

# EIT RAW MATERIALS STRATEGIC AGENDA 2021-2027

The EIT – Making Innovation Happen

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European Institute of Innovation and Technology (EIT)

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# Contents

<b>1</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>2</b>
<b>2</b>	<b>STRATEGIC ANALYSIS OF THE SOCIETAL CHALLENGE .....</b>	<b>4</b>
<b>3</b>	<b>VISION, MISSION AND STRATEGIC OBJECTIVES .....</b>	<b>10</b>
3.1	KIC's vision .....	10
3.2	KIC's mission .....	10
3.3	KIC's strategic objectives .....	11
<b>4</b>	<b>IMPACT AND RESULTS.....</b>	<b>15</b>
4.1	Impact.....	15
4.2	Results .....	19
<b>5</b>	<b>GOVERNANCE AND OPERATION MODEL.....</b>	<b>20</b>
5.1	Partnership.....	20
5.2	Governance .....	23
5.3	Budget .....	25
5.4	Financial Sustainability.....	27
5.5	Cross-cutting aspects .....	31
	Openness and Transparency .....	31
	Synergies and Collaborations .....	32
	Cross-KIC cooperation and Simplification/Shared Services .....	33
	Communication .....	34
	Dissemination of Results.....	35
	Stakeholder Engagement.....	36
	Global Outreach .....	37
<b>6</b>	<b>RISKS.....</b>	<b>39</b>
	<b>ANNEX 1 KIC IMPACT .....</b>	<b>41</b>



# 1 EXECUTIVE SUMMARY

EIT RawMaterials is a key European actor to advance Europe's transition into a sustainable economy. EIT RawMaterials has the overarching mandate to support securing the supply of critical and other strategically important raw materials to the European industry by driving innovation along the raw materials value chain. The activities of EIT RawMaterials contribute to maintaining and increasing Europe's competitiveness whilst securing and creating new jobs.

The COVID-19 crisis has increased the importance of supply security by causing major disruptions of entire international supply chains and putting at risk the competitiveness of key European industrial ecosystems. The establishment of a European Raw Materials Alliance (ERMA) driven by EIT RawMaterials will restore the resilience of European value chains through relocating critical supply chain steps into Europe.

EIT RawMaterials has evolved to an open, integrated, outward-looking and expanding partnership closely connected with the policy agenda of the European Commission and driven by a strategy to create industrial symbiosis through innovation across value chains. In 2021, EIT RawMaterials has left behind its ramp-up period and becomes a mature KIC with a strong partner base, excellent impact profile and solid pathway to financial sustainability. From the start- and scale-up phase (2015-2020) the KIC is now entering into a network- and service-focused organisation (2021-2027) with the ambitious aim to emerge as a stand-alone and profitable, fully-fledged professional service organisation (> 2027).

This fundamental shift, coupled with the critical mass and quality of our partner base, will enable the provision of the most important services to our current and future partners: the ability to generate intelligence, drive innovation across value chains and create societal and economic impact for Europe. This, together with our international reputation and vision, will shape EU policies for the needs of our sector and our partnership. At global scale, EIT RawMaterials is committed to contribute to and fully comply with the UN Sustainable Development Goals (UN SDGs) in any activities we do. Major UN SDGs EIT RawMaterials contributes to are #9, Industry, innovation and infrastructure; #11, Sustainable cities and communities; #12, Responsible production and consumption; and #13, Climate action.

Sustainable extraction, processing and use of raw materials today receives unprecedented industrial and political attention in Europe, illustrated clearly by the raw material dependency of the energy, mobility and manufacturing sectors. As the European spearhead in raw materials innovation and business, EIT RawMaterials is better positioned than ever before at all political levels, strongly contributing to the Green Deal, Industry Strategy, Circular Economy Action Plan, Digital Agenda and Higher Education Initiative for the European Union.

EIT RawMaterials builds on the world's largest network of excellent partners in raw materials and advanced materials – strong in large industry presence needed for innovation in the sector, and integrating start-ups and SMEs that play an important role as innovators, suppliers and customers to large industry actors. In its first five years of operation, EIT RawMaterials has had a significant impact on where innovation happens in the raw materials sector: while supporting critical innovation processes between universities, RTOs and large industry, we saw a rise of new start-ups and SMEs in the raw materials field, traditionally covered by consolidated large industry. A lack of start-ups was clearly identified by a study of McKinsey & Company



and System IQ on behalf of EIT RawMaterials in 2016 and could be closed for the most important raw materials value chain steps – within only 5 years of existence. By closing the gap between small and large industries, EIT RawMaterials ensures that start-ups and SMEs get their ideas validated with the best players in Europe. This has already been demonstrated in many up-scaling projects where start-ups and large industry co-create innovative products and services, establishing new profitable growth opportunities. EIT-labelled education programmes additionally contribute to initiate disruptive innovation by further developing entrepreneurial skills and mindsets of students. This will be a game changer for established business models but also new, fast moving fields such as Circular Economy.

EIT RawMaterials will further boost its outreach activities by leading important industry alliances, including cross-KIC activities, by participating in existing H2020 and future Horizon Europe funding schemes and by continuing to develop strong synergies with DG Grow and other key actors at EU scale. EIT RawMaterials will raise additional external financing possibilities at national and regional levels through existing and new RIS Hubs, maintain and expand its partner base via strong regional footprints and proactively commercialise its value-adding services. EIT RawMaterials is excellently positioned to innovate through an ecosystem approach as highlighted in the new Industry Strategy for Europe. By providing a compelling offer of breakthrough concepts, for business, education, innovation and technology it will continuously extend its ability to reach out and influence external stakeholders, EIT RawMaterials is increasing the impact and range of services that can be offered to its partners.

EIT RawMaterials' partnership is the core strength and key success factor of the KIC. Even in difficult times with short term requirements on financial sustainability and additional challenges such as an unprecedented external shock caused by COVID-19, the core of the partnership is still supportive to the KIC, sharing their concerns for example through position papers. This is *the* true and winning key asset of EIT RawMaterials and must be naturally the key asset for any Community like a KIC.

EIT RawMaterials has the best possible base to start developing a fundamental change of its partnership, business and operational models. The vision and strategic objectives that were defined for the Community in the beginning – securing raw materials supply, designing materials solutions, closing materials loops – are still relevant for the future and in accordance with the latest EU policy papers. The strategic objectives are sharpened by defining clear goals and relating to the mission statement of the new strategic roadmap: "EIT RawMaterials will advance Europe's transition to sustainability by driving innovation along the raw materials value chain." Portfolio management and foresight guided by the vision, mission, strategic objectives and lighthouses will matter more in the future to stress EIT RawMaterials' support to EU policies and strategies and continue to position EIT RawMaterials as a well-known brand.

In 2020, EIT RawMaterials is entering a new phase, marked by reaching the top of the EIT funding curve, with EIT funding starting to decline in 2021, in line with the general initial EIT funding model and projections. The way to innovate will thus be a different one in the future: there will be less EIT funding, less co-funding and lower levels of individual membership fees available; the level of committed funding to projects will stay high and continuously be brought forward over the next 2-3 years. Taking into account these developments, EIT RawMaterials will redefine the membership strategy and its business model as such. EIT RawMaterials will remain open for new partners from across the raw materials value chain and from all over Europe including RIS countries and regions.



The way to innovate will have to consider short- and mid-term challenges whilst keeping its fundamental mission to be a major contributor to the EU Green Deal, the Circular Economy Action Plan and the securing of raw materials supply through driving innovation. To upgrade the innovation model, EIT RawMaterials will actively engage with external funding actors for an increased amount of co-financing and adapt the organisation accordingly. This will also require a change of portfolio management and operational models – for example, going from large annual calls to smaller agile within-the-year calls. Ideally, this will be supported by higher flexibility coming from multi-annual grants and the elimination of the KCA model under Horizon Europe. Additional push by the EIT and the KICs at large is required to strive for simplification at all levels as also recently expressed by the ITRE Committee and in order to stay competitive against other funding sources.

EIT RawMaterials will further improve the way the organisation is supporting the partnership through HQ and CLC level activities in partner and project management and support, servicing, access to alternative financing, market intelligence and foresight, and other key areas. This will also require changes in the performance targets and systems on all organisational levels. EIT RawMaterials will further sharpen its portfolio of activities according to the new strategic roadmap as well as EU priorities and foresight. The newly revised Strategic Agenda 2021-2027 is fully aligned with the strategic priorities of Horizon Europe. EIT RawMaterials will prioritise and focus on activities that are mutually beneficial for the Community *and* the organisation as well as strive for a financially sustainable, professional service organisation.

## 2 STRATEGIC ANALYSIS OF THE SOCIETAL CHALLENGE

### 2.1 EIT RawMaterials: key European enabler of a green, circular economy

*“We have to be very vigilant that today’s dependency on fossil fuels like oil and gas is not replaced by dependency on lithium, cobalt, copper and other raw materials that we need for the green transition, where Europe is leading the way (Maroš Šefčovič, Vice-president of the European Commission)”*

Metals and minerals are the fundamental building blocks of advanced materials, tools and machinery used to sustain all primary and secondary industry sectors and, ultimately, for the widespread implementation of carbon-neutral green energy technologies and the transition from the linear to the circular economy. Lithium, cobalt, ‘scrap metal’ and ‘e-waste’ are becoming part of the normal lexicon of young Europeans, but represent only the tip of the iceberg of the ‘basket’ of commodities needed to support this transition. Europe’s mining and processing industries, although accounting for less than 3% of the world’s production, directly employ over 1 million people generating a yearly turnover of around EUR 65 billion. The advanced

materials industry comes with 10 million jobs in its value chains and contributes to more than EUR 650 billion annually to Europe's GDP (EC, RMIS, RM Scoreboard, 2018).

Over the first five years of its existence, EIT RawMaterials has developed a strong and diverse community of over 400 industry, research and academic partner institutions. While providing a stable and reliable platform for networking, innovation and education, EIT RawMaterials has succeeded in connecting very diverse market sectors into integrated value chains, thus highlighting market opportunities as well as Europe's vulnerability to disruptions of the supply chains brought about by natural, geopolitical and economic crises. This community has the credentials, drive and expertise to lead the implementation of the Green Deal in terms of raw materials supply, both from primary (mining) and secondary (recycling) sources, as well as the design and production of new advanced materials needed to achieve a carbon-neutral Europe. Over the next seven years, EIT RawMaterials will spearhead and coordinate activities that will support Europe's ambition to become the world leader in implementing the transition to the green, circular economy.



Figure 1: Raw Materials Value Chain

## 2.2 Societal Challenges

Raw and advanced materials are critically important for achieving the fundamental goals set in COP21 and in the 2030 *Agenda for Sustainable Development*: long-term mitigation (temperature rise below 2 °C) by enabling the development of alternative and sustainable energy and mobility technologies; reduction of vulnerability through the establishment of secure supply chains; and capacity building to safeguard the skills and infrastructures needed to guarantee the prosperity of European citizens.

Promoting education, innovation and business creation activities under consideration of the societal challenges tackled by EIT RawMaterials will remain a fundamental part of our strategy execution model. Two of the challenges faced by EIT RawMaterials were among the triggers for the establishment of the EIT – the need to develop and educate 'T-shaped' professionals for Industry 4.0, and the need for R&D investment beyond basic research and closing the gap between IP ownership and loss of know-how, innovation capacity and technology leadership. Consequently the three strategic objectives (SO) of EIT RawMaterials – securing raw materials supply; designing materials solutions; and closing materials loops – are connecting the societal challenges together with the industrial transformation needs that are specific to the European raw and advanced materials sector along the entire value chain:



1. Dependency on imported raw and advanced materials, leading to vulnerability to external disruptions in supply chains (SO 1 - securing raw materials supply).
2. Low social acceptance of the raw and advanced materials extraction and production, leading to public perception that the sector is not compatible with the goals of the Green Deal (SO 1 - securing raw materials supply; and SO 3 - closing materials loops).
3. The design and production of advanced materials, components and products that enable the transition to a carbon-neutral Europe have increasingly moved to non-European countries, putting European innovation capacity at risk (SO 2 - designing materials solutions).
4. Need to transition from the 'brown energy' to the 'green energy', and from the linear economy to the circular economy to fulfil the aspirational goals of the Green Deal (SO 3 - closing materials loops; and SO 2 - designing materials solutions).

Moving towards Horizon Europe, EIT RawMaterials continues to address the Societal Challenges already identified within Horizon 2020: 'Climate action, environment, resource efficiency and raw materials', 'Secure, clean and efficient energy', and 'Smart, green and integrated transport'. Specific UN SDGs addressed include 'Quality Education', 'Industry, Innovation and Infrastructure', 'Responsible Consumption and Production' and 'Life on Land', 'Clean Water and Sanitation', 'Affordable and Clean Energy', 'Decent Work and Economic Growth' and 'Sustainable Cities and Communities'.

EIT RawMaterials 'Lighthouses' are large-scale and long-term innovation initiatives that address critical and specific raw materials challenges for Europe. Lighthouses are mission approaches to innovation and education challenges, directly providing an operational link between societal challenges and strategic objectives. The three EIT RawMaterials Lighthouses – Sustainable Discovery and Supply (Sustainability starts with Europe's resource potential); Sustainable Materials for Future Mobility (Innovation in electrification and lightweight design enabling energy transition); and Circular Societies (Closing material loops: a radical shift from linear to circular thinking) – guide activities across the KIC's education, innovation and business creation portfolios. For each Lighthouse, technological roadmaps have been developed, are kept up-to-date and are regularly discussed with the partners at different occasions (e.g. RM Expert Fora). Lighthouses thus serve as an important basis for the KIC's intelligence and knowledge base and add to the brand and visibility of EIT RawMaterials. They connect the partnership to large-scale, multidisciplinary EC initiatives such as the European Raw Materials Alliance, the European Battery Alliance, the New Industrial Strategy for a Green and Digital Europe, and the Circular Economy Action Plan.

## 2.3 The Context

Europe is highly dependent on importing raw and advanced materials to secure the global competitiveness of its manufacturing industries and to accelerate the transition to a resource-efficient, carbon-neutral and sustainable society. This dependency has increased over time and is undermining our ability to maintain the innovation leadership that has underpinned EU's economic prosperity and social harmony.

*Europe is using 23% of the world's mine production for metals and minerals but only produces 2-3 % itself. (European Commission, 2017).*



An increasing number of raw materials with particularly high economic importance are exposed to a significant supply risk, which is why they are deemed to be critical. Once considered the backbone of the European economy, mining, production and processing have declined in the EU over the last decades.

Reliable and sustainable sources of the commodities needed to boost Europe's prosperity and world leadership in the green economy do abound within Europe. Much of the European continent remains under-explored in terms of greenfield geological resources, and most comprehensive exploration campaigns, especially in the Balkans and Eastern Europe, date back to the mid-fifties. Huge reserves remain to be found onshore, especially under thick sedimentary cover (e.g. north German basin) as well as offshore. In addition to greenfield deposits, Europe has a millennial legacy of sites impacted by mining and industrial activities. These countless 'brownfield' sites represent an untapped local resource potential for the transition to a green economy.

Despite the existence of abundant resources, there are substantial bottlenecks (regulatory and financial) in the up- and mid-stream of traditional sectors (e.g., equipment manufacturing and aerospace and defence) as well as in the emerging strategic EU industrial value chains such as microelectronics, batteries, hydrogen technologies and clean vehicles. These hurdles need to be overcome to unlock local investment and financing, and there is an urgent need to maintain the skill base and professional workforce required to transition from the brown to the green economy. European industries must also maintain their innovative edge and leadership in recycling and advanced materials design to secure the prosperity of European citizens and the effective transition to the circular economy. This innovative edge requires a stable, secure, socially and environmentally responsible source and supply of raw materials and production of advanced materials, a strong skills base and supportive policies.

The unfolding global health crisis due to COVID-19 has highlighted our vulnerability to the disruption of raw and advanced materials supply chains. Once the medical emergency is over and the economic recovery is under way, it will become imperative to secure the supply of raw materials within Europe and to maintain a solid skills base for the processing, engineering and design of advanced materials. Under these conditions, the EU will be able to develop a new model of society that can thrive in a sustainable and socially equitable manner in the good times, and remain functional during the bad times brought about by health, environmental and political crises.

## 2.4 SWOT Analysis

EIT RawMaterials has evolved from an organization almost entirely focused on traditional thematic areas and on a portfolio driven by individual consortia to an open, integrated and outward-looking partnership closely aligned with the EC policy agenda, and whose strategy is driven by value chains through its three Lighthouses. This fundamental shift, coupled with the critical mass and quality of our partner base, will enable the provision of the most important services to our current and future partners: the ability to generate knowledge, intelligence and drive innovation in the sector across value chains, and the international standing and vision required to influence EU policies that will benefit the sector and therefore our partnership.



Table 1: SWOT Analysis

<p><b><u>Strengths</u></b></p> <ul style="list-style-type: none"> <li>• Strong partnership across primary and secondary sectors, upstream and downstream along the respective value chains</li> <li>• Pool of talented and well-educated people</li> <li>• Driving the knowledge triangle (Education, Innovation, Research) across Europe by integrating business</li> <li>• Knowledge base and industrial infrastructure</li> <li>• Interdisciplinary approach across values chains</li> <li>• Strong presence in RIS regions and integration with high-quality education programmes (LLL, WSL, labelled programmes)</li> <li>• Strategic objectives and actions matching societal challenges and Sustainability Development Goals</li> <li>• Strong network and mechanisms to support entrepreneurs, start-ups and SMEs</li> </ul>	<p><b><u>Opportunities</u></b></p> <ul style="list-style-type: none"> <li>• Further alignment with EC and development of stronger synergies with other EU raw materials strategies (e.g. RawMaterials Initiative; EIP on Raw Materials)</li> <li>• Achieve financial sustainability through European Raw Materials Alliance</li> <li>• Connecting cross-regional, -project, -partner and -KIC activities</li> <li>• Attracting investments in disruptive and game-changing technologies and innovation</li> <li>• Complementary equity funding for upscaling projects</li> <li>• Further develop organizational agility, speed, simplicity and excellence</li> <li>• Decided Marketing and Branding</li> <li>• Highlighted relevance of the sector in recent EU policies (Green Deal, New Industry strategy) and through recent events (COVID-19 pandemic)</li> <li>• Leadership in Circular Economy activities and synergies with the extended KIC community</li> <li>• Readiness for digitalization of educational activities</li> <li>• Additional financing for KIC Partners (e.g. EIC)</li> </ul>
<p><b><u>Weaknesses</u></b></p> <ul style="list-style-type: none"> <li>• Uneven distribution of partners across value chains – some sections are under-represented, especially downstream the value chain (possible mitigation via ERMA and cross-KIC collaboration)</li> <li>• Low financial sustainability of education projects</li> <li>• Low impact of some activities in the early years of the KIC (mitigation measures taken)</li> <li>• Uneven distribution of budget and resources in the early years of the KIC (mitigation measures taken)</li> <li>• Limited resources relative to the range and diversity of activities across many sectors</li> </ul>	<p><b><u>Threats</u></b></p> <ul style="list-style-type: none"> <li>• EU legislation, fiscal policies and trade conditions are not supportive of the sector, especially for primary production</li> <li>• Administrative process burden deteriorating competitiveness towards other funding sources</li> <li>• Lack of awareness/acceptance from the public</li> <li>• Distorted market conditions for raw and processed materials</li> <li>• Vulnerability to disruptions in the supply chains</li> <li>• Lack of investment due to capital-intensive nature of the sector and low commodity prices due to current economic/geopolitical environment</li> <li>• Continued loss of high-value materials production and processing to non-European countries</li> <li>• Sector not attractive to students and to the skilled workforce that is necessary to implement the Digital Transformation and Industry 4.0</li> </ul>

## 2.5 Synergies

Our strategic priorities (Lighthouses) and objectives are fully aligned with the goals of the Green Deal, and strong synergies have been forged with the EC and other institutions to unite our partners under a common voice at the political level and tackle perhaps the main challenge faced by our sector in Europe: the unfavourable fiscal and trade policies, leading to lack of competitiveness under distorted market conditions.

*‘Trade policy also needs to ensure undistorted, fair trade and investment in raw materials that the EU economy needs for the green transition’ (The Green Deal).*

Our synergies and outreach activities recognize that incremental innovation is not sufficient to address current and future economic, environmental and social challenges. What is needed is radical behavioural

change in individuals, governments and corporations. Therefore, EIT RawMaterials is stepping out of its original role as mere 'innovation enabler' to become a driver of policy change on behalf of its members.

Table 2: Elements of Green Deal addressed by EIT RawMaterials

Elements of the Green Deal	Goals	EIT RawMaterials strategic contribution and SDGs addressed
2.1.3 Mobilising industry for a clean and circular economy	Support and accelerate the transition to a circular economy. Introduce legal requirements to boost the market of secondary raw materials.	The <b>Lighthouse Circular Societies</b> supports activities that i) optimize the material chain for end-of-life products and optimize the recycling of minerals and metals; ii) increase the substitution of critical and toxic materials in products; and iii) improve the design of products for the circular economy. SDGs addressed: 9, 11, 12 (indirect: 4, 7, 8)
	Ensure the supply of sustainable raw materials by diversifying supply from both primary and secondary sources.	One of the primary goals of the <b>Lighthouse Sustainable Discovery and Supply</b> is to unlock the potential for a renewed raw materials sector in Europe, both from primary and secondary sources, as a driver for domestic raw material value chains. SDGs addressed: 11, 12 (indirect: 4, 6, 15)
2.1.2 Supplying clean, affordable and secure energy	Development of a power sector based largely on renewable sources like wind turbines and solar panels. Prioritisation of energy efficiency	EIT RawMaterials contribute with the <b>Lighthouse Sustainable Discovery and Supply</b> to increase the environmental, economic and societal sustainable exploration, extracting and processing of minerals and metals in Europe which are needed for a renewable energy sector. SDGs addressed: 7, 9, 12 (indirect: 4, 8, 11)  The <b>Lighthouses Sustainable Materials for Future Mobility</b> deals with the development and implementation of energy efficiency technologies for all parts of the value chain of mineral resources, including advanced materials for energy-efficient technologies and renewable energy solutions. SDGs addressed: 7, 11, 13 (indirect: 3, 4, 9, 12)
2.1.5 Accelerating the shift to sustainable and smart mobility	Ramp-up the production and deployment of sustainable alternative transport fuels	Minerals and metals play an important role for the increase of zero- and low-emission vehicles. The <b>Lighthouse Sustainable Materials for Future Mobility</b> has an active role in relevant industrial alliances to foster and strengthen the European minerals and metals sector. SDGs addressed: 7, 11, 13 (indirect: 3, 4, 9, 12)
2.1.8 A zero-pollution ambition for a toxic-free environment	Restore the natural functions of ground and surface water; protect citizens and the environment against hazardous chemicals	EIT RawMaterials projects across the <b>three Lighthouses</b> are developing technologies to reduce waste water pollution in the mining, processing and production sector and to substitute hazardous chemicals and minerals in the production process. SDGs addressed: 6, 12, 15 (indirect: 4, 13)
2.1.1 Increasing the EU's Climate ambition for 2030 and 2050 (zero CO <sub>2</sub> emissions in 2050)	Ensure an effective carbon pricing throughout the economy and a new carbon border adjustment.	EIT RawMaterials supports this goal across the <b>three Lighthouses</b> . Under new carbon pricing and carbon border adjustment mechanisms, the minerals and metals extracted in Europe will be more attractive to local industries and will provide the material and industry infrastructure needed for the transition to the green economy. This will strengthen the European minerals and metals sector and increase the investments in further environmentally sustainable innovations. SDGs addressed: 7, 13, 16 (indirect: 4, 8, 9, 11, 12)

# 3 VISION, MISSION AND STRATEGIC OBJECTIVES

## 3.1 KIC's vision

EIT RawMaterials envisions to **develop raw and advanced materials into a major strength for Europe**. EIT RawMaterials sees a Europe that bases its industrial competitiveness on cost-efficient, sustainable and innovative use of raw materials from secure and traceable sources, and on highly-skilled people, entrepreneurs and innovative education systems.

In this vision, products, processes and services are designed to maximise the value of the materials used to implement a circular and sustainable economy. Improving the performance of existing material cycles and designing new ones for circularity will attract new investments, harness the innovation capacity of start-ups, SMEs and large industry for competitiveness, as well as attract the interest of talented, skilled, entrepreneurial people. Society will become more aware of its dependence on raw materials, and the sector will be perceived as innovative and attractive. This is why EIT RawMaterials applies a holistic and systemic approach in technology, entrepreneurship and talent development.

## 3.2 KIC's mission

The strength and complementarity of the EIT RawMaterials community will contribute to realising the ambitious vision for Europe. This is possible because the community creates and maintains knowledge, skills and technology across the entire raw materials value chain: from exploration, mining, processing and metallurgy of raw materials, to the design of tools and equipment, smart products and services, and end-of-life product management and recycling. Knowledge, skills and technology are applied across sectorial boundaries between primary and secondary industries. EIT RawMaterials therefore has a pivotal role in making Europe succeed under rapidly developing challenges, as articulated in our mission statement:

**EIT RawMaterials' mission is to advance Europe's transition to sustainability by driving innovation along the raw material value chain.**

Being part of the EU agenda and based on its expertise, the community identifies itself by four unique selling propositions:

1. We are the world's leading partnership on raw materials
2. We develop Europe's raw materials talent and technology
3. Our community proactively addresses cross value chain challenges
4. We foster investment cases securing raw materials supply and supporting a green transition

### 3.3 KIC's strategic objectives

To fulfill its mission, EIT RawMaterials sets three strategic objectives: 1) Securing raw materials supply; 2) designing materials solutions; and 3) closing materials loops. These objectives are complementary and invite the cross-fertilisation by different actors and in different areas of expertise across the raw materials value chain. Innovative solutions to raw materials challenges emerge where the three strategic objectives interact, but also within each of the strategic objectives themselves. To build even stronger synergies in addressing global raw materials challenges, the strategic objectives are implemented through the EIT RawMaterials Lighthouses. The new European Raw Materials Alliance (ERMA) will enable EIT RawMaterials to maintain a healthy member base especially with industry, and to create a new platform for financial sustainability including educational activities. In parallel, we will actively participate to the implementation of the Higher Education Institutions (HEI) initiative that by increasing the entrepreneurial and innovation capacities of these institutions and their interaction with the ecosystems of innovation should significantly contribute to the achievement of these strategic objectives.

Each strategic objective will be reached by a combination of the KIC's activity areas:

- **Learning and Education** including Wider Society Learning (WSL), Lifelong Learning (LL), MSc and PhD training, as well as increasing the innovation and entrepreneurship capacity of Higher Education Institutions
- **Acceleration** including Upscaling (UPS) and Start-up creation and growth
- **Matchmaking and Networking** in Europe and with third countries
- **Strategic co-operation** with business and civil society
- **Contribution to trade policy, EU Industrial Policy and policies related to circular economy**

During 2021-2027, EIT RawMaterials will continue to use EIT funding for these activities, but shall increasingly rely on other funding sources such as alternative European, national and regional funds, private equity and commercial services offered by EIT RawMaterials. Additional bridge financing opportunities will arise from important European facilities such as EIC, EIB/EIF, EBRD and others. EIT RawMaterials will capitalise on those incremental financing opportunities by driving the dealflow of high growth ventures.

EIT RawMaterials embeds the EIT's **Regional Innovation Scheme** into all activity areas and future calls supporting achieving the strategic objectives. The majority of RIS countries in different parts of Europe are well endowed with natural resources and EIT RawMaterials has a very well established presence in all of them. While there are countries where strong Partners are already very active, there remain places where EIT RawMaterials can create stronger and long lasting impact. This shall be achieved directly through the KAVA activities driven by established Partners and the RIS Hubs. The latter serve as the local one-stop-shop for different KAVA activities where the interaction between interested parties and Knowledge Triangle Integration happens. The RIS Hubs of EIT RawMaterials together with the **HEI Capacity Building Initiative** will be utilised by the KIC to further promote KTI. For example, investments into developing Lithium deposits in Eastern Europe will create a demand for skilled people, which will be met by education programmes created by KIC partner universities located in RIS countries. A new mine will also create demand for suppliers and technology providers, which is a good opportunity for new start-ups to emerge. EIT RawMaterials will facilitate the RIS regions' readiness for such projects with capacity building activities offered to current and future partners. It will take into account local specifics to achieve maximum impact.

The strategic objectives as well as KIC procedures, activities and programmes maintain the purpose to achieve gender balance in full alignment with the prevailing EU legal and policy framework. With dedicated activities such as the Go Circular program focusing on digital skills and circular economy for young girls we address early learners to become interested and inspired of the raw materials sector.

### 3.3.1 Strategic Objective 1: Securing raw materials supply

The European industry is fundamentally dependent on raw materials extraction and processing, which today mostly takes place outside of Europe. The market dominance of Chinese companies on rare earth elements vital to digital, defence, chemical and space industries, or that of Democratic Republic of Congo on cobalt needed for Li-ion batteries in electric vehicles are perfect illustrations of this dependency. What is more, the sustainability of raw materials from non-European sources is to be questioned in many cases. Europe's global industrial leadership needs to be built on a solid supply of sustainably extracted and processed raw materials both from European and non-European sites – “Europe's strategic autonomy for raw materials must again be brought to the forefront” (Anna-Michelle Asimakopoulou on Euractiv, 2020).

The strategic objective supports the EIT's overarching Strategic Objective (1) on “strengthening sustainable innovation ecosystems across Europe”. The objective will be reached through the following actions: First, EIT RawMaterials focuses on securing raw materials supply from within Europe by strengthening and shortening raw materials supply chains in Europe from mines and secondary sources, and enabling sustainable new extraction and processing of raw materials. Through the **acceleration of innovations** to the market and **upscaling of technologies** in mining, processing and geological knowledge, new resources will be identified and mines, processing plants and recovery facilities will be established and upgraded. New search models and advanced digitalization created in upscaling projects and by SMEs supported by EIT RawMaterials are expected to lead to **at least one major ore discovery in Europe** by 2027. EIT RawMaterials' strong foothold in RIS countries is a key success factor here. EIT RawMaterials will position itself strategically in the development of new mining projects, which will contribute to this overarching goal. The focus of these activities will be two-fold: supporting key investments in the countries where EIT RawMaterials already has a well-established presence and fostering the relationships with investors in the countries where this presence could be strengthened. The latter is particularly relevant for the Balkan Peninsula.

Second, EIT RawMaterials provides access to investment and business opportunities to start-ups developing exploration technologies and to junior mining companies. By **creating matches** between start-ups, junior companies, large companies and investors EIT RawMaterials will contribute to the European exploration spending and consequently opening of new mines. As an overall European target, EIT RawMaterials expects **exploration spending** to grow from 2% to 4% of global total by 2030 – to achieve this, EIT RawMaterials develops strategic collaboration in setting up new exploration funds (e.g. with EBRD). The digital solutions such as sensors and remote operation systems developed by the KIC partners and start-ups will continue to contribute significantly to the transformation towards fully autonomous and zero emission mines. The KIC is foreseen to be involved in **opening of at least one new mine in Europe by 2027**.

Third, the strategic objective requires increasing the social license to operate (SLO) for new mines, urban mines and processing plants. Gaining the SLO is a process between a range of stakeholders where the already proven EIT RawMaterials **Wider Society Learning** will be deployed. Through **strategic co-operation** with the EC and the member states, EIT RawMaterials will contribute to securing raw material supply chains



from EU trade partners thereby creating a more level playing field for European sustainable sourcing. EIT RawMaterials will lead the development of new tools for **ethical sourcing and traceability** of raw materials, and **establish industry alliances** as a key mechanism towards sustainable and secure supply of raw materials. Development of sustainability certification standards will allow the producers to demonstrate that their product and sourcing have been done in a sustainable manner and gain extra margins.

Finally, the strategic objective requires a sound skills base. Through **EIT-labelled and other focused education** activities EIT RawMaterials will deliver entrepreneurial talent to industry and local innovation ecosystems, fully integrating the KT. This is particularly pertinent in increasing the attractiveness of exploration, mining and minerals processing towards students as well as entrepreneurs. In addition, current workforce in the sector will engage in upskilling within the KIC's **Lifelong Learning** courses for professionals.

### 3.3.2 Strategic Objective 2: Designing materials solutions

When new products are designed, decisions are made which have significant consequences from an environmental and raw materials perspective. According to the EU Circular Economy Action plan, up to 80% of the environmental impacts of a product are defined at the design stage, and to a large degree these impacts result from the choice and design of materials in products. The approach towards the design of solutions must address the whole life cycle in a systemic way, from raw materials supply to materials innovation, advanced materials, products, product-service systems, processes, design of products for circularity, new business models, new policy measures, new taxation approaches, and new education and awareness methodologies.

The strategic objective supports the EIT's overarching Strategic Objective (3) on "bringing new solutions to global challenges to the market". It will be reached through the following actions: First, by **accelerating and upscaling the design and production of advanced and engineered materials**, the KIC will counter the trend of advanced materials development moving from Europe to other regions. In particular Asian countries have become increasingly competitive in advanced materials development. By bringing **new start-ups producing advanced and engineered materials and digital process solutions** to the market, and by **supporting the innovation capacity** of the existing European SMEs and large industry on advanced and engineered materials, EIT RawMaterials directly contributes to new strategic and critical materials being identified and engineered, to investment attracted, and to manufacturing plants opened and upgraded.

As a contribution of EIT RawMaterials activities, a **significant increase** of advanced materials production for batteries, fuel cells, magnets and e-drives will be seen in Europe by 2027. Additionally, new lightweight steel and aluminium solutions as well as highly durable and corrosion resistant materials for the process industry are emerging, contributing to the circular economy and reduction of greenhouse gas emissions in a wide range of applications. Specifically, the KIC is foreseen to be involved in the market launch of **first generation solid state batteries** and development of **new steel and aluminium alloy compositions to be developed** by EIT RawMaterials. The KIC is expected to be involved in the establishment of the **first precursor cathode materials plant in Europe**, as well as in the establishment of **at least one battery cathode and anode materials** manufacturing plant. A significant reduction in the amount of **rare earth elements in magnets production** is expected by 2025 as a result of the KIC's activity. The RIS region with its strong academic tradition in material science is emerging as a hotspot for innovation in advanced materials.



The KIC will continue to create a talent pipeline to offer the best talent available to the industry and local innovation ecosystems on advanced materials development related to batteries, fuel cells, magnets, e-drives, renewable energy, and lightweighting. Upskilling the workforce through **Lifelong Learning**, education of entrepreneurially-minded individuals aiming for the advanced materials sector, as well as **higher education labelled and non-labelled programmes** will contribute to this objective. EIT RawMaterials is excellently positioned to increase the innovation capacity of Higher Education Institutions (HEIs) and contribute to the development of entrepreneurs. Finally, the Wider Society Learning activity will support policy decisions on the establishment of facilities for advanced and engineered materials and supply chains.

### 3.3.3 Strategic Objective 3: Closing materials loops

Raw, processed and advanced materials, from primary and secondary sources, are the backbone of the economy, and a radical shift is required from linear to circular thinking. End-of-life products must be considered as a resource for another cycle, while losses and stocks of unused materials must be minimized and valorized along the value chain. The latter is in particular relevant for secondary sources in RIS countries due to the low degree of recovery of process residues and end-of-life products. In addition, the interactions between materials must be considered for the best circular solution from a systemic standpoint. Awareness of the benefits of closing material loops must be raised in society. The successful transition to the circular economy at the global scale depends on reliable and sustainable supply and management of raw materials. This strategic objective is closely linked to the EU Circular Economy Action Plan adopted 11 March 2020, in particular for its focus on circularity in industrial processes and to move towards a ‘zero waste’ goal. EIT RawMaterials supports DG ENV regarding the Environmental Technology Verification (ETV) Programme.

The strategic objective supports the EIT’s overarching Strategic Objective (2) on “fostering innovation and entrepreneurship through better education”. The objective will be reached through the following actions: First, the KIC contributes to the design for circular economy by developing new designs and methodologies for material flow analysis and life-cycle assessment, as well as improving resource efficiency. Here, **upscaling and acceleration** activities are closely tied to the creation of knowledge through the KIC’s **knowledge and dissemination** activities. As a result, it is foreseen that at least 10% of European companies in the raw materials sector are using standards and methods developed by partners of EIT RawMaterials. For example, improved Life Cycle Inventory databases for raw materials and advanced materials related to e-mobility will be provided.

Second, also through the **acceleration, access-to-finance and upscaling activities**, EIT RawMaterials will significantly contribute to the end-of-waste paradigm of the EU. The KIC is particularly suited to undertaking this, as the sector contributes to more than 25% in volume of all waste generated in Europe (Eurostat 2019). The KIC will develop new methodologies to increase **the raw and advanced materials’ recycling rates** and extend to other materials, and improve utilization of process residues through industrial symbiosis and closed loops. This will be particularly applied in RIS countries where not only secondary sources can be valorized, but also recycling rates are substantially lower, providing room for improvement. The KIC can build on the expertise of its partner network and transfer knowledge to RIS countries. Through the **Wider Society Learning** activities, the KIC will contribute to the take-back of consumer electronics and increased recovery from industrial secondary streams. As concrete targets, the KIC will contribute to **doubling the recovery of critical raw materials** from the current levels, and to **implementing Zero Liquid Discharge** in at least 50% of new processing plants of the raw materials sector. Finally, the KIC contributes to the launch of





**two new smelting solutions** in the steel and non-ferrous industries, making it possible to significantly increase the intake of complex recycled materials and reduce waste.

Finally, to ensure that Europe retains the skills base for a prosperous circular economy (design for post-use, reuse, remanufacturing, recycling, recovery), the KIC sets an ambitious target: Students and professionals trained by EIT RawMaterials in the Lifelong Learning, MSc and PhD programmes are the **most capable of solving circular economy challenges** and contributing to the Green Deal.

## 4 IMPACT AND RESULTS

### 4.1 Impact

*Humanity stands... before a great problem of finding new raw materials and new sources of energy that shall never become exhausted. In the meantime, we must not waste what we have, but must leave as much as possible for coming generations.” (Svante Arrhenius, Chemistry Nobel Prize in 1903)*

Raw materials are essential to the transition to a carbon-neutral circular economy and to the implementation of the UN Sustainable Development Goals (UN SDGs). When impact is measured in terms of value added and jobs, the raw materials sector (extraction and processing) contributes around 140 billion euros and 2.5 million jobs to the European economy, with processing accounting for over 80% of these figures. Overall, the downstream industries depending on raw materials supply create close to EUR 2.5 trillion of value added and 40 million jobs (EC, RMIS, RM Scoreboard, 2018).

Since its establishment, EIT RawMaterials has succeeded in generating positive impact exceeding the initial expectations, with the most notable achievements to date (including forecast for 2020):

- Over 30 000 graduates in raw materials courses, with more than 220 graduates from EIT-labelled programmes and over 40% female gender ratio;
- More than 150 innovations introduced to the market and around 1 000 pilot/demo plants and prototypes;
- Five innovation hubs established in the RIS region, with over 20% of total EIT funding directed to RIS countries;
- More than 200 start-ups supported, and more than 140 MEUR attracted by entities supported by EIT RawMaterials.

In line with the EIT RawMaterials vision, mission and strategic objectives, the partnership will enable the creation of new European and international networks and alliances, innovation and entrepreneurial activities across the entire raw and advanced materials value chain.





Driven by its ambitious financial sustainability targets and determination to become a leading organization in the international arena, EIT RawMaterials will focus its efforts on securing the funding to support and expand its activities. Smart solutions based on improved knowledge, comprehensive data and advanced technologies will boost the European raw materials sector and thereby reduce import dependency, diversify supply and contribute to economic growth. Social engagement through education, capacity building e.g. in RIS regions, networking and liaising with all involved stakeholders and the wider public will play a pivotal role in raising awareness and increasing acceptance of and participation in a renewed raw materials sector in Europe.

This highly competent and integrated partnership will support the most promising and effective solutions, which will lead to:

- Implementation of a circular economy<sup>1</sup>
- Increase in resource efficiency<sup>2</sup>
- Reduction of environmental impacts<sup>3</sup>
- Increased security of supply of raw materials that serve societal needs<sup>4</sup>
- Diverse, highly skilled and versatile workforce that will maintain Europe's competitive advantage<sup>5</sup>

These positive impacts will strengthen the competitiveness of industries across Europe and contribute to increased employment and growth.<sup>6</sup>

The well-established activity areas (upscaling and business creation and support; matchmaking and networking; education) will be scaled up and fully aligned with the Strategic Objectives and the United Nations Sustainable Development Goals to generate value for the partners and positive societal impacts for the wider community:

- **Acceleration (Upscaling and Business Creation and Support).** Engage with start-ups, SMEs as well as large research and industry organizations through more agile mechanisms ('regular' KAVAs, Acceleration and Booster calls, SME-support calls, fast-track calls and Knowledge Creation and Dissemination calls) to support activities and actions that will lead to high core and impact KPIs while at the same time contributing to the KIC's financial sustainability.
- **Education.** Create systemic impact by strengthening the innovation capacity of local innovation ecosystems: 1) increase the innovation and entrepreneurship capacity of Higher Education Institutes (HEIs); 2) empower entrepreneurs to transform knowledge into societal value; and 3) provide highly-skilled talent to industry / value chain stakeholders.
- **Matchmaking and Networking.** Strong engagement with the EC (DG Grow, DG RTD and DG Environment), other EIT KICs, relevant PPPs (e.g., SPIRE) and other networks (e.g., Battery Alliance) to align with and influence policy and trade decisions. Strong engagement with funding agencies (EC – including EIC - as well as International, national, investors) to reach financial sustainability

<sup>1</sup> Addressing United Nations Sustainable Development Goals (SDG) 11 (Sustainable Cities and Communities) and 12 (Responsible Consumption and Production)

<sup>2</sup> SDGs 7 (Affordable and Clean Energy), 9 (Industry, Innovation and Infrastructure), 11 and 12

<sup>3</sup> SDGs 6 (Clean Water and Sanitation), 13 (Climate Action) and 15 (Life on Land);

<sup>4</sup> SDGs 7, 9, 11 and 12

<sup>5</sup> SDGs 4 (Quality Education) and 5 (Gender Equality)

<sup>6</sup> SDG 8 (Decent Work and Economic Growth)



goals. Dissemination and marketing activities to raise the profile of EIT RawMaterials as the leading organization and service provider in the sector (InfoCenter, Expert Fora, EIT RawMaterials Summit).

This process, coupled with a more rigorous selection and revision of funded projects, will lead to a drastic reduction and consolidation of the project portfolio and an equally dramatic increase in the quality of the activities and impact generated. This will include the focus on generating impact in the RIS regions to build their capacity and increase the innovation levels of the recipient countries.

The EU Joint Research Centre will support EIT RawMaterials by benchmarking us against similar organizations within and outside of Europe in order to establish and monitor the societal and economic impact of the sector as well as the specific impact of EIT RawMaterials on the sector. The EIT RawMaterials Alumni Association and the newly-introduced legacy-tracking process will ensure that the impact of projects is duly recorded beyond the funding phase and disseminated through the most appropriate channels and using target-specific language. This 'evidence of track-record' will enhance the reputation and credibility of the KIC community, thus boosting its international standing and attractiveness of its value proposition as a business partner.

In keeping with the refinement of its strategic agenda and with changes in the EIT core KPIs, EIT RawMaterials has reviewed its impact KPIs and aligned them with its strategic objectives and overall societal impact (Table 3). The matching is somewhat deceptive because most indicators address more than one strategic objective. The 2027 targets will be updated annually (this applies to all tables and figures in the core document as well as annexes).



Table 3: EIT RawMaterials Impact Targets

Indicator	Target	2021	2022	2023	2024	2025	2026	2027	Strategic Objectives
Create business for the <u>raw materials</u> sector and for the <u>advanced materials</u> sector in Europe	Investment attracted in primary resources and advanced materials development (e.g., new infrastructure at pilot/demo/industry-scale, new mine, exploration spending)	300.0 M€	450.0 M€	600 M€	750 M€	950 M€	1100 M€	1300 M€	1,2,3
Improve industrial competitiveness of the <u>raw materials</u> sector and <u>advanced materials</u> sector in Europe	Savings and increase in sales resulting from improved material and energy efficiency	12 M€	20 M€	30 M€	40 M€	60 M€	80 M€	100 M€	1,2,3
Enable infrastructure investments in Europe	Number of new pilot/demo plants, prototypes, or production units	450	500	535	572	607	642	677	1,2,3
Bring back advanced materials development to Europe	Number of new advanced materials developed	-	1	1	2	3	4	5	2
	Develop new or improved products with reduced toxic materials	40	50	54	58	62	66	70	2
Increase the raw and advanced materials' recycling rates and extend to other materials	Increase in percentage recovery and recycling of selected CRMs over current rates	-	1% increase	1% increase	2% increase	3% increase	4% increase	5% increase	3
Enhanced sustainability	% of new and existing processing plants with reduced discharge	5%	10%	15%	20%	30%	40%	50%	3
	Total number of European companies in the raw materials sector using sustainability standards and methods developed by partners of EIT RawMaterials	0%	0%	1%	1%	2%	3%	5%	3
Integrate and leverage the RM potential in the RIS region	Integration of the RIS region – % funding RIS participants in non-RIS projects	20%	20%	20%	20%	20%	20%	20%	1,2,3
Ensure stable RM workforce	Creating/maintaining/re-skilling jobs in the RM sector (including conversion from brown technologies) <sup>1</sup>	1,000	1,300	1,900	2,800	5,800	8,900	12,000	1,2,3
Improve gender balance in the RM sector	Women graduating from RM-related courses	35%	37%	40%	40%	45%	45%	50%	1,2,3
Carbon savings in the RM sector	Percentage of CO <sub>2</sub> emitted savings	-	2%	3%	5%	10%	15%	20%	1,2,3
CRM substitution/reduction	Number of substitution cases	50	70	75	80	85	90	100	2
Raw materials produced in Europe	Percentage increase of raw materials produced in Europe	-	-	1%	2%	3%	4%	5%	1
Advanced materials produced in Europe	Percentage increase of advanced materials produced in Europe	-	-	1%	2%	3%	4%	5%	2

Notes: Cumulative or average targets.

1: Primary sector: maintaining jobs and converting jobs from brown to green technologies. Recycling: mainly creating new jobs. Cumulative target of 12,000 jobs in 2027 based on JRC Raw Materials Scoreboard 2018 data (see <https://rmis.jrc.ec.europa.eu/?page=scoreboard2018#/ind/7>), considering number of jobs in metals extraction and processing (Total 1,049,640 jobs - 12,000 jobs is about 1% of the total).



## 4.2 Results

Table 4: Annual KPI targets

Code	KPIs	2021	2022	2023	2024	2025	2026	2027	Total 2021-2027
EITHE01.1	#Designed/Tested Innovations	2	4	14	15	15	15	15	80
EITHE01.3 EITRIS	EIT RIS Designed/Tested Innovations	18%							14
EITHE01.4 EITRIS	#EIT RIS Countries – Designed/Tested Innovations	0	0	1	2	3	3	3	
EITHE02.1	#Marketed Innovations	71	44	29	30	30	30	30	264
EITHE02.2 EITRIS	EIT RIS Marketed Innovations	16%							41
EITHE02.3 EITRIS	#EIT RIS Countries – Marketed Innovations	5	4	3	3	3	3	3	
EITHE03.1	#Supported Start-ups/Scale-ups	75	50	50	50	50	50	50	375
EITHE03.2 EITRIS	EIT RIS Start-ups/Scale-ups Supported	30%							112
EITHE03.3 EITRIS	#EIT RIS Countries – KIC supported Start-ups/Scale-ups	8	8	8	8	8	7	7	
EITHE04.1	#Start-ups created of/for innovation	6	2	2	10	10	10	10	50
EITHE04.2 EITRIS	#EIT RIS Start-ups created of/for innovation	16%							8
EITHE04.3 EITRIS	#EIT RIS Countries – Start-ups created of/for innovation	1	0	0	1	1	1	1	
EITHE05.1	#Start-ups created of EIT labelled MSc/PhD programmes	3	4	7	8	10	12	13	57
EITHE05.2 EITRIS	#EIT RIS Start-ups created of EIT labelled MSc/PhD programmes	16%							9
EITHE05.3 EITRIS	#EIT RIS Countries – Start-ups created of EIT labelled MSc/PhD programmes	0	0	0	0	1	1	1	
EITHE06.1	Investment attracted by KIC supported Start-ups /Scale-ups	10	10	10	10	10	10	10	70
EITHE06.2 EITRIS	Investment attracted by KIC supported EIT RIS Start-ups/Scale-ups	15%							10.5
EITHE06.3 EITRIS	# EIT RIS Countries – Investment attracted by KIC supported EIT RIS Start-ups/Scale-ups	1	1	2	2	3	3	3	
EITHE07.1	#Graduates from EIT labelled MSc/PhD programmes	184	140	160	180	200	200	200	1,264
EITHE07.2 EITRIS	# EIT RIS Graduates from EIT labelled MSc/PhD programmes	16%							205
EITHE07.3	% of Graduates in same disciplines from partner HEIs	22%	22%	22%	22%	22%	22%	22%	
EITHE08.1	#Participants in (non-degree) education and training	5,835	4,327	3,903	3,370	3,370	3,370	3,370	27,545
EITHE08.2 EITRIS	# EIT RIS Participants with (non-degree) education and training	17%							4,650
EITHE09.1	# EIT labelled MSc/PhD students and graduates who joined Start-ups	4	6	9	11	14	17	18	79
EITHE09.2 EITRIS	# EIT RIS EIT labelled MSc/PhD students and graduates who joined Start-ups	15%							12
EITHE10.1	# Active KIC Partners	300	300	300	300	300	300	300	
EITHE10.2 EITRIS	# EIT RIS Active KIC Partners	38%							115
EITHE10.3 EITRIS	# EIT RIS Countries – Active KIC Partners	14	14	14	14	14	14	14	
EITHE11.1	FS revenues	8.6	10.2	12.5	16.4	21.3	27.9	44.0	140.9
EITHE11.2	% FS coefficient	12%	15%	18%	22%	29%	43%	80%	
EITHE12.1	% Co-funding rate	35%	28%	30%	31%	34%	39%	50%	
EITHE13.1	# KIC success stories	20	20	20	20	20	20	20	140
EITHE13.2 EITRIS	# EIT RIS Success stories	16%							22
EITHE13.3 EITRIS	# EIT RIS Countries – Success stories	2	3	3	4	4	3	3	
EITHE 16.1	# HEIs involved in EIT and KIC activities	75	75	75	75	75	75	75	
EITHE 16.2	# RIS HEIs	40%							30
EITHE 16.3	# HEIs involved in the new HEI Action	6	8	10	13	15	15	15	82
EITHE 16.4	# RIS HEIs	15%							12

# 5 GOVERNANCE AND OPERATION MODEL

## 5.1 Partnership

### 5.1.1 The diversity and strength of the partnership across the whole value chain

The EIT RawMaterials partnership consists of the most relevant partners for addressing European raw materials challenges. EIT RawMaterials connects and integrates actors from all parts of the raw materials value chain and from different fields of application that would not necessarily collaborate otherwise. This unique collaborative environment is fertile ground for breakthrough innovations and radically new ways to address raw materials challenges. EIT RawMaterials comprises more than 130 Core and Associate Partners from leading businesses, universities and research institutes, and an additional 200 Project Partners contributing to specific tasks in KAVA projects. To secure the capacity building of modest and moderate innovation ecosystems, EIT RawMaterials also offers the RIS Task Partner category to partners from the RIS region, who otherwise would not be able to participate in the KIC's activities. EIT RawMaterials will also explore the benefits of adopting a new SME partner category to increase the inclusiveness of the KIC and to boost the growth of scale-ups in the raw materials sector. Such a category will provide an opportunity for growth companies to enjoy the full benefits of the KIC while offering a low threshold to join.

Core and Associate Partners are the strategic backbone of the EIT RawMaterials innovation ecosystem. Core partners participate actively in defining the strategy and priorities of the KIC on two main levels: 1) In the bi-annual General Assembly where the KIC's top decisions are made through voting, core partners have one vote each. 2) Core partners have strong representation in the CLC steering committees, thus supporting and guiding the CLC in its decision making. The chairs of the CLC steering committees come from core partner organisations, and also participate in the Strategic Management Team (SMT) of the KIC (see section 5.2 Governance for further details). An additional benefit of being a Core Partner is that the maximum amount of annual KAVA funding is less restricted than in other partner categories. Concomitantly Core Partners pay the highest membership fee in EIT RawMaterials.

Associate partners also participate in the CLC work through representation in the Steering Committees, and in the KIC's highest decision making in the General Assembly through one shared vote per each CLC (for details see [eitrawmaterials.eu](http://eitrawmaterials.eu) / Partners and the Internal Agreement). While paying a lower membership fee than Core Partners, Associate Partners have a stricter limit to the annual KAVA funding. Finally, the Core and Associate partners are supported in KAVA projects by Project Partners, who participate in 1-2 projects at a time with strict budget limitations and lower membership fee than Core and Associate Partners. Project Partners do not have a seat in the CLC Steering Committees, and have a single shared vote in the General Assembly.

This well-balanced and diverse partnership of excellence enables EIT RawMaterials to achieve significant impact. Strong interaction of EIT RawMaterials with SMEs and start-ups additionally creates added value and forms a strong basis for innovation. While SMEs are often suppliers to large industry partners, start-ups provide entirely new business models to the sector (e.g. in Circular Economy). These stakeholders are thus a crucial part of the ecosystem and important to further grow and develop the partnership in an open and impactful way. EIT RawMaterials will further facilitate start-ups and SMEs to enter the partnership and apply for calls (e.g. through setting up a dedicated new membership category).

### Industry

Approximately one-third of the partners are from different industry sectors and represent key steps of the value chain. Many world-leading companies are partners of EIT RawMaterials today, and this continues to be our priority to ensure maximum impact. EIT RawMaterials extends its industry reach by supporting the development of new industry alliances in relevant fields.

To guarantee strong engagement of SMEs and increase involvement and awareness of the RM industry across Europe, EIT RawMaterials has secured the support of over 20 regional and national clusters and networks, including industry associations and Chambers of Commerce. These contribute expertise, outreach and potential financial support to Co-location Centres (CLCs).

### Research organisations (RTO)

EIT RawMaterials includes many of Europe's most renowned research institutes with broad competence and specialised expertise in related areas. This includes national Geological Surveys providing key expertise in primary and secondary mineral resources in Europe and vital links with policy makers. In addition, end-user connected RTOs are active in the whole value chain and provide strong networks with SMEs and start-ups. As innovative idea providers, RTOs thus generate innovative projects close to the market. The Technology Transfer Offices (TTOs) of RTOs and universities play a crucial role for EIT RawMaterials in their capacities as co-servicing partners in providing commercialisation services to the KIC partners.

### Universities

University partners provide educational capacity, curricula and top-level academics to reach and exceed educational goals. University partners also contribute through research and entrepreneurial activities via their TTOs. Several of the partner universities have already taken remarkable initiatives to promote creative entrepreneurship, stimulate design-thinking innovation and foster cross-disciplinary collaborative environments for students, researchers and business. To ensure a strong integration of such business and entrepreneurial thinking into educational programmes is of key priority for EIT RawMaterials.

### 5.1.2 Co-location Centres (CLCs), RIS Hubs and geographic coverage across Europe

As the RM sector and its associated challenges are strongly embedded in regional innovation ecosystems, it is very important for the partnership to reach pan-European coverage. Currently, there are core, associate and project partners from nearly all EU countries. The outreach activities and involvement of partners from other countries will enable the partnership to grow further. These activities will focus on RIS countries e.g. located in Eastern and South-Eastern Europe (ESEE) where projects will boost economic development and employment.

EIT RawMaterials strengthens its pan-European strategy by increasing the capacity building of higher education institutions through a leading role in the EIT's new HEI initiative and positioning the Initiative as the go-to capacity building instrument in the European innovation landscape. The goal is to create systemic impact in higher education by supporting HEIs to become more innovative and entrepreneurial – from teaching and learning to venture and business creation to strengthening the integration of HEIs in innovation ecosystems and their contribution to the realisation of the KIC societal impact pathways.

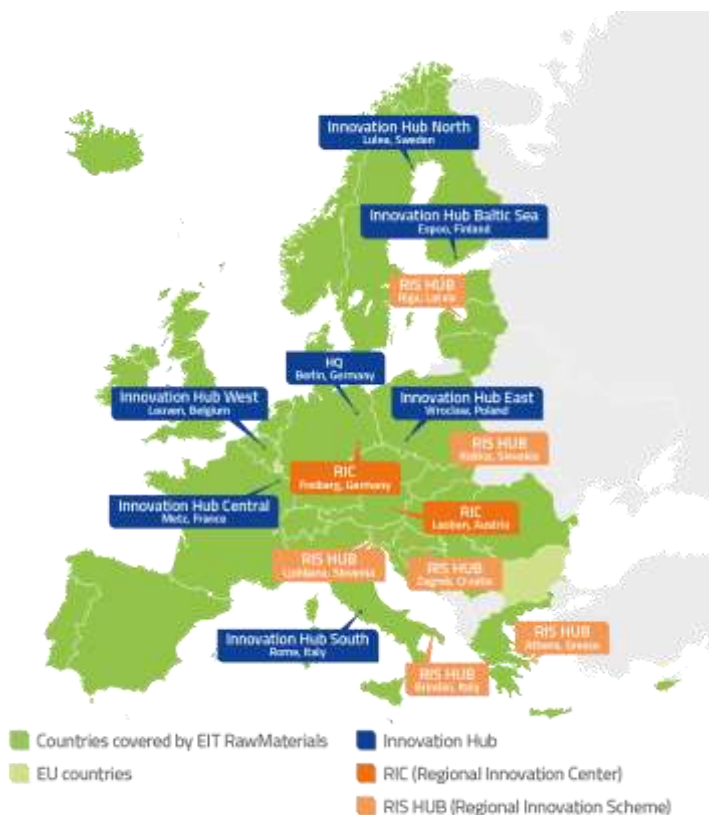


Figure 2: EIT RawMaterials presence in Europe

There are six Co-location Centres (CLCs) covering Europe in a geographically balanced way to offer physical proximity to the KIC partners (see Figure 2). Each CLC is transnational to stimulate networking and collaboration across Europe. CLCs work along all themes and complement one another with their fields of expertise and the innovation potential contributed by their partners.

EIT RawMaterials aims at extending its geographical reach into RIS countries and attract new partners by sharing knowledge, best practices and innovative technologies with the respective ecosystems. RIS Hubs are highly relevant for this purpose. This is why already six RIS Hubs were established (see Figure 2), making EIT RawMaterials excellently positioned in these regions.

In the period of 2021-2027, EIT RawMaterials will further strengthen its Partnership in the RIS countries. In previous years, partners from RIS countries were continuously stronger involved with many upgrading their status to Project Partners. Going forward that process is expected to continue in the following pathways:

- Wider participation of representatives from countries and regions under represented in EIT RawMaterials today (e.g. Czech Republic, Bulgaria, Romania);
- Well established involvement and upgraded status of Partners from strategic RIS Regions (Western Balkans, Baltics);
- Networking and intake through RIS Hubs which act as local offices of the KIC and contact points.

Table 5: KIC partnership growth strategy

	2021	2022	2023	2024	2025	2026	2027
#CLCs <sup>2</sup>	6	6	6	6	6	6	6
#EIT RIS Hubs	6	7	8	9	10	10	10
# Number of partners <sup>(a) 3</sup>	130	140	145	150	155	160	165
# Number of project partners <sup>(b) 4</sup>	200	200	190	185	180	150	150
# Partners from EIT RIS countries <sup>5</sup>	100	110	120	130	140	140	130

Notes: The development of the partnership is assuming a new membership model to be implemented in the future, allowing an easier access for RIS partners and SMEs. The target numbers of CLCs and EIT RIS Hubs will be assessed against a possible further expansion. (a) Partners, which have an influence on a KIC's operations (members of associations, core partners, etc.). This includes all the KIC partnership categories as defined in chapter 5.1. (b) Activity partners, which are involved only in implementation of KICs activities. This includes all the KIC partnership categories as defined in chapter 5.1.

1: Average across years. 2: Consolidation of activities can lead to changes in composition accounting for optimal regional balance. 3: Continued growth of Core and Associate Partners will be supported through key strategic initiatives (especially ERMA and HEI). 4: Decrease due to portfolio consolidation and decreasing EIT funding. 5: Based on increase of # RIS Hubs and key strategic initiatives.

## 5.2 Governance

### 5.2.1 Legal structure

EIT RawMaterials is a service organisation for its partners. The administrative headquarters (HQ) and legal seats of EIT RawMaterials e.V. (German registered association) and EIT RawMaterials GmbH (German limited liability company) are based in Berlin, Germany. EIT RawMaterials e.V. is the partner association and sole shareholder of EIT RawMaterials GmbH. It makes strategic decisions for the KIC, such as approving annual Business Plans, updating strategy or the adoption of Lighthouse programmes. EIT RawMaterials GmbH is the KIC LE and as such legally responsible to the EIT reporting on the use of funds and impact achieved. This includes the application of monitoring and controlling measures as required by the EIT.

The legal setup of EIT RawMaterials includes the CLCs as limited liability companies in the form of the respective national legislation under the sole ownership of EIT RawMaterials GmbH.



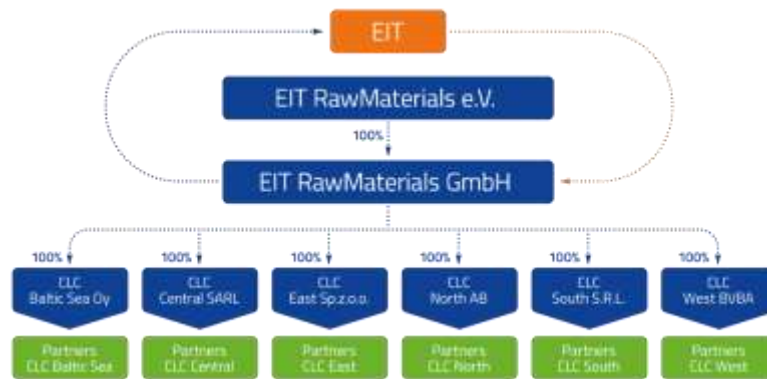


Figure 3: Legal structure

### 5.2.2 Governance structure, decision-making and advisory bodies

The community- and network-type of organisation of EIT RawMaterials requires an effective and transparent governance structure. The decision-making process between HQ and CLCs follows a lean, agile and cohesive approach reflecting both top-down as well as bottom-up approaches. The HQ ensures execution of the Strategic Agenda within the CLC legal entities (see Figure 4).

The governance model is shown in Figure 4. The decision-making bodies of EIT RawMaterials e.V. include the General Assembly and the Executive Board. The General Assembly is composed of the partners of EIT RawMaterials and defines the mission and strategy of the organisation. The Executive Board including its Chair is composed of top management representatives from core partners as well as external organisations with relevant network and experience. It is envisaged to achieve a balanced representation of partner and non-partner Board members (the number of independent Executive Board members will comprise at least 50% of the total from 2022, as per the requirements of the final Partnership Agreement). The Board serves as the steering board and among other tasks approves the annual business plan of EIT RawMaterials. The board members are nominated by a Nomination Committee with members from all CLCs and are elected by the General Assembly. In addition, members of the Executive Board have been selected to represent the diversity of the partners, balanced across the value chain and within the knowledge triangle.

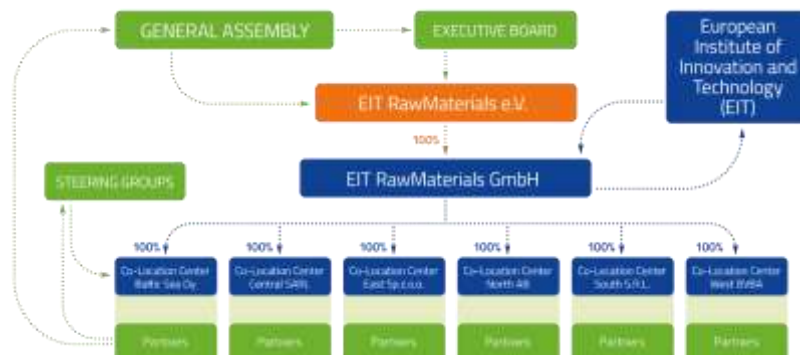


Figure 4: EIT RawMaterials governance model

At EIT RawMaterials GmbH, the Managing Board is composed of the CEO and COO, both work together as a team. The Managing Board is responsible for the implementation of the current strategy and business plan as approved by the Executive Board. The CEO is the principal in the Managing Board with the final responsibility for the EIT and is accountable to the Executive Board. The COO reports to the CEO (see Figure 5 for other direct and dotted reporting lines). Both represent the KIC at the board meetings. The CEO is the Chairperson of the Strategic Management Team (SMT) and the COO is in the chair of the Operational Management Team (OMT). EIT RawMaterials GmbH is a diverse and gender-balanced organisation with 26 female and 19 male staff members (status: end q4/2020).

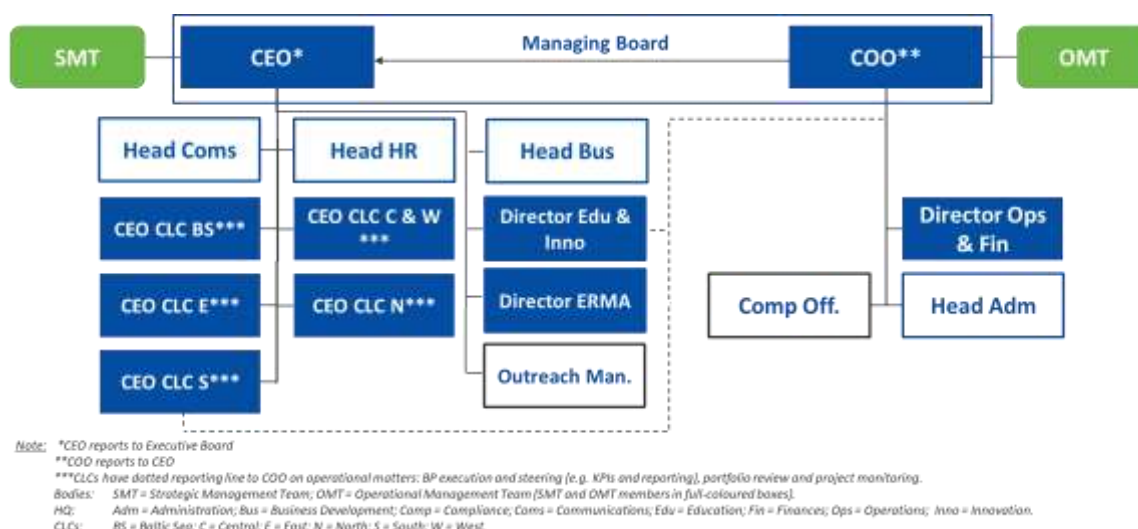


Figure 5: EIT RawMaterials operational structure

## 5.3 Budget

In line with EIT regulation recast article 17, EIT funding sources have been tentatively included in the 2021-2027 financial plan (see Table 6 below). Compared to the original EIT GB Decision 4/2015 on the “Principles on KICs’ Financial Sustainability”, which also served as a basis for the work of the Task Force Financial Sustainability in 2017, the maximum EIT funding rates for the years 2026 and 2027 have been decreased by 10% to 70% (before: 80%) and 50% (before: 60%), respectively. Together with the lower overall EIT funding, the new maximum ratios represent a severe challenge to the KIC’s financial sustainability strategy.

The current EIT funding estimations for the years 2022-2027 do not yet include additional upside potential of up to 10m EUR p.a. that will derive from the new HEI for EIT RawMaterials as the KIC leading the initiative in 2021 (in total up to 400m EUR of the EIT’s budget over 2021-2027 across the KICs). EIT RawMaterials is excellently positioned to secure high amounts of additional funding from both opportunities.

In Table 6, the partner contributions indicated include both (1) membership fees and (2) project co-funding:

- (1) Membership fees are contributed by partners annually based on their partner category (Core, Associate, Partner). With the decrease in EIT funding, membership fees might decrease as well.

This is why the KIC diversifies its revenue and at the same time optimise the partner offerings aside from EIT funding (e.g. services, additional funds, etc.; see next chapter for details).

- (2) Project co-funding includes partners' in-kind contributions into KAVAs and all partner-sided contributions from Member States, associated or third countries and public authorities.

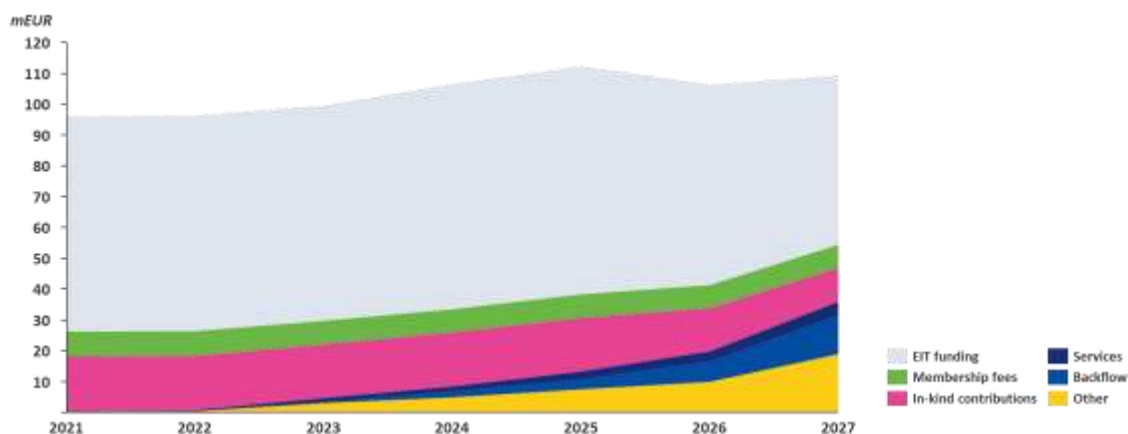
Third-party contributions in Table 6 include public funding attracted by the KIC organisation from other national, regional and international bodies. It also includes direct funding or brokerage fees the KIC obtains for funnelling projects into follow-up financing arising (e.g. ERMA). Third-party contributions include as well backflow from start-ups and up-scaling projects (which could become KIC LE investments, see Table 6) as well as revenues generated through services (e.g. hosting of events, sale of studies and consulting services, etc.). More background is provided in the next chapter on financial sustainability.

Table 6: Overview on the financing of KIC activities (MEUR)

KIC Financing (MEUR)	2021	2022	2023	2024	2025	2026	2027	Total:
EIT Grant	70.0	70.0	70.0	73.0	74.0	65.0	55.0	477.0
KIC LE investments	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Partners membership fees	8.0	8.0	7.5	7.5	7.5	7.5	7.5	53.5
Other partners contributions	17.5	17.5	17.5	17.5	17.5	14.0	11.0	112.5
Third party contribution	0.8	1.0	5.0	8.9	13.8	20.4	36.5	86.4
Total Funding	96.3	96.5	100.0	106.9	112.8	106.9	110.0	729.4
% of EIT grant of the total budget	73%	73%	70%	68%	66%	61%	50%	65%

*Disclaimer:* It is pertinent to note that the Table above does not represent a commitment by the EIT to disburse the listed amount. *Note:* Assumptions subject pending to explanation provided to EIT in Cover Letter dated 15 March 2021.

Figure 6: planned allocation of funding / investments



## 5.4 Financial Sustainability

EIT RawMaterials presents a comprehensive and competitive business model that secures the long-term financial sustainability and prosperity of the organisation. The business model relies on the overall added-value principle of EIT RawMaterials, which is to offer the highest quality of services. EIT RawMaterials builds on its strong partner base and network to deliver tangible value to partners and external collaborators.

EIT RawMaterials' business model is based on membership fees, services fees and success fees as well as securing additional large funding sources. EIT RawMaterials has been the most successful KIC in 2016-2018 when looking at the total amount of revenues created. Our ambitious target is to keep this leadership position through further diversifying and increasing our revenue streams while complementing and securing membership fees. This will ensure that the positive impact of EIT RawMaterials will endure beyond the initial EIT funding.

EIT RawMaterials has prioritised four Key Strategic Activity Areas with the ambitious goal to secure a leadership position in all value streams at European level. They result in the following revenue-generating Key Action Areas and Services, which fuel the main revenue streams of EIT RawMaterials.

### 5.4.1 Key Action Area 1: Intelligence services

*EIT RawMaterials will be the leading worldwide provider of intelligence services for innovation, education and entrepreneurship in the RM sector.*

The 'InfoCenter' (1.1) provides the knowledge base of EIT RawMaterials to partners and non-partners. The service will be included in the membership fee on a basic subscription level and also provide an entrance door for non-partners (full subscription fee); it will also serve as supplier of specific, payable publications (e.g. studies, white papers).

'Customised services' (1.2) offer different customised forms of events and workshops (e.g. hackathon, U-start) and consulting support services. Customised services build on the KIC's knowledge base (e.g. on supply risks and mitigation strategies) and up-sells activities into higher valuable and payable services to partners and non-partners. Such services will be co-serviced together with the partners.

'RM Expert Fora' (1.3) are focused events in topics of high strategic relevance for EIT RawMaterials, most importantly in the field of the Lighthouse programmes. The objective is to organise 3-5 p.a. revenue expected through participation fees from non-partners and potentially from partners once the membership fee structure has been revised. In addition, sponsorship packages to contribute to revenues.

'RM Summit' (1.4) is the main annual event of EIT RawMaterials attracting partners, non-partners and investors. The first edition successfully took place in 2019, and the objective is to develop it further. Revenues generated from this event come from two sources: participation fees and sponsorship.

Key Action Area 1 is expected to contribute about 10-20% of the overall Third-party contributions.

#### 5.4.2 Key Action Area 2: Education services

*EIT RawMaterials will be the leading KIC for HEI and Lifelong Learning activities.*

‘Lifelong Learning’ is of highest relevance to build up a sellable service together with selected / prioritized university partners involving lecturers from industry partners whenever possible. EIT RawMaterials aims to set up between five and ten lifelong learning courses that will be co-organised by the KIC organization and the partners. The KIC can build on positive learnings from the RawMatCop activity. Another feasible model to commercialise the courses is based on the licensing of content to be provided via ‘Futurelearn’.

‘Human capital broker’ consists of the present RM Academy where designated and governed Master and PhD programmes that are tailored to the needs of industry long term and that will work as a channel to funnel students into companies. The human capital activity also works with dedicated programmes for easy and early interaction within industry and between industry and students (RACE and RACE Pro); other channels to be developed.

Key Action Area 2 is expected to contribute about 5-10% of the overall Third-party contributions.

#### 5.4.3 Key Action Area 3: Value creation services

*EIT RawMaterials will be a key European actor for Series-A level ventures in the RM sector.*

‘Alternative funding’ will provide the strategic and branded basis for new funding possibilities of major projects / programmes to address pressing societal needs. This includes EIT RawMaterials’ leading role in the European Raw Materials Alliance (ERMA), the engagement in the European Battery Alliance (EBA), the collaboration with EIT Climate-KIC in Circular Slovenia, RawMatCop in order to enhance and increase the precision in sourcing critical and conflict raw materials and other major programmes targeted to the EIT RawMaterials objectives such as the security of raw materials supply.

‘Follow up investment’ comprises “Go-to-Market” support to ensure fast commercialization of up-scaling projects (acceleration of time-to-market); the acceleration to market entails a mandatory back-flow based on the revenues projected – for strategic projects where EIT RawMaterials has an interest to invest or engage, direct investment using industry-specific member fees will be considered.

“Go-to-Market” studies are an important basis for business cases to leverage follow-up funding (e.g. EIB, EBRD, etc.). “Go-to-Market support” is also the basis for up-selling ‘post-project’ / offboarding services to facilitate implementation of outcomes driving commercialisation and organisational transformation at industry partners, supporting consulting activities and customised services, see Action Area 1.

The ‘Deal flow start-ups’ activities comprise activities carried out in order to create and enhance the start-up portfolio. The ‘BIC / Jumpstarter’ serves as main entry point into the innovation funnel of EIT RawMaterials. The subsequent step is the ‘Accelerator Programme’, which provides high quality coaching to selected ventures; the ‘Accelerator Programme’ is also a possibility to collaborate with partners and incubators and can generate service fees as an off-balance sheet item for the start-up companies. Finally, ‘Start-up & SME Booster’ provides funding support to selected ventures or SMEs. Aside from revenue-

sharing and equity participation, which are revenue streams that are already realized when supporting ventures today, there is further upside potential and leverage by tightly connecting with other investors.

‘Deal flow industry’ focuses on bringing start-ups or spin-offs from projects to investors and follow-up funding; brokerage fees for successful matchmaking and/or backflow through leveraged co-investment (e.g. using booster funding) will be developed; success will be highly dependent on the EIT RawMaterials brand and the quality of the associated services delivered. This also includes backflows from successful up-scaling projects.

Key Action Area 3 is expected to contribute about 70-80% of the overall Third-party contributions.

#### 5.4.4 Key Action Area 4: Stakeholder management

*EIT RawMaterials will be a key partner for strategic cross-value chain collaboration in defined key areas (e.g. Circular Economy).*

‘External relations’ will exploit current collaborations with a clear focus on European Green Deal actors such as JRC, DG Grow, DG Environment, European Battery Alliance etc. We will also explore new avenues for collaboration and funding such as EU, national, regional actors in order to leverage the regional organization and work with existing or newly emerging PPPs. A clear assignment contained within external relations is to identify sources of public funding specifically geared towards cross-sector collaboration and to leverage successful projects in portfolio for outreach activities.

‘Cross-KIC management’ deals with intra-EIT activities such as joint spaces (e.g. offices and workspaces in Stockholm EIT house in Brussels etc.), joint projects such as Jumpstarter and up-coming long-term joint activities under the EIT umbrella (e.g. Higher Education Initiative).

This action area contributes to the KIC’s revenues from membership fees, which are forecasted at a level of more than 50m EUR over the period of time of 2021-2027. EIT RawMaterials works with a dedicated partner retention and acquisition programme to secure a high level of membership fees as a core revenue stream.

#### 5.4.5 Key Action Area 5: Operational Excellence

*EIT RawMaterials will be the partner of choice for brokerage and matchmaking for innovation, education and entrepreneurship in the RM sector.*

‘Fund & portfolio management’ is a necessary basis and track record to signal competence to manage comparable, exclusive funding schemes in the future (e.g. as outcome of a Lighthouse). This also includes back office functions and evaluates the possibility of shared services with other KICs and outsourcing of activities, if cost-efficient.

‘Partnership management’ optimises the membership strategy and evaluates the KIC’s revenue diversification strategy regarding alternative income streams to complement membership fees on a continuous basis.

Similar to the previous action area, this action area contributes to the KIC's revenues from membership fees.

Table 7: Forecast revenue (in MEuro)

FS forecast revenues (MEUR)	2021	2022	2023	2024	2025	2026	2027	SUM
1. INCOME GENERATED BY ROI & EQUITY	0.0	0.0	0.5	1.8	3.3	6.5	12.5	<b>24.6</b>
2. EDUCATION	0.1	0.1	0.3	0.4	0.5	0.5	0.6	<b>2.5</b>
3. SERVICES & CONSULTING	0.2	0.4	1.2	1.7	2.5	3.4	4.4	<b>13.8</b>
4. MEMBERSHIP FEES	8.0	8.0	7.5	7.5	7.5	7.5	7.5	<b>53.5</b>
5. ALTERNATIVE FUNDING SOURCES FOR KIC LE (PUBLIC AND PRIVATE)	0.5	0.5	3.0	5.0	7.5	10.0	19.0	<b>45.5</b>
<b>6. SUM of FS REVENUES</b>	<b>8.8</b>	<b>9.0</b>	<b>12.5</b>	<b>16.4</b>	<b>21.3</b>	<b>27.9</b>	<b>44.0</b>	<b>139.9</b>
<b>7. EIT grant PROJECTION</b>	<b>62.5</b>	<b>70.0</b>	<b>70.0</b>	<b>73.0</b>	<b>74.0</b>	<b>65.0</b>	<b>55.0</b>	<b>469.5</b>
<b>8. FS COEFFICIENT (%) ([6] / [7])</b>	<b>14%</b>	<b>13%</b>	<b>18%</b>	<b>22%</b>	<b>29%</b>	<b>43%</b>	<b>80%</b>	<b>30%</b>

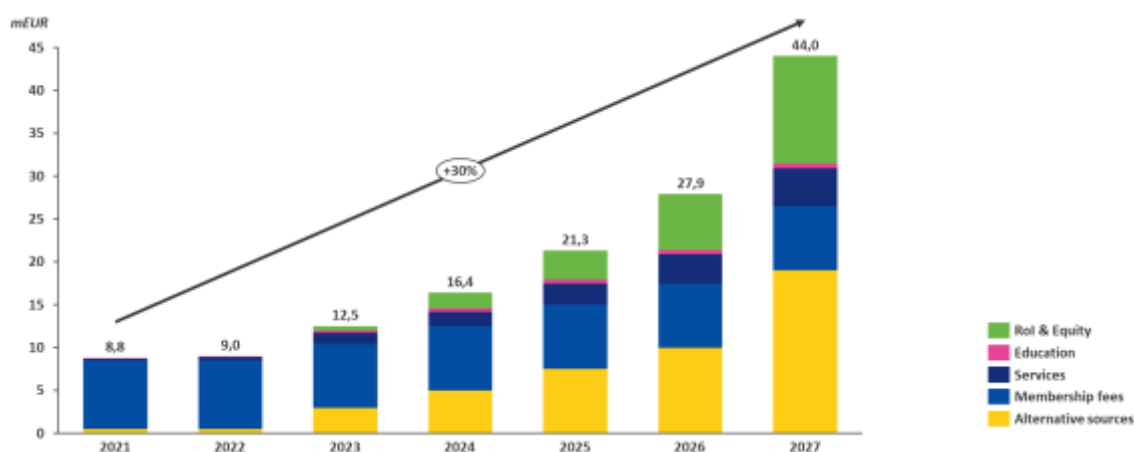


Figure 7: Graph outlining the KIC's forecast revenues (2021-2027)

Table 8: Forecast revenue (in mEuro; details of graph presented above)

Forecast revenues (mEUR)	2021	2022	2023	2024	2025	2026	2027	SUM
Alternative sources	0.5	0.5	3.0	5.0	7.5	10.0	19.0	<b>45.5</b>
Membership fees	8.0	8.0	7.5	7.5	7.5	7.5	7.5	<b>53.5</b>
Services	0.2	0.4	1.2	1.7	2.5	3.4	4.4	<b>13.8</b>
Education	0.1	0.1	0.3	0.4	0.5	0.5	0.6	<b>2.5</b>
Roi & Equity	-	-	0.5	1.8	3.3	6.5	12.5	<b>24.6</b>
<b>SUM</b>	<b>8.8</b>	<b>9.0</b>	<b>12.5</b>	<b>16.4</b>	<b>21.3</b>	<b>27.9</b>	<b>44.0</b>	

## 5.5 Cross-cutting aspects

### 5.5.1 Openness and Transparency

EIT RawMaterials will continue its transparency and openness policy by keeping its partnership open to all actors relevant to its goals and challenges at global level. It will adapt its partnership to facilitate the access to start-ups and SMEs, regardless of the sector of activity. The KIC partnership is based on clear and transparent accession criteria for new partners that add value to the partnership, allowing the contribution of all stakeholders to the Strategic Agenda's implementation. Accession criteria and conditions are being published on the EIT RawMaterials website. EIT RawMaterials will continue organising events like the RM Summit that are publicly accessible, allow interested organisations to understand how the KIC is organised and to establish contacts between the KIC partners and new, interested parties.

EIT RawMaterials fosters high levels of transparency by keeping all KIC partners and external stakeholders informed about the KIC's operations and developments. For example, news and success stories are shared over the website, social media and the InfoCenter, and monthly newsletters are sent to the broad network of stakeholders of EIT RawMaterials. Stakeholders are also regularly involved through General Assemblies when defining the future strategic directions of EIT RawMaterials and when discussing priorities and annual business plans of the KIC. Partners can contribute to the identification of relevant topics and needs via the CLCs through the regular CLC partner and CLC Steering Committee meetings.

One dedicated element for the aspect of openness is the welcoming of independent board members in the Executive Board of EIT RawMaterials, which is deemed to be an important element to get additional competences from outside the partnership. Another dedicated element of openness is the publishing of the KIC's strategy documents on the EIT RawMaterials website, enabling interested stakeholders to follow developments and to engage with the KIC and its partners.

Continuing already established good-practice principles, the selection of new projects is always based on open calls and follows fair and transparent evaluation models that have proven to be successful and well recognised in the past. This does not only refer to innovation and education KAVAs, but is the same – based on the established principles and calls – as well for entrepreneurship activities like the support for start-ups. Operating under Horizon Europe from 2021, open calls for selection of KAVAs will be placed under the Competitive calls and calls for third parties section of the Funding & Tenders portal of the EC, including a wide communication of the calls launched. The calls are not restricted to the existing network of KIC partners. For other calls, like those providing financial support to third parties, a publication on the Funding & Tenders portal will be decided on a case by case basis. This openness ensures that suitable partner organisations can contribute towards the implementation of the Strategic Agenda and the business plans even though they might not be currently a KIC partner or might not become one in the future (work in progress in terms of a newly developed Membership Strategy and Structure planned to be finalised in the course of 2021). As references for good practices, the pilot SME call in 2020, which will be continued in 2021 and most likely beyond, and the activities within the European Raw Materials Alliance (ERMA) can serve as examples, especially as these activities are open for any partner, may it be from within the KIC EIT RawMaterials or not.



## 5.5.2 Synergies and Collaborations

EIT RawMaterials added value lies predominantly in the fact that it covers the full value chain of metallic and mineral raw materials. By doing this it is able to target upstream, midstream and downstream part of the cycle and reach its strategic objectives of: (1) securing raw materials supply, (2) designing solutions, and (3) closing material loops. It is also the world's largest network of Partners in the raw materials sector, who come from the three sides of the Knowledge Triangle, and equally cover the full value chain of the sector. Having this focus and the support of the Partnership EIT RawMaterials is able to contribute to the transition of the European economy into a green economy. Our strategy is to actively engage and collaborate with main EU actors to actively support and shape the implementation of the overarching European Commission's priorities relevant for the Raw Materials sector, namely:

- The European Green Deal adopted on 11 December 2019 and targetting 2050 climate neutrality, recognizing access to resources as a strategic security question to fulfil EU ambitions.
- The new Industrial Strategy for a globally competitive, green and digital Europe prioritizing raw materials as one of the key enablers for a globally competitive, green and digital Europe.
- The new Circular Economy Action Plan for a cleaner and more competitive Europe, which clearly states the utmost importance of raw and advanced materials to enhance EU competitiveness within circular economy strategy framework.

EIT RawMaterials further contributes greatly to the EU's raw materials policy strategy. The overall goal of the European Raw Materials Initiative is to ensure the sustainable supply of raw materials to the European economy. The initiative has three pillars: 1) Ensure level playing field in access to resources in third countries; 2) Foster sustainable supply from European sources; 3) Boost resource efficiency and recycling.

In September 2020 the European Commission published the new list of critical raw materials and announced that it would launch a major new initiative on raw materials (European Raw Materials Alliance). EIT RawMaterials is uniquely positioned to take a lead role in this initiative and orchestrate the establishment and implementation thereof. With strong support from European raw materials industry it will create an investment platform that will select strategic resource related investments in Europe. They will benefit from EU, public and private funding sources. At the same time the involvement of EIT RawMaterials will contribute to its long term sustainability.

Innovation, entrepreneurship and supply of the necessary skilled human capital are essential elements of these pillars. The pillars are therefore captured and addressed by the EIT RawMaterials vision, mission, strategic objectives and innovation system. In addition, EIT RawMaterials complements and synergises with other programmes working towards the pillars of the Raw Materials Initiative and is actively engaged in the European Innovation Partnership on Raw Materials (EIP RM) and H2020 actions on raw materials, as well as other European programmes (e.g., Copernicus collaboration with DG GROW, SPIRE, and Prometia). It will continue to seek synergies with the new framework program Horizon Europe. As in the past R&D projects funded in H2020 and HE can be continued within EIT RawMaterials with a goal to entering the commercial markets. In addition EIT RawMaterials is able to complement efforts of EASME and EIC in the field of supporting SMEs and fostering entrepreneurship in EU in the raw materials sector. EIT RawMaterials will also be actively involved in European initiatives supporting the transition of the European economy, such as the European Raw Materials Alliance, European Battery Alliance and other initiatives on raw

materials. EIT RawMaterials will contribute to RIS by continuing its efforts in the resource endowed RIS countries (Balkan Peninsula, Iberian Peninsula) and seeking joint efforts with regional agendas (e.g. Western Balkans Agenda on Innovation, Research, Education, Culture, Youth and Sports), structural funds and other European institutions (i.e. EBRD).

In the KIC portfolio, the Lighthouses serve as beacons for many cross-theme activities and will foster efficient value chain integration and de-siloing. Because the Lighthouses target important societal challenges, they will create synergies with other programmes and organisations dedicated to addressing societal challenges related to resource efficiency and consumption, e.g., EIT InnoEnergy and Climate-KIC, European Innovation Partnership on raw materials, UN International Resource Panel, World Resource Forum, Club of Rome, and the Global Challenges and Industrial Competitiveness Pillar of Horizon Europe (advanced materials; circular industries; smart mobility; energy storage; and circular systems).

### 5.5.3 Cross-KIC cooperation and Simplification/Shared Services

EIT RawMaterials views external collaborations as one of its four key activity areas going forward. This includes also cross-KIC collaboration on selected themes where the KICs can complement each other through synergies or jointly organized activities that promote the KTI model.

EIT RawMaterials has positive past experience in implementing several Cross-KIC initiatives that focus primarily on Education and Entrepreneurship. The most notable examples are Cross-KIC Skills 4 Future (focused on secondary school education) and Cross-KIC Circular Economy (aiming at higher Cross-KIC engagement and visibility on an EU level). These two activities are led by EIT RawMaterials, and ambition is to continue on the same or even higher level. In addition EIT RawMaterials will be leading the new HEI Capacity Building Initiative, with an indicative budget of 12 Mio. in 2021 only (400 Mio EUR indicated for the period of 2021-2027). Involvement in Cross-KIC RIS with its flagship Jumpstarter competition (focused on entrepreneurship) and in Cross-KIC CLC Consolidation will be continued. Participation in Cross-KIC Common Outreach will continue, however the level of participation in the setting up of satellite offices outside the EU will remain low as long as more intensive participation will not be required for achieving the objectives of the Strategic Agenda. In addition, to well established and value-adding Cross-KIC activities we see the potential to pursue other initiatives contributing to Higher Education, the Green Deal, and other yet to be defined. We also view the new KICs: Manufacturing and Urban Mobility as those, where synergies and complementarities could be explored based on cross-cutting topics that could benefit from a cooperation. Also EIT RawMaterials with its natural exposure to EIT RIS countries is interested in joint initiatives targeting the ESEE Region, the Mediterranean and the Baltic countries. The overall ambition of EIT RawMaterials is to increase cooperation between the KIC', and where suitable will aim at doing so via dedicated activities under the Cross-KIC scheme, to ensure a maximum as Synergies as well as to increase the overall visibility of the EIT and the work of the KIC's.

On an operational level EIT RawMaterials will further explore opportunities with other KICs to share locations similar to those already established in Sweden, Finland and Hungary. Where possible the KICs could use shared services to support the lean approach of operations EIT RawMaterials is implementing.

#### 5.5.4 Communication

The Communications Strategy of EIT RawMaterials is essential to leverage the added value of the KIC to increase the visibility of impact generation in the European raw materials sector. From 2021, the updated Communications Strategy will focus more on integrated communication engaging partners and leveraging the reach of this KIC to ensure sector positioning, solid reputation, though leadership and strong societal support. Innovation and continued digitalization of the function with ever growing content management tools and digital platforms will focus on personalised content and targeted marketing and will build up on the foundations, activities, channels and tools that were developed and implemented in 2016-2020.

EIT RawMaterials' Communications Strategy is aligned with the overall EIT Communications Strategy and builds on the joint EIT Community strengths in terms of brand visibility and recognition. The new Communication Strategy 2021-2027 will position EIT RawMaterials as the leading innovation, technology and entrepreneurial talent network in the raw materials value chain in Europe. To achieve this, it is essential that the value-added of the KIC innovation, entrepreneurship and education model in the field of raw materials and advanced materials is well understood, its long-term vision its mission is supported by communicated success in key areas and segments, to ensure *political support and reputation*.

Over the next R&I framework period 2021-2027, the Communications function of EIT RawMaterials will particularly address four main challenges: 1) Promoting and positioning the KIC as a key innovation, technology and entrepreneurial talent ecosystem in the European raw materials sector; 2) Visualising and communicating new EITRM mission statement of advancing Europe's transition to sustainability by driving innovation along the entire raw materials value chain. 3) Reaching out to key decision-makers 4) Raising awareness of the importance of the minerals and metals for the green energy transition and clean consumer technologies among EU citizens.

Communication, Dissemination activities and plans will be developed as the KIC will move forward with its Financial Sustainability strategy and plans focusing on developing additional partners services. All activities will emphasize an innovative and entrepreneurial mind-set to re-think, conceptualise and commercialise challenges in the European raw materials sector for enabling competitiveness, growth and attractiveness. Strong focus on innovation and digitalisation also applies for all communications activities, dissemination strategies and channel development. Project dissemination and exploitation and communications are interlinked. All project partners are encouraged to develop WP on communications activities and streamlined the project news, results to central communication function where news and success stories are amplified.

EIT RawMaterials Communications Strategy will rely on 5 pillars: 1) Brand Identity; 2) Internal Communications & Community Building; 3) External Communications & EU Citizen Engagement 4) Content generation and Key Messages; 5) Public Affairs and EU Stakeholder Engagement. Each pillar represents a strategic communications area with clear objectives and action plans.

## Communications Strategy 2021-2027 Pillars

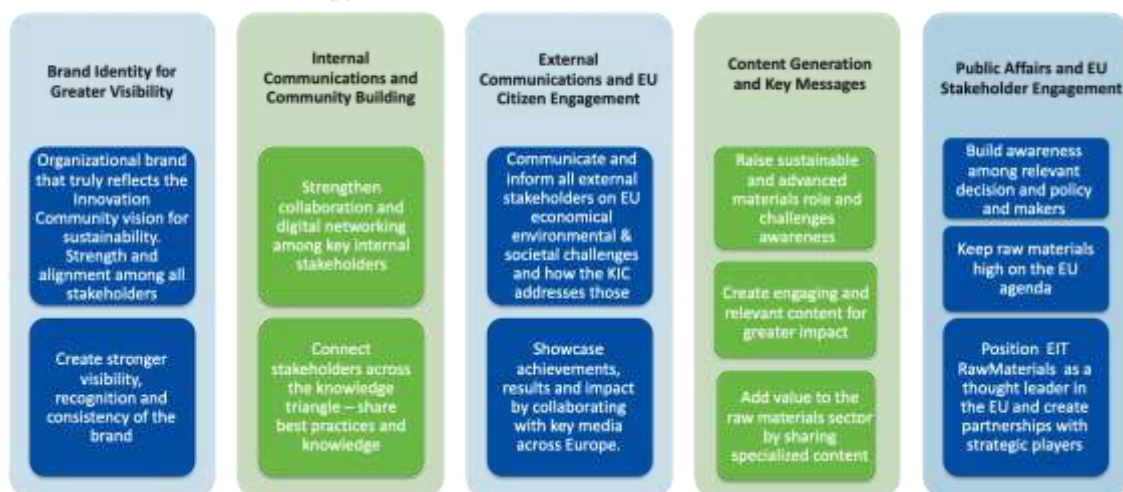


Figure 8: Communication Strategy 2021-2027 and communication objectives

Corporate communications function at the KIC will continue focusing on digital channels and social media platforms. It is expected and planned for the digital platform to grow 10-15% a year focusing on the objectives, and activities planned in the annual business plan. In addition to this, all corporate publications will become available digitally and printed materials will be substantially reduced. Communications activities will be monitored by dedicated tools and communications business partners such as a press/media agency, branding compliance is monitored through dedicated role of Events/Brands manager.

Table 9: EITHE15.1 Reach of KIC's communication activities

	2021	2022	2023	2024	2025	2026	2027
Followers on Twitter	5,000	6,000	7,000	8,000	9,000	10,000	11,000
Followers on LinkedIn	8,000	9,000	10,000	11,000	12,000	13,000	14,000
Number of articles in European/ national/ local press	100	115	130	150	170	190	220
Number of individual website visitors	150,000	180,000	210,000	240,000	270,000	310,000	350,000

### 5.5.5 Dissemination of Results

Under the Horizon 2020 R&I programme, dissemination refers to sharing of research results with potential users - peers in the research field, industry, other commercial players and policymakers. By sharing the research results with the rest of the scientific community, EIT Innovation Communities are contributing to the progress of science in general.

The objective of dissemination is to transfer knowledge & results with the aim to enable relevant stakeholders to use and take up results, thus maximising the impact of EU-funded projects.

Partners of consortia are encouraged to publish their results in peer-reviewed international journals and conference proceedings. These are typically listed as deliverables in the KAVA. To date, we have not collated this information. Many KAVAs include the organization of thematic conferences for dissemination of results across the community. Some of these events are very focused on specific topics and attract only a specialist audience, while others target a wider group of researchers and operators. In the context of the Lighthouse activities, EIT RawMaterials organizes 'expert fora', open to partner and non-partners, where experts in a specific field or value chain gather to exchange views on recent and future developments. Besides their value in terms of research and innovation, these events represent important networking and partner recruitment activities. Some EIT RawMaterials staff have an academic record and a strong research profile and continue to publish their research in international peer-reviewed journals.

With the digitalization of information flow and data management there is an overlap between dissemination, exploitation and communication of project results, especially for close-to-market projects. EIT RawMaterials uses a range of established tools to disseminate project results, including organising and participating at (brokerage) events, publishing the latest project result news including and leveraging partner media and stakeholder engagement to make results and good practices available for use.

In addition, EIT RawMaterials will continue investing resources into training partners in Science Communications and will continue developing additional toolkits for successful project communication and dissemination. EIT RawMaterials InfoCenter – a digital collaboration and networking platform is currently under development and is planned to fully relaunch in 2021 will become the leading European intelligent raw materials data platform including an access to all project results data and raw materials innovations. The Infocenter digital platform will be able to monitor and provide user analytics.

EIT RawMaterials project results are also disseminated in Open Access/Online Data repositories, and industry raw materials related publications and also presented on trade fairs, industrial events, combined with other communication channels (LinkedIn, Twitter, YouTube). The Raw Materials project portfolio will be mapped against the SDG's- one of the key the priorities of the EC Green Deal and climate neutrality ambition, which will result in and impactful and engaging materials representing the impact of EIT RM projects portfolio contributing to the overall KIC wide communications and dissemination efforts. Target indicators for the dissemination activities is the number of published project results in scientific papers. EIT RM Annual Business Plan will specify yearly targeted KPIs.

## 5.5.6 Stakeholder Engagement

The EIT RawMaterials Public Affairs and EU Stakeholder engagement Communications strategy pillar focuses on building the knowledge and awareness of EIT RawMaterials among policy- and decision makers at local, national, EU and international levels. This is done through participation at high-level events and coordination groups that are directly connected with various organisations. Reaching out to EU member states and regional authorities at CLC Level and in RIS countries will be prioritised. Through a carefully selected mix of activities and actions in consultations with partners, the KIC will work towards positioning

EIT RawMaterials as a raw materials innovation leader that will play an increased role in the EU's future raw materials sector, having an impact on the EU's green deal, climate neutrality ambition and the contribution to the Sustainable Development Goals.

EIT RawMaterials will ensure the interest of the KIC community and be well positioned with EU stakeholders. EIT RawMaterials will aim to have a strong direct collaboration with the European Commission (i.e. DG GROW, DG EAC, DG ENVIRONMENT, DG CLIMA, JRC, DG RTD, DG CNECT, DG REGIO and other DGs) as well as European Parliament, EU Permanent Representations, EU regions, EU bodies, EU partnerships and international alliances and organisations (e.g., European Battery Alliance, International Resource Panel, World Resources Forum). When relevant, the KIC will be active also through position paper coordination, stakeholder mapping and reacting visibly to raw materials-related policy news.

EIT RawMaterials will ensure the interest of the Community, Projects and the impact KIC delivers are well positioned with EU stakeholders. EIT RawMaterials is aiming at stronger cooperation and coordination with the DG Grow, European Battery Alliance and European Commission. Position paper coordination, further stakeholder mapping, reacting to the raw materials related news seizing the opportunity will be a focus here.

Through carefully selected mix of activities and actions in consultations with relevant stakeholders from the Partner Community, the KIC will be working towards positioning the EIT RawMaterials as a raw materials innovation leader that will play an increased role in EU's future raw materials sector delivering an impact to EU's industrial competitiveness, increased knowledge & Innovation capacity, growing human capital and entrepreneurship.

In parallel and strict synergy with the strategy run at EU level, the stakeholders engagement strategy at regional level will build upon the outreach activities that each CLC has already developed over the past years. This activity, led by each CLC, consisted in reaching out to national and regional authorities as well as other relevant organizations within the raw material value chain.

Each CLC – Central, Baltic, North, East, West and South - will set up structured collaboration in terms of timely provision of information to the EIT National Contact Points in order to widen the Community outreach, prioritize and engage with relevant stakeholders at Member State and Regional levels. CLC contacts with national and regional authorities will be pursued through prior alignment among the KICs being present in a given country, with the aim of increasing the critical mass and efficacy of the message.

### 5.5.7 Global Outreach

The raw materials sector is inherently international as a result of economic, geological and geopolitical factors. EIT RawMaterials focuses its Global Outreach activities on three main directions:

1. Export partner network (meeting targets 1, 2, 4 and 8 of the Strategic Framework for EIT Community Global Outreach Activities)

Focusing on China, Latin America, Canada, Australia, South Africa, and the Central African Copperbelt region, the KIC shall use existing well-known and new promising events as platforms for EIT RawMaterials supported start-ups and SMEs to meet investors and potential customers. Furthermore, the KIC EIT will co-operate with the networks and contacts of the Member State local representations in order to pave way for start-up and SME export. In particular, the activities will be designed together with the national funding agencies of the target countries, as well as the World Bank programmes in the developing countries. This way of co-funding the KICs activities also will contribute to the financial Sustainability of the EIT RawMaterials. With knowledge transfer of the KIC partners' innovations especially on the digitalization of the mineral value chain in non-European regions, this network shares the objectives of the EU's digital strategy.

2. Developing Access to the Pool of Global Talent (meeting target 3 of the Strategic Framework for EIT Community Global Outreach Activities)

This action is creating a two-way benefit of talent from 3<sup>rd</sup> countries entering EIT RawMaterials education programmes, as well as graduates and start-ups from EIT Labelled and other education activities finding business opportunities with industry in 3<sup>rd</sup> countries. Through promotion of partner driven education programmes as well as the RACE concept in overseas trade shows / conferences, creation of internship positions in Europe for overseas talents, and sending European students as trainees to overseas companies, the KIC shall transcend its talent pool beyond Europe securing the best resources to benefit the European raw and advanced materials industries.

3. Establishing strategic alliances

The target is to identify relevant ecosystems in target regions and then adapt best practices from them. Examples are AMIRA (AU) and CEMI (CA). This benchmarking is particularly expected to serve the Financial Sustainability of the KIC. EIT RawMaterials has been closely involved in the cross-KIC outreach programme establishing a new EIT Hub in China, and the KIC will seek for further opportunities to join hubs in other strategically important regions. This activity will utilize the EU Bodies in 3<sup>rd</sup> countries, such as ENRICH, e.g when organizing start-up sessions in target countries. Finally, the KIC will continue to contribute to the EU-LAC round tables and at the same time promote European start-ups and SMEs. This activity supports the international dimension of the Green Deal, where Green Alliances with partner countries and regions shall be formed with partner countries and regions in order to prevent ecological collapse and fight climate change. The KIC's strategic objectives on sustainable sourcing of raw materials particularly for electric mobility and energy storage directly support minimizing ecological harm to third countries from mining activities as well as reduce carbon dioxide emissions from traffic and industry.

## 6 RISKS

Table 10: Risk assessment

Key risk (title and description, including cause and potential consequence)	Risk type	Objective /thematic area affected by the risk	Impact (Low 1-2 Medium 3 High 4-5)	Likelihood (Low 1-2 Medium 3 High 4-5)	Key control(s)/mitigating factor(s)	Action plan Summary		
						Description	Owner	Deadline
Geographical and / or topical siloing	Planning, processes and systems (Macro-environment)	All areas	3	1	Balance of partners across CLC's and countries & Balance of project topics across topics/ active partner and project scouting	Monitoring of partnership composition & Monitoring of project portfolio composition	CLC Managers & Managing Board	Ongoing
Financial Sustainability Strategy not in line with market demands	Planning, processes and systems (Financial Processes and Budget Allocation)	KIC's Financial Sustainability	5	3	Number of new contracts concluded, portfolio of funding sources / Adoption of portfolio of FS activities, like service offers, backflow schemes and alternative financing sources	Monitoring of successfully concluded contract negotiations with external stakeholders and partners	COO	Closing of financial year
Lighthouse programs and / or Strategic Agenda not in line with Europe's needs	External environment (Internal and External Partners)	All thematic areas	4	2	Feedback from partnership & stakeholders / Update of Strategic Agenda in cooperation with partnership and stakeholders	Continuous exchange with stakeholders & monitoring of developments in the sector	Director Innovation	Bi-Annually



Key risk (title and description, including cause and potential consequence)	Risk type	Objective /thematic area affected by the risk	Impact (Low 1-2 Medium 3 High 4-5)	Likelihood (Low 1-2 Medium 3 High 4-5)	Key control(s)/mitigating factor(s)	Action plan Summary		
						Description	Owner	Deadline
Geopolitical developments hinder participation of partners in KIC	External environment (Macro-environment)	Implementati on of SA at large	3	1	Political landscape and decisions announced / outside of EIT RawMaterials control	Continuous Monitoring of Geopolitical developments on EU level	CEO	Ongoing
Innovation project portfolio not suitable to meet targets of the SA	Planning, processes and systems (Operational Processes)	All thematic areas	4	2	Constitution of activities within EIT RawMaterials project portfolio / Change of focus of Calls launched by EIT RawMaterials	Monitoring of project portfolio	Director Innovation	Selection date of new projects to be taken on board to EIT RawMaterials' project portfolio
Business Creation Programs attractiveness	Communication & Information (Communication methods and channels)	All thematic areas	4	3	Number & Quality of applications received/ Increased budget and collaboration with entrepreneurship eco-systems across Europe	Portfolio analysis and continuous promotion of the KIC programs	Head of Business Development	Yearly review cycles on Q1
Education offers not in line with needs from EIT RawMaterials partners, other stakeholders and not attractive to participants	Planning, processes and systems (Operational Processes)	All thematic areas	4	2	Constitution of activities within EIT RawMaterials project portfolio / Change of focus of Calls launched by EIT RawMaterials and increase Communication	Monitoring of project portfolio & matching of this with identified educational needs	Director Education	Selection date of new projects to be taken on board to EIT RawMaterials' project portfolio
Partnership not suitable to implement SA	People & Organization (internal organisation)	All thematic areas	5	2	Constitution of Partnership towards defined SA / Monitoring of Partnership & active partner scouting	Partnership management to ensure required competences to implement SA are with EIT RawMaterials	CLC Managers	After annual reporting

# ANNEX 1 KIC IMPACT

KIC Strategic Objective (i)	Problem/ issue related to the societal challenge (ii)	Societal and economic impact to be created by 2027 (iii)	Impact KPIs (iv)	Targets to be achieved by 2024* (v)	Targets to be achieved by the FPA end year [2022]* (vi)	Targets to be achieved by 2027* (vii)	Relevant UN SDG Targets (viii)	Source of verification (to be completed only for the societal impacts) (ix)
Securing raw materials supply	Dependency on imported raw and advanced materials, leading to vulnerability to external disruptions in supply chains	Business creation  Improve industrial competitiveness  Infrastructure investment  Raw materials concentrate produced	Investment attracted in resources  Savings and increases in sales  New pilot/demo plants, prototypes  Percentage increase	300 M EUR  15 M EUR  150  2%	150 M EUR  8 M EUR  200  -	500 M EUR  40 M EUR  300  5%	9.1-5, 12.4-8  9.1-5, 12.4-8  9.1-5, 12.4-8  9.1-5, 11.2, 11.3, 12.4-8	Internal data, JRC data
Securing raw materials supply	Low social acceptance of the raw and advanced materials extraction and production, leading to public perception that the sector is not compatible with the goals of the Green Deal	Integration of the RIS region  Ensure stable RM workforce  Improve gender balance  Carbon savings	% funding to RIS in non-RIS projects  Created/maintained/re-skilled jobs  Women graduating from RM courses  % CO2 emitted savings	20%  2,000  40%  5%	20%  650  37%  2%	20%  6,000  50%  20%	8.4  4.4, 4.7  4.3, 4.5, 5.5  7.2, 7.3, 11.2, 11.3, 13.2	Internal data, JRC data

KIC Strategic Objective <i>(i)</i>	Problem/ issue related to the societal challenge <i>(ii)</i>	Societal and economic impact to be created by 2027 <i>(iii)</i>	Impact KPIs <i>(iv)</i>	Targets to be achieved by 2024* <i>(v)</i>	Targets to be achieved by the FPA end year [2022]* <i>(vi)</i>	Targets to be achieved by 2027* <i>(vii)</i>	Relevant UN SDG Targets <i>(viii)</i>	Source of verification (to be completed only for the societal impacts) <i>(ix)</i>
Designing materials solutions	The design and production of advanced materials, components and products that enable the transition to a carbon-neutral Europe have increasingly moved to non-European countries, putting European innovation capacity at risk	Business creation  Improve industrial competitiveness  Infrastructure investment  Integration of the RIS region  Improve gender balance  CRM substitution/reduction  Advanced materials produced	Investment attracted in resources  Savings and increases in sales  New pilot/demo plants, prototypes  % funding to RIS in non-RIS projects  Women graduating from RM courses  Number of cases  Percentage increase	300 M EUR  15 M EUR  150  20%  40%  80  2%	150 M EUR  8 M EUR  200  20%  37%  70  -	500 M EUR  40 M EUR  300  20%  50%  100  5%	9.1-5, 12.4-8  9.1-5, 12.4-8  9.1-5, 12.4-8  8.4  4.3, 4.5, 5.5, 12.4-8  7.2, 7.3, 11.2, 11.3, 12.4-8  9.1-5, 11.2, 11.3, 12.4-8	Internal data, JRC data
Designing materials solutions	Need to transition from the 'brown energy' to the 'green energy', and from the linear economy to the circular economy to fulfil the aspirational goals of the Green Deal	Advanced materials development  Advanced materials development  Ensure stable RM workforce  Carbon savings	Number of new advanced materials  Improved products with less toxic materials  Created/maintained/re-skilled jobs  % CO2 emitted savings	2  58  500  5%	1  50  400  2%	5  70  4,000  20%	9.1-5, 11.2, 11.3, 12.4-8  7.2, 7.3, 11.2, 11.3, 12.4-8  4.4, 4.7  13.2	Internal data, JRC data

KIC Strategic Objective <i>(i)</i>	Problem/ issue related to the societal challenge <i>(ii)</i>	Societal and economic impact to be created by 2027 <i>(iii)</i>	Impact KPIs <i>(iv)</i>	Targets to be achieved by 2024* <i>(v)</i>	Targets to be achieved by the FPA end year [2022]* <i>(vi)</i>	Targets to be achieved by 2027* <i>(vii)</i>	Relevant UN SDG Targets <i>(viii)</i>	Source of verification (to be completed only for the societal impacts) <i>(ix)</i>
Closing materials loops	Low social acceptance of the raw and advanced materials extraction and production, leading to public perception that the sector is not compatible with the goals of the Green Deal	Infrastructure investment  Integration of the RIS region  Ensure stable RM workforce  Improve gender balance	New pilot/demo plants, prototypes  % funding to RIS in non-RIS projects  Created/maintained/re-skilled jobs  Women graduating from RM courses	50  20  300  40%	100  20  250  37%	100  20  2,000  50%	9.1-5, 11.2, 11.3, 12.4-8  8.4  4.4, 4.7  4.3, 4.5, 5.5	Internal data, JRC data
Closing materials loops	Need to transition from the 'brown energy' to the 'green energy', and from the linear economy to the circular economy to fulfil the aspirational goals of the Green Deal	Business creation  Improve industrial competitiveness  Increased recycling rate over current rate  Enhanced sustainability  Enhanced sustainability  Carbon savings	Investment attracted in resources  Savings and increases in sales  Recovery of selected CRM  % new and existing processing plants with reduced discharge  % European companies using sustainability standards  % CO2 emitted savings	200 M EUR  10 M EUR  2% increase  20%  1%  5%	150 M EUR  4 M EUR  1% increase  10%  0%  2%	300 M EUR  20 M EUR  5% increase  50%  5%  20%	9.1-5, 12.4-8  9.1-5, 12.4-8  9.1-5, 11.2, 11.3, 12.4-8  6.3, 6.4, 12.4-8  9.1-5, 12.4-8  7.2, 7.3, 11.2, 11.3, 13.2	Internal data, JRC data

\*Targets should be accumulative for the period of the KIC up to this year.