strategic Implementation Plan (SIP) on Raw Materials, its objectives and targets, priority areas and actions, when creating the implementation plan and the set of key performance indicators (KPIs).
The partnership objectives are supported by the European Technology Platform on Sustainable Mineral Resources (ETP SMR) whose Mission is to develop long-term European Minerals Industries R&I agendas and roadmaps for action at EU and national level and whose Vision is to modernise and reshaping the European Minerals Industries, fundamental pillar of the European economy.
The Partnership will also aim to facilitate a framework that promotes mobility and exchange of R&I across Europe and beyond, collaborating closely and in connection with other European initiatives such as INTERMIN, SCRREEN or EIT Raw Materials.
The Partnership will connect with the Raw Materials Academy and foster possible collaborations to ensure the strengthening of the RM sector by educating the lifecycle of innovators, through the calls for proposals or the additional activities.

The Partnership will also make efforts to connect and collaborate with the EuroGeoSurveys (EGS), the not-for-profit organisation representing the Geological Surveys of Europe. GSEU – A Geological Survey for Europe, aims to map the subsurface and has Raw Materials as one area of expertise and focus on strengthening the CRM data and the mineral resources sustainable management, as well as increasing the sourcing of CRM from primary and secondary sources in Europe, goals that align with the Partnership mission.
The Partnership dashboard of funded projects built on the ERA-MIN dashboard that showcases all funded projects and its main results since the implementation of ERA-MIN in 2011 up to the Partnership, has a link to the Raw Materials Information System (RMIS) developed by DG JRC to provide a comprehensive database and information platform to support evidence-based decision-making in the RM sector through access to reliable and up-to-date data and information, reports, and other resources, which help policymakers, industry stakeholders, and researchers to address challenges related to RM supply, demand, and sustainability in the EU.

The partnership envisages two ways to foster such collaboration: i) the networks and initiatives become a Partnership consortium partner and actively join the organisation and implementation of the additional activities, or ii) become a member of the Strategic Advisory Board of the Partnership by helping tunning the Joint Calls topics, or by making datasets available for researchers, for example.
It is foreseen that the combined actions of the Partnership with the above-named initiatives, independently of their structure and implementation of activities and actions, will foster EU's transition towards a green, digital and circular economy, and at the same time, bolster Europe's resilience and open strategic autonomy in key technologies needed for such transition.

- Justify the **type and composition of partners** (public, private, foundations etc.) considered necessary for this partnership and describe the **ambition to include new types of partners** (in particular end-users), and to ensure the necessary **thematic and geographical coverage** to meet the objectives;

The partnership builds on the existing ERA-NET ERA-MIN3 (2020 – 2025) and its predecessors ERA-MIN 2 (2016–2022) and ERA-MIN (2011–2015). ERA-MIN focused on low TRL innovative R&I projects of small scale in partnership with SMEs as well as large industry.
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These initiatives contributed substantially to filling the existing gap in multiple ways; they enabled cooperation between national funding institutions, attracting more researchers to work together on an international level, improved the research skills of young researchers, allowing to work also on basic research in the raw materials area. This filled the gap of national funding complementarity and alignment with EU policy objectives. Moreover, the projects complemented high TRL projects supported by EIT Raw Materials and Horizon Europe. Therefore, this partnership actively builds on the results and agenda of its predecessors.
Exchange with Commission allowed to bring the national research closer to EU policy objectives, such as the CRM Action Plan and Battery Action Plan.

- Describe the **envisaged target groups / stakeholder community** (beyond the members of the partnership). Elaborate also on the **international dimension** and justify the **EU-added value** of including international partners and stakeholders, and provide a justification when specific strategic needs at European level should restrict the international dimension.

The international dimension of raw materials policy and R&I tools to implementing it is crucial for diversifying the supply chains and ensuring strategic autonomy. Thus, emphasis will be put on facilitating involvement of 3rd countries in the Partnership activities. This concerns particularly with countries with which the EU signed strategic partnerships on raw materials.[1]

R&I is an important pillar in cooperation under these partnerships. It opens opportunities for stakeholders from third countries to collaborate with EU partners on joint research projects, share experience, build own competences and capacity. This will benefit third countries in developing their own capacity for activities in raw materials and increasing their competitiveness and well-being.

Involvement of third countries in the Partnership will be performed with the limitation outlined under the point 3.4 Openness and Transparency.

Envisaged target groups/stakeholders of the Partnership are:

- **Industry and Private Sector**: Companies involved in exploration, extraction, processing, recycling, and supply of raw materials. This includes large-scale industries, SMEs, and start-ups in the raw materials sector, as well as the industrial associations representing them.
- **Research and Academic Institutions**: Universities, research performing organisations specialising in geosciences, environmental sciences, material sciences, and supply chain management.
- **Public Sector and Policymakers**: National and European regulatory bodies responsible for raw materials, environmental protection, trade, and innovation policies. This also includes geological surveys and agencies involved in the strategic stockpiling and management of critical raw materials as well as local, regional and national governments.
- **Civil Society and NGOs**: Organizations focused on environmental protection, sustainable development, and community rights, particularly those affected by raw materials extraction and processing activities.
- **International Organizations and Bodies**: Entities such as the International Energy Agency (IEA), the World Trade Organisation and the United Nations Environment Programme (UNEP) that have interests in global raw materials supply chains and sustainable development.

International Dimension: Succeeding in the green and digital transition is a global challenge that requires international collaboration. Raw materials are globally sourced, and their supply chains cross multiple borders, making the international dimension critical. Inclusion of international partners, especially from countries rich in critical raw materials, fosters collaboration, ensures sustainable and ethical sourcing, and enhances global supply chain resilience. International cooperation in research and innovation can lead to advancements in raw material extraction, processing technologies, and recycling, contributing to the global knowledge pool and technological progress.

EU-Added Value: The inclusion of international partners brings unique benefits to the EU:

- **Diversification of Supply Chains**: Collaborating with international partners helps to diversify sources of raw materials, reducing dependency on single countries and enhancing supply security.
- **Global Standards and Practices**: Joint initiatives can promote the adoption of sustainable and ethical practices in raw material extraction and processing worldwide, aligning with EU standards and contributing to sustainable development goals.
- **Innovation and Technological Exchange**: Partnerships can accelerate innovation through the exchange of knowledge, technologies, and best practices, strengthening the EU's competitiveness in green and digital technologies.

Justification when we should restrict the international dimension: While the international dimension is crucial, specific strategic needs may necessitate restricting it at the European level:

- **Strategic Autonomy**: In cases where dependence on non-EU countries for critical raw materials poses risks to supply security and economic independence, focusing on developing internal capabilities and resources can be justified.
- **Sensitivity and Security**: For raw materials critical to national security and defense, limiting international involvement to protect sensitive technologies and infrastructure might be necessary.
- **Sustainability Concerns**: If sourcing from certain international partners compromises environmental sustainability or social responsibility standards, restrictions may be warranted to align with EU values and regulations.

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

3 Planned Implementation

3.1 Activities

*The partnership should deploy the necessary **broad range of activities including calls for R&I proposals**, from concept to demonstration and validation, as well as joint activities beyond joint calls that effectively support achieving its objectives. Where appropriate, the partnership should take into account relevant standardisation, regulation and certification issues to maximise the impact of its actions and ensure market, regulatory or policy uptake.*

- Describe the envisaged **portfolio of activities** to support the full and effective achievement of the objectives and **expected impacts** of the proposed Partnership (to be elaborated in detail in the Strategic Research and Innovation Agenda (SRIA));

The action plans will include funding of transnational R&I projects and organization of additional joint activities that are in line with and work towards the intervention logic outlined for each SRIA thematic area. These may include:

- 7 annual EU co-funded joint transnational calls in thematic areas agreed by the CSC members and tuned by the SAB and the SF with participation of third countries with which the EU has established Strategic Partnerships.
- Building collaboration and matchmaking with stakeholders in third countries
- Matchmaking events for international consortium building
- Conferences, workshops, and seminars for dissemination and cross-disciplinary outreach for system innovation
- Policy labs
- Communication arenas and platforms for regional stakeholders, local communities, and the wider society
- Networks to facilitate life-long learning
- Mobilization grants for visiting researchers and for knowledge exchange

The above mentioned activities will contribute for the Partnership objectives (which will be further developed during the writing of the implementation plan for the Partnership) that ensure that its mission and the SRIA mission are achieved:

1. Support and promote R&I cooperation within and beyond Europe;
2. Reduce fragmentation and gaps of R&I funding in non-fuel, non-food raw materials value chain across Europe and globally;
3. Provide a pan-European support network and financial resources to improve synergies, coordination and collaboration;
4. Strengthen the raw materials value chain by ensuring secure, resilient and diverse supply of raw materials;
5. Enable the circular economy in value chain through reuse, repair, refurbishment of products and substitution of raw materials;
6. Improve economic, environmental and social sustainability within the green and digital transition;
7. Improve competitiveness, environmental, health, and safety performance of non-fuel, non-food RM operations.

Moreover, the joint activities will contribute for the Expected Impacts of Cluster 4 Digital Industry and Space, namely:

- 15. Achieving global leadership in climate-neutral, circular and digitised industrial and digital value chains.

- 16. Achieving technological leadership for Europe's open strategic autonomy in raw materials, chemicals and innovative materials.

The Partnership strives to build upon its objectives and to be in line with the established benchmarks by the CRM Act by increasing efforts in investing and funding R&I, but also in strengthening the research community and expert networks through a variety of complementary actions and activities.

- Describe the mechanisms which will ensure the **complementarity of activities and help avoid unnecessary duplications** with other relevant initiatives of Horizon Europe, including with other relevant European Partnerships, missions and EU actions / initiatives beyond Horizon Europe;

The Strategic Research and Innovation Agenda of the Partnership, and future calls for proposals will be consulted with the Commission services at the preparation stage in order to ensure coordination with other EU R&I activities programmed by the Commission.

The Partnership consortium will consult the Commission services on the EU raw materials policy and other relevant policies and R&I priorities that should be taken into consideration in drafting of the calls for proposals under the Partnership.

- Demonstrate how the partnership will ensure **coherence and synergies in relation to major national (sectorial) policies, programmes and activities**;

DG GROW, which is responsible for EU policy on raw materials and R&I programming on raw materials, will be the policy service responsible for the Partnership. This ensures coherence with EU activities in this areas. DG GROW will then consult other Commission services.

Additionally, DG GROW ensures adequate coordination with representatives from Member States responsible for raw materials, e.g. in the Raw Materials Supply Group, and delegates in the Cluster 4 Digital, Industry and Space.

The Partnership will feed into EU policy making in raw materials, raw materials events organised by the Commission, e.g. EU Raw Materials Week, and other events, particularly with third countries.

3.2 Resources

A partnership will only be successful if all partners are and remain committed. Binding commitments to their contributions will be necessary to achieve the objectives.

- Please specify which types and levels of **contributions from partners** are necessary to achieve the objectives and impacts (financial contributions, in-kind contributions, activities/resources linked to market, regulatory, societal or policy uptake, broader investments, any other type of additional activities) and provide qualitative and quantitative information on these;

As concerns financial commitments, the Commission foresees a total budget of the partnership at EUR 300 mln for 7 years. The partnership consortium will cover 70% of the budget of the partnership (EUR 210 mln). Each participating country will decide on the level of financial support that will be dedicated through participating organisations. The Commission foresees annual contributions of EUR 30 mln from all of the participating countries.

As concerns involvement in the Partnership activities, participating countries should ensure proper involvement of their institutions, through the formal consortium members, in identifying R&I needs and preparing adequate calls for proposals for R&I projects. This will ensure their stakeholders' proper participation in projects and development of successful R&I results.

The Partnership consortium members will choose a coordinator among themselves who will be responsible for managing the partnership activities. Each organisation is expected to actively participate in the partnership activities, particularly, by defining the R&I objectives, selection of projects, promoting the projects and disseminating their results.

- Please specify which **other investments or framework conditions** are envisaged / relevant for the deployment.

3.3 Governance

- Outline the **governance and management of the partnership**, including advisory structures and mechanism to be established. Demonstrate how the governance and management of the partnership helps to achieve the defined vision and objectives. Describe how it will contribute to ensuring coherence and synergies with the EU R&I landscape and demonstrate, as well as transparency and openness during the partnership as regards the identification of its objectives, priorities, vision, SRIA and work programmes.

The Partnership will be coordinated by FCT through an experienced Coordinator and a **Joint Call Secretariat (JCS)** staffed for the purpose with the consortium partners. The tasks of the coordination and the day-to-day management are described in WP1 (management). The Coordinator is the direct contact person to the European Commission.

A **Network Steering Committee (NSC)** will be the decision-making body with equal voting rights for the execution of the Partnership. Each participant shall suggest one representative to establish the NSC. Representatives, or relevant stakeholders may be invited to attend meetings as observers without voting capacity.

A **Call Steering Committee (CSC)** will be established by invitation to representatives of ministries and funding bodies from European Member States and Associated, Third Countries, and eventually private funders The CSC members represent the views of regional and national funding programmes. With this inclusive approach they are enabled to contribute to and shape the concept of the Partnership and especially the SRIA development, to adopt the implementation plan and roadmap derived from the SRIA and to commit to political as well as financial support of the Partnership. They are thus invited to align their strategies in the raw materials area to maximise impact at a European level. In a first step, about 30-40 funding bodies and country representatives of the ERA-MIN, ERA-MIN2 and ERA-MIN3 steering boards will be invited to the NSC by the Coordinator. Strategically relevant decisions with immediate significance for the Partnership will be discussed and consented in a General Assembly (GA) encompassing the EC, the NSC, and the CSC. at least 1-2 times per year.

- A **Scientific Advisory Board (SAB)**, composed of selected members from already existing networks and initiatives collaborating with ERA-MIN3 (i.e. ETP SMR, EIT Raw Materials, EGS, BATT4EU, Made in Europe Partnership, P4Planet Partnership, and the new Partnership IAM4EU and the ERA-NET co-fund action M-ERA-NET and its successor in Horizon Europe). There are two ways to foster, will be asked for scientific input and advice. Besides, the Partnership will involve in its work plan a variety of stakeholder communities and (European and international) initiatives, e.g. research infrastructures, regulators, industry, in a **Stakeholders Forum (SF)**. Members of the SF will be consulted by the NSC regarding relevant activities and will provide input and advice from the respective perspectives on current developments and needs in raw materials for the green and digital transition. Membership in the SF will be by invitation, contacts are established with a number of initiatives. Details of the Partnership management structure will be laid down in a Consortium Agreement.Provide, with the support of the Commission services supporting the preparation, a **description of the involvement of the Commission** in the preparation and implementation of the partnership. In particular, describe the mechanisms for defining and defending the EU public interest in the framework of the partnership.

The process of developing the Partnership has several steps:

1. The Commission services have decided to propose the Partnership after discussions with representatives of national R&I funding institutions in the ERAMIN initiative.
2. Development of the Strategic Research and Innovation Agenda (SRIA) started in summer 2023. The Commission services are following the process from the beginning and supported it by organising a dedicated workshop during the Raw Materials Week

2023, to stakeholders and interested Member States and Associated Countries from the Programme Committee of Cluster 4.

3. The Commission services will draft the call for proposal for the partnership in Cluster 4 for 2025. The call will take into account the results of the SRIA and will be co-created with the Member States and Associated countries in Cluster 4.
4. The Commission services will consult internally in the co-creation process for the Work Programme 2025 on the call for the Partnership.
5. The Commission services will include in the Grant Agreement with the Partnership consortium relevant provisions ensuring implementation of the EU raw materials policy objectives, and wider EU policy, as well as ensuring relevant consultations mechanisms.
6. The Commission services will be consulted by the Partnership on all its activities, particularly on defining the calls for proposals to be funded by the partnerships.

3.4 Openness and transparency

A partnership will maximise its impacts by involving all relevant partners and stakeholders beyond the narrow composition of core partners and by remaining open during its lifetime. Consequently, there should be a high level of openness and transparency regarding the identification of a common vision, and the involvement of partners and stakeholders from different sectors, including international ones when relevant. Also, the partnership should seek to remove barriers that hinder newcomers from entering and participating in the partnership or its activities. The implementation of the partnership should include regular activities that allow new players to enter, participate in and benefit from its activities, and add value to the partnership without compromising the ownership and commitment from the partners.

- Demonstrate that the proposed partnership will be established in a transparent way with no unjustified restriction in participation and with a broad, open and transparent approach towards different sectors and geographical areas, including international partners when relevant. Justify any restrictions for the openness of the partnership where it is deemed absolutely necessary;

To increase EU resilience in raw materials supply chains and thus reduce the serious risk to the Union's strategic assets, economic and societal interests, autonomy and security associated with the current EU reliance on a few third countries for critical raw materials, by increasing sustainable and responsible sourcing of primary and secondary raw materials necessary to enable the green and digital transition and in alignment with the Communication (2020) 474 on Critical Raw Materials Resilience and the Critical Raw materials Act (2023) 160, participation is limited to legal entities established in Member States, associated countries to Horizon Europe, OECD countries, African Union Member States, MERCOSUR, CARIFORUM, Andean Community and countries with which the EU has concluded strategic partnerships on raw materials. The choice of these countries was made taking into consideration the development of strategic international partnerships on raw materials and avoidance of reinforcing existing over-dependencies, as well as the importance of involving partners committed to pursuing open trade in such materials. Public institutions which are not established in the countries that fall under the criteria above will be ineligible to participate in the Partnership consortium and stakeholders outside of these countries won’t be eligible to participate in activities of the Partnership.
We encourage specifically public institutions from countries that were not participating in ERA-MIN activities in the past to join the Partnership consortium and open-up the possibility for their stakeholders to participate in the Partnership activities.

The Commission is open to engage in discussions facilitating such participation.

- Describe the strategies and plans throughout the lifetime of the partnership to ensure easy and non-discriminatory access to information about the initiative and dissemination of and access to results (in line with Horizon Europe provisions), and to stimulate the participation of new partners and actors in the definition of common priorities and their participation in the partnerships itself or its activities (including eligibility for funding);

Easy, open and non-discriminatory access to information on the partnership is provided through social media, namely a dedicated website that will work as the main communication and dissemination channel but also as a repository of funded projects and the initiative main results. This website also has a partner area where any of the partners can access the confidential reports, media kit, and other type of documents. In parallel to the website, the partnership will use the already existing ERA-MIN network package of social media: a X account, a LinkedIn account, and a YouTube channel. All these are supported by a strong brand and communication plan.

Along the implementation of the Partnership, seminars and parallel events to conferences will be organised and the funded projects principal investigators invited to present their project and main results, workshops and events to help the principal investigators to scale –up their projects will also be organised in close collaboration with other EU initiatives on Raw Materials.

Furthermore, the Partnership consortium is open to new RFOs from Member States and non-EU countries, as well as partners that not being RFOs are valuable when steering and refining the Joint Call topics and for the implementation of the additional activities that will feed into the CRM Act. The work of broadening the consortium is being done by strongly pitching the Partnership to new potential partners and foster collaborations that will enrich not only the network but will also help the Partnership achieve the objectives and KPIs outline on the SRIA.

Through this, the Partnership is building a global network of knowledge exchange and cooperation, that in turn will work to reduce the CRM strategic dependencies in the long run. Significant emphasis will also be placed in involving EU regions in the project funding and activities of the Partnership to strengthen R&I and regional stakeholder engagement, as well as create strong links with policy development and social sustainability at national and European levels.

- Describe how the proposed partnership will establish a proactive recruitment policy which is dynamic and agile to allow a membership constituency responding to the evolution of the sector and the needs of the partnerships throughout its lifetime, across the Union and, where relevant beyond;

We propose a dedicated strategy that outlines a methodological approach to engage with all potential partners of the future co-funded partnership

In order to secure a relevant contribution from all stakeholders interested in the success of the partnership, a tailored strategy is envisioned to target different entities that can provide either direct funding contributions (Funding Organisations - FOs) or other in-kind contributions (such as Research Performing Organisations – RPOs, Geological Surveys, Associations and other public or private entities).

Below is a list of actions and tentative timeline to engage different entities, which have been divided in 3 categories based on their nature a current relationship with ERA-MIN.

1. **Established Funding Organisations in the field of raw materials (Already part of ERA-MIN3)**

Member States FOs: (National and Regional) Belgium/Wallonia (SPW-Wallonia), Belgium/Flanders (VLAIO, FWO), Bulgaria (BNSF), Czech Republic (TA CR), Estonia (ETAg), Finland (Business Finland) France (ADEME, ANR), Germany (FZJ JÜLICH), (Ireland (GSI/EPA), Italy (MUR), Poland (NCBR), Portugal (FCT), Romania (UEFISCDI), Slovakia (SAS), Slovenia (MIZS), Spain (AEI, CDTI), Spain/Comunidad Foral de Navarra (CFNA), Sweden (Vinnova)
Associated Countries FOs: Turkey TUBITAK,
Third Countries: Brazil (Finep), Canada (PRIMA-Québec), South Africa (DSI)

Objective: Solidify their commitment and deepen their involvement in the Core Group AND request how ERAMIN3 FOs could act as a leverage effect to add additional partners

Actions:

- Individual Communication: Send personalized emails from DG GROW, Coordinator or Core Group, acknowledging their past contributions and outlining the vision for the new partnership
- Identification of the ERA-MIN beneficiaries that could join the partnership. To generate a sufficient national contribution, we should identify some RPOs and industries that add projects and activities as in-kind contribution to the partnership and generate top-up. A first step could be to engage some beneficiaries of previous ERA-MIN calls.
- Briefing Sessions: Organize online briefing sessions to discuss the strategic direction, expected outcomes, and benefits of the new partnership, emphasizing their potential interest in taking part the Core Group. Based on the previous research, inform and encourage ERA-MIN FOs to invite their national public and private institutions providing in—kind contributions for the partnership.
- Commitment Workshops: Conduct joint workshops to explain the functioning of a co-funded partnership, aimed at defining their funding in kind and in cash commitments and potential roles within the Core Group, facilitating direct input of the partnership's governance.

2. Potential Partners (Past ERA-MIN consortium or members of other ERA-NETs)

2.1 - Member States FO: (National and Regional): Austria (FFG, BMK) Belgium/Wallonia (FNRS), Belgium/Brussels (Innoviris), Croatia (MZO), Cyprus (RIF), Finland (AKA) France/Regionne Nouvelle Aquitaine (RNAQ), Germany/Saxony (SMKW), (Ireland (SFI), Italy/Regionne Calabria (CaR), Lithuania (LMT), Luxembourg (FNR), Latvia (VIAA), Netherlands (RVO), Poland (NCN), Spain/Andalusia (IDEA), Spain/Castille and Leon (ICE), Spain/Catalonia (Acció), Spain/Galicia (GAIN), Spain/Asturias (IDEPA, FICYT), Spain/Basque Country (Innobasque),

Objective: Re-engage them based on their previous experiences and directly update them on the SRIA process encouraging to join the partnership and help identify and invite other potential partners of interest for the partnership.

Actions:

Identification of the relevant representatives of these institutions. Based on informal contacts. In addition to the identification process, informal meeting could help to raise awareness of the interest in the partnership.

- Identification of previous ERA-MIN beneficiaries that could join the partnership. Identify the beneficiaries of past ERA-MIN3 calls, which could be interesting to join the partnership.
- Update Webinars: Host webinars to update these agencies on the latest developments in the SRIA process, highlighting changes, expectations, and how they can contribute. These could be also made together with "Commitment Workshops for Established Funding Organisations
- Feedback Rounds: Invite them to provide feedback on the draft version of the SRIA, offering them a sense of ownership and involvement in the process.
- Networking Meetings: Facilitate meetings with FOs already in ERA-MIN to share experiences, best practices, and discuss potential collaboration within the partnership.

2.2 Associated, third countries and regions/areas: Argentina (MINCYT?), Chile (ANID), Israel (IIA, MOST), Iceland (RANNIS), Korea (KIAT), Norway (RCN), Taiwan (MOST), Greenland

Objective: Tailor engagement to their context, emphasizing mutual benefits and opportunities for international collaboration, based also on their possibilities to request funding and generate top-up.

Actions:

- Identification of the representatives of these institutions. Based on informal contacts and informal meetings.
- Identification of previous ERA-MIN beneficiaries that could join the partnership. Identify the beneficiaries of past ERMIN3 calls, which could be interesting to join the partnership
- Introduction Webinars: Conduct webinars specifically designed to introduce these FOs to ERA-MIN and the co-funded partnership model, focusing on the strategic importance of raw materials and how international collaboration can enhance their own objectives. These should include presentation of the SRIA and invitation as well to provide feedback.
- Bilateral Meetings: Arrange bilateral online meetings with third countries funding FOs, and other interested parties to discuss potential synergies, address concerns, and explore common interests in raw materials R&I. For those with great interest, introduce the possibility of taking part in the Core Group and the partnerships governance.
- Participation in International Forums: Invite them to participate in international forums or conferences on raw materials in their regions, facilitating direct interaction with existing partners and stakeholders.

3. New Funding Agencies and other organizations (publics and privates) from third countries of interest to join the partnership

5 sub-groups are identified:
3.1 Associated Countries: Tunisia, Ukraine (MOU), **3.2 Third Countries ("Western")**: UK, USA, Canada (other regions?)
3.3 Third Countries ("CELAC"): Peru, Colombia, Mexico, Uruguay, …

3.4 Third Countries ("Africa"): Zambia (MOU), DRC (MOU), Morocco, Algeria, (…)
3.5 Third Countries ("Asia"): Kazakhstan (MOU), India, Japan, New Zealand, Australia

Objective: Introduce them to the SRIA and co-funded partnership concept, highlighting the global impact and benefits.

Actions:

- Identification of institutions and their representatives. A first approach could be made through other transnational initiatives, such as PRIMA, EU-CELAC ... In addition, the embassies of third countries could be informed of this initiative in order to involve them and pave the contact in their national administrations. Bilateral meetings will be necessary.
- Informational Packages: Develop comprehensive informational packages that introduce the ERA-MIN network, the concept of SRIA, and the significance of the co-funded partnership, including success stories and testimonials from current partners.
- Introduction Webinars: This could be in parallel with the one for AC and Third countries in 2.2. or where we provide an overview of the partnership, its objectives, and how new agencies can get involved, with a focus on how the co-funded partnership works, maybe also on the SRIA. This can also be organised regionally (e.g. EU-LAC, Africa, etc.) as needs and benefits can be different for each type of agencies
- Networking meetings with established agencies and other interested organisations: Those that show more interest could be paired with experienced FOs to guide them through the process, facilitating smoother integration and fostering stronger relationships and ideally potential integration into the partnership's governance with increased weight.

Implementation and Follow-Up Process

Dedicated Relationship Managers: Assign from the Core Group a dedicated relationship manager for different groups of funding organizations to provide personalized support and maintain continuous engagement. These can help on the Networking meetings and help smoothen the process
Regular Check-Ins: Schedule regular check-ins (e.g., monthly or quarterly) with potential and confirmed partners to address questions, provide updates, and keep the momentum going, particularly close to the key dates (regional events, commitment deadline, proposal preparation, etc.)

Tentative Timeline

March 2024: Launch of the recruitment strategy.
Official Confirmation of the launch of co-funded partnership
Initial outreach to all categories of funding organizations and other actors.
Preparation of informational packages

April - June 2024: Engagement Phase 1.
Presentation of the SRIA
Personalized communication and exclusive briefing sessions for mature organizations.
Personalized communication with science and industry officers at embassies
Introduction webinars for brand new funding agencies and informational package distribution for brand new funding agencies.

Update webinars and feedback rounds for intermediately mature partners.

July - September 2024: Engagement Phase 2.
Follow-up on initial interactions, address queries, and deepen engagement.
Networking events and bilateral meetings to foster collaboration.
Core Group establishment and start preparation of partnership proposal
A physic seminar for the science and industry officers at (third countries) embassies

October - December 2024: Commitment Collection Phase.
Intensify follow-up efforts to secure initial funding contribution commitments.
Integration of interested FO in the proposal preparation.

January - March 2025: Finalization and Submission Preparation.
Final follow-ups and collection of outstanding commitments.
Adjustment meetings to finalize the list of partners and their contributions.
Finalise preparation of the partnership proposal for submission in Q1 2025.

Key Events for promotion of SRIA and engagement with partners:

3-6 March PDAC: Youtube links for testimonials on exploration mining (FCT), bilateral meetings with participants from countries and FO identified in the previous categories
13 March - C4 Delegate meeting (Vinnova and FCT (online): Update fiche, Update guidelines and presentation) – request initial interest from MS and their FO to take part in the partnership
20-21 March - EU Innovation Days: Just promote on website
25 March – deadline EU-LAC bi-regional meetings. Suggest a workshop with Chile to engage other EU-CELAC countries on the partnership tentative date in June/July?
15-18 April – EGU General Assembly. Pre-launch of SRIA and announcement of partnerships? Presence of DG Grow announces officially co-funded partnership? Good opportunity to engage with EUGeoSurveys and its potential participation on partnerships
14-18 April – World Circular Economy Forum 2024 – Just attendance online
6-7 May – Swedish Mining R&I days (Vinnova) – Preview of the SRIA, announcement of the of co-funded partnership
14-16 May – EIT RM Summit (Julich) – Official presentation of SRIA (Plan A)
3-5 June – INDTECH Conference (SPW) – Official presentation of SRIA (Plan B)
June-July – regional webinars for new potential FOs?
24-31 August – IGC2024 S. Korea
9-13 December – EU Raw Materials Week, Brussels. Promotion of the future

- Describe the process, during the implementation phase of the SRIA/roadmap, for establishing annual work programmes, and define measures to ensure and open and transparent methodology for consulting all constituent entities and relevant stakeholders for the identification of its priorities and the design of its activities.

The day-to-day performance of the Partnership will be efficiently managed, the decisions of the respective partnership boards implemented, the progress of the proposed project monitored and a contact point to the European Commission established. Moreover, a structured system that allows easy access to information for all stakeholders and establish links among funders will be created.

A Stakeholder's Forum (SF) will be the central body for involving policy makers and funding organisations who are not participants of the Partnership. Initially, it will be composed of at least the partnering ministries and funding agencies of ERA-MIN, ERA-MIN 2, ERA-MIN3 and invited Partners, while fostering the inclusion of countries and funding bodies not presently involved in these networks. Not yet represented funding bodies from the public as well as private sector will be invited to CSC membership.

For structured input from the envisaged stakeholder communities, the Scientific Advisory Board (SAB) and the Stakeholders Forum (SF) will be involved by means of written consultation and/or organisation of workshops in the context of the respective Work Packages. Collaboration in the frame of these boards will strengthen networking among representatives of the respective communities and structure the raw materials field, while their contributions will support the envisaged output of the partnership.

Plans need to be developed and broadly consented on the scope of the Partnership, the type of envisaged partner organisations and their roles. This will lead to building an efficient governance structure and collaboration framework of the Partnership. Involving the CSC, SAB, and SF, and the SRIA and priority setting will define the objectives of the Partnership, its composition and develop the structures for decisions, smooth collaboration and advice for a programme of such complexity and size. This will include careful considerations about sustainability measures that extend over the lifetime of the Partnership. Portugal has offered to take responsibility and leadership of the Partnership.

The central piece of the Partnership will be the Implementation Plan of the SRIA which defines the scope and priorities of the annual EU co-funded joint calls informed by consultation of the CSC, SAB and SF.