



Strategic Agenda 2018-22 of EIT RawMaterials



EIT RawMaterials is supported by the EIT,
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EXECUTIVE SUMMARY

Raw materials are essential to securing a transition to green energy technologies, to securing growth and sustainable consumption and to securing access to clean and efficient consumer technologies. Europe is highly dependent on importing raw materials to secure the global competitiveness of its manufacturing industries and to accelerate the transition to a resource efficient, sustainable society.

EIT RawMaterials has the ambitious vision to develop raw materials into a major strength for Europe and the mission to enable sustainable competitiveness of the European minerals, metals and materials sector along the value chain by driving innovation, education and entrepreneurship.

EIT RawMaterials integrates disciplines, diversity and complementarity across the entire raw materials value chain and along the three sides of the knowledge triangle. The EIT RawMaterials partnership includes over 120 Core and Associate partners who are leaders in their fields. The KIC aims to be a highly effective network organisation that funds high-impact projects and delivers value-adding services to its partners.

EIT RawMaterials will create value by strengthening innovation, technology, services and skills, and especially by directly addressing raw materials challenges that require collaboration amongst stakeholders from all, or several parts, of the value chain. Integrating the knowledge triangle will be fostered through intertwining KIC activities in networking, acceleration and education. Lighthouses, large- scale and long-term coordinated innovation initiatives that directly address the three strategic objectives, will tackle fundamental innovation challenges in the raw materials field. The approaches will leverage impact through synergies and will provide a powerful way of maximising opportunities and impact in the raw materials sector in Europe.

EIT RawMaterials will generate significant impact on European competitiveness and employment. This will be realised through the introduction of innovative and sustainable products, processes and services and skilled human capital that will deliver increased economic, environmental and social sustainability to European society.

Costs – indicative budget 2016-2022

Sources of funding (in million EUR)	2016	2017	2018	2019-2022	TOTAL
EIT funding	16.8	32.3	55.1	328.0	432.2
NON-EIT funding of which:	79.5	117.1	171.3	929.1	1,297.0
1) Overall partners' contribution	79.4	116.9	171.1	925.8	1,293.2
2) Other sources	0.1	0.2	0.2	3.3	3.8
TOTAL	96.3	149.4	226.4	1,257.1	1,729.2

1. STRATEGY

1.1. Strategic objectives of the KIC

The Challenge

Raw materials are critically important for implementing the 2030 *Agenda for Sustainable Development*, and for achieving the goals set out in COP21 and several of the United Nations Sustainable Development Goals. This is because raw materials are essential to securing a transition to green energy technologies, to secure growth and sustainable consumption and to securing access to clean and efficient consumer technologies. The European Union is strongly committed to implementing these agreements as well as aiming for sustainable development (see *Proposal for a new European Consensus on Development of Our World, our Dignity, our Future*).

Metals, minerals and materials are of particular importance in this context. The sustainable management of natural resources and the shift to a green economy are examples of this and have been taken up in the EU's *Raw Materials Initiative*. Today, Europe is highly dependent on importing raw materials to secure the global competitiveness of its manufacturing industries and to accelerate the transition to a resource efficient, sustainable society.

Vision & Mission

To meet this challenge, the vision of EIT RawMaterials is to develop raw materials into a major strength for Europe. EIT RawMaterials enable a Europe that bases its industrial strength on a cost-efficient, secure and sustainable supply and use of raw materials. In this vision, products, processes and solutions are tailored towards the closure of highly interconnected material cycles. These dynamic and fast-changing material cycles will attract new investments, enhance the innovation capacity for competitiveness and the interest of talented, skilled, entrepreneurial people. Society will become aware of the value of raw materials, and the sector will be perceived as innovative and attractive. The vision is in line with the ambition of the *Raw Materials Initiative*, the European Circular Economy Package and supports a systemic change in raw materials production and consumption with innovations in technologies, education and society.

This vision requires the development of a link between the optimal use of primary and secondary resources complemented by a new generation of skilled people entering industry, universities and research. This development will build on the current strengths of the EU raw materials sector such as its leading capabilities and technology in exploration, mining, processing and metallurgy of raw materials from primary and secondary sources. It will benefit from world-class competence in the design of tools and equipment, smart products and services, end-of-life product management and recycling. Top-notch learning and education will be vital to achieve this vision. The strength and complementarity of the EIT RawMaterials consortium will contribute to realising this ambitious vision for Europe, as expressed in our mission statement: The mission of EIT RawMaterials is to enable sustainable competitiveness of the European minerals, metals and materials sector along the value chain by driving innovation, education and entrepreneurship.

Strategic Objectives

Raw material challenges are often treated in a segmented manner and with a short-term horizon. However, to implementing more sustainable solutions requires multiple actors along the value chain to act and invest simultaneously. Therefore, a paradigm shift is required towards systemic thinking aiming at the long-term availability and sustainability of raw materials. To fulfil the EIT RawMaterials

mission, three strategic objectives will be addressed: Securing raw materials supply; designing materials solutions; and closing materials loops. The three strategic 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, Lighthouses are defined as part of the EIT RawMaterials portfolio. Lighthouses are large-scale and long-term coordinated innovation initiatives that directly address the three strategic objectives. They are mission-oriented approaches to innovation challenges and span all activity lines and integrate stakeholders from across the value chain.

1. Securing raw materials supply

Collaboration across the whole raw materials value chain will be supported and strengthened so that sustainable and efficient raw materials solutions can be developed. EIT RawMaterials will raise awareness amongst stakeholders of the potential and the diversity of raw materials sources in Europe. A better understanding of RM sources and of materials use will provide a rigorous basis on which to develop new opportunities. A range of options must be developed to secure economically viable and sustainable raw materials supply. Mining must be strengthened in Europe, including in the Arctic and from the seabed. Increased materials supply from secondary sources must be achieved through innovations in recycling end-of-life products, extraction from industrial residues, tailings, and urban and landfill mining. The involvement of EIT RawMaterials partners in the global system of trade and governance of raw materials must be reinforced. Automation and digital technologies will enable an increase in resource and production efficiency.

2. Designing materials solutions

EIT RawMaterials will use powerful multi-scale modelling and decision-making support tools to offer new opportunities in designing smarter solutions for the circular economy and for the sustainable extraction, processing and use of raw materials from both primary and secondary sources. At the concept stage, many decisions are made which have significant consequences from a raw materials perspective. 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.

3. Closing materials loops

From a raw materials value chain perspective, three objectives are key in a circular economy: bringing materials into the loop in a sustainable way, keeping materials in the loop for as long as possible and minimising waste at all stages. We need to design smarter solutions for the sustainable extraction, processing and use/repair/recycling of raw materials from both primary and secondary sources. Products and materials must be maintained in the economy for as long as possible through waste valorisation, industrial symbiosis, reuse, repair, reconditioning, remanufacturing and recycling. Awareness of the benefits of closing material loops must be raised amongst students (especially children and young people), industry and society. Finally, EIT RawMaterials will engage with the consumers of raw materials, the original equipment manufacturers (OEMs), as they are key enablers of moving towards a circular economy by ensuring sustainable sourcing and the design of such an economy.

Scope

EIT RawMaterials focuses on metal and mineral raw materials, critical as well as non-critical. Bio-based and polymer materials will be included in view of their substitution potential. Other materials will also be considered in the context of multi-material product recycling. EIT RawMaterials targets raw materials-intensive markets critical to the green energy and circular economy transition, and with high strategic importance for Europe and a significant potential for job creation and exports to international markets. The material requirements of global markets are complex and offer opportunities for new innovations and cooperation with other sectors and other initiatives promoted by the EIT such as EIT Digital, Climate KIC and InnoEnergy.

EIT RawMaterials has defined six Knowledge & Innovation Themes.

1. Exploration and raw materials resource assessment
2. Mining in challenging environments
3. Increased resource efficiency in mineral and metallurgical processes
4. Recycling and material chain optimisation for end-of-life products
5. Substitution of critical and toxic materials in products and for optimised performance
6. Design of products and services for the circular economy

Figure 1 shows how the six themes relate to the entire raw materials value chain. Advances in technologies and services in the value chain, together with developments in the natural sciences, engineering and economic disciplines will be combined to create innovative solutions.



Figure 1. The raw materials value chain. The entire loop represents the circular economy.

Relevance of the KIC model

The true strength of EIT RawMaterials and the uniqueness of the approach build upon the integration of activities along the value chains, across the six themes and integrating the knowledge triangle. Traditionally the sector is very siloed, with industries in certain parts of the value chain being, to varying extents, isolated from industries further upstream or downstream.

Furthermore, business models and investor ecosystems are typically different in different parts of the value chain. EIT RawMaterials will create value by strengthening innovation, technology, services and skills in all parts of the value chain, and especially by enabling work on challenges that require collaboration amongst all or several of the themes. An example is to engage the OEM, the raw materials consumer, in ensuring responsible sourcing of raw materials from primary and secondary sources, and in designing for recycling and the circular economy.

Integrating the knowledge triangle will additionally be fostered through intertwining KIC activities in education, innovation and business, through projects in our Lighthouses to tackle fundamental innovation challenges in the raw materials field (see section 2.1). These approaches will leverage impact through synergies and will provide a powerful way of maximising opportunities and impact in the raw materials sector in Europe.

Agro-food raw materials and energy raw materials are explicitly excluded from the scope of EIT RawMaterials.

1.2. Innovation and synergies of the Strategic Agenda

EIT RawMaterials Innovation

EIT RawMaterials activities are designed as a set of 12 KIC segments grouped into three areas (see section 2 for details). The segments support the innovation process and also cover education and entrepreneurship activities for the benefit of different EIT RawMaterials stakeholders. The active involvement of industry in all segments, including education, is important and necessary for generating market-relevant impact.

Spanning all three areas, Regional Innovation Scheme (RIS) activities are of major importance to fuel innovation in EIT RawMaterials-prioritised RIS regions (see EIT RawMaterials RIS Strategy), such as Eastern and South-Eastern Europe. Cross-KIC activities are developed jointly with other KICs across the areas (e.g., through joint calls for projects).

The EIT RawMaterials Innovation System also includes Lighthouses, which are large-scale and long-term coordinated innovation initiatives that address global raw materials challenges for Europe. They are mission-oriented approaches to innovation challenges and will be fully aligned and contribute to the missions that will be defined under Horizon Europe (e.g., design of low-carbon technologies).

Synergies and complementarities

EIT RawMaterials is an integral part of addressing important raw materials-related challenges for Europe. As such, it contributes greatly to the Raw Materials Initiative, 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) Fair and sustainable supply of raw materials from global markets; 2) Fostering sustainable supply within the EU; 3) Boosting resource efficiency and promoting recycling.

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).

In the KIC portfolio, the Lighthouses will 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).

1.3. Partnership

The diversity and strength of the consortium across the whole value chain

The EIT RawMaterials partnership is to consist of complementary and diverse partners capable of addressing European raw materials challenges. EIT RawMaterials connects stakeholders and actors from all different parts of the raw materials value chain and from different fields of application that would not necessarily traditionally collaborate. This unique collaborative environment is fertile ground for breakthrough innovations and radically new ways to address raw materials challenges. EIT RawMaterials comprises more than 120 core and associate partners from leading businesses, universities and research institutes, and an additional 190 project partners contributing to and benefitting by being involved in specific tasks in KAVA projects.

The size, diversity, excellence and balance of the partnership bring to EIT RawMaterials the critical mass required to achieving significant global impact. A strengthened interaction of EIT RawMaterials with niche-oriented SMEs and start-ups will additionally create added value and form a strong basis for innovation. Although the partners come from different backgrounds and perspectives they share the common vision and mission of EIT RawMaterials and will ensure rapid advancement in raw materials-related innovation.

The initial EIT RawMaterials partnership was a result of the proposal phase and the first operational years. While this core group of partners is still with EIT RawMaterials, it is important to grow and develop the partnership to ensure openness and impact. This is well in line with the core values partners see in our partnership, where the network in itself is considered very important: a clear result of the partner strategy meeting held in early 2018. Building trust and a collaborative and open culture in the organisation is an important element and will continue to be a high priority.

Moreover, driven by market demands (e.g., the growing demand for blockchain applications), there is the need to incorporate new—and in many cases smaller—partners as well. For this, the set-up of our membership categories (core, associate and project partners) provides a good basis to easily incorporate all kinds of partners.

Industry

Approximately one-third of the partners are from the industry sector, and EIT RawMaterials takes special care to keep this level of representation across the value chain. Following the first operational years, many world-leading companies have become involved in EIT RawMaterials, and this continues to be our priority to ensure maximum impact.

To guarantee strong engagement of SMEs and increase involvement and awareness of the RM industry across Europe as a whole, 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 innovation hubs (CLCs).

Research organisations (RTO)

EIT RawMaterials includes many of Europe's most renowned research institutes, which have both broad competence and specialised expertise in specific RM-related areas. The research organisations include 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 for the benefit to the EIT RM community. As innovative idea providers, RTOs are thus able to generate innovative projects close to the market. In addition to dedicated technology transfer organisations at the RTOs, there are Technology Transfer Offices (TTOs) present in most of the university and research organisation partners with valuable experience in a variety of support systems for start-ups and intra/entrepreneurs.

Universities

The university partners provide educational capacity, curricula and top-level academics to reach and exceed educational goals. Alongside education itself, university partners contribute through research and entrepreneurial activities.

Several of the partner universities have already taken remarkable initiatives to promote creative entrepreneurship, to stimulate design-thinking innovation and to foster cross-disciplinary collaborative environments for students, researchers and business. Stronger integration of such business and entrepreneurial thinking and interdisciplinary collaboration into educational programmes specifically aimed at RM professionals is a priority for EIT RawMaterials.

Innovation Hubs/Co-Location Centres (CLCs) and geographic coverage across Europe

Because the RM sector and its associated challenges are commonly embedded in regional industrial ecosystems, it is very important for the consortium 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 consortium to grow further. These activities will focus on Eastern and South-eastern European (ESEE) countries where projects will aim to boost economic development and employment.

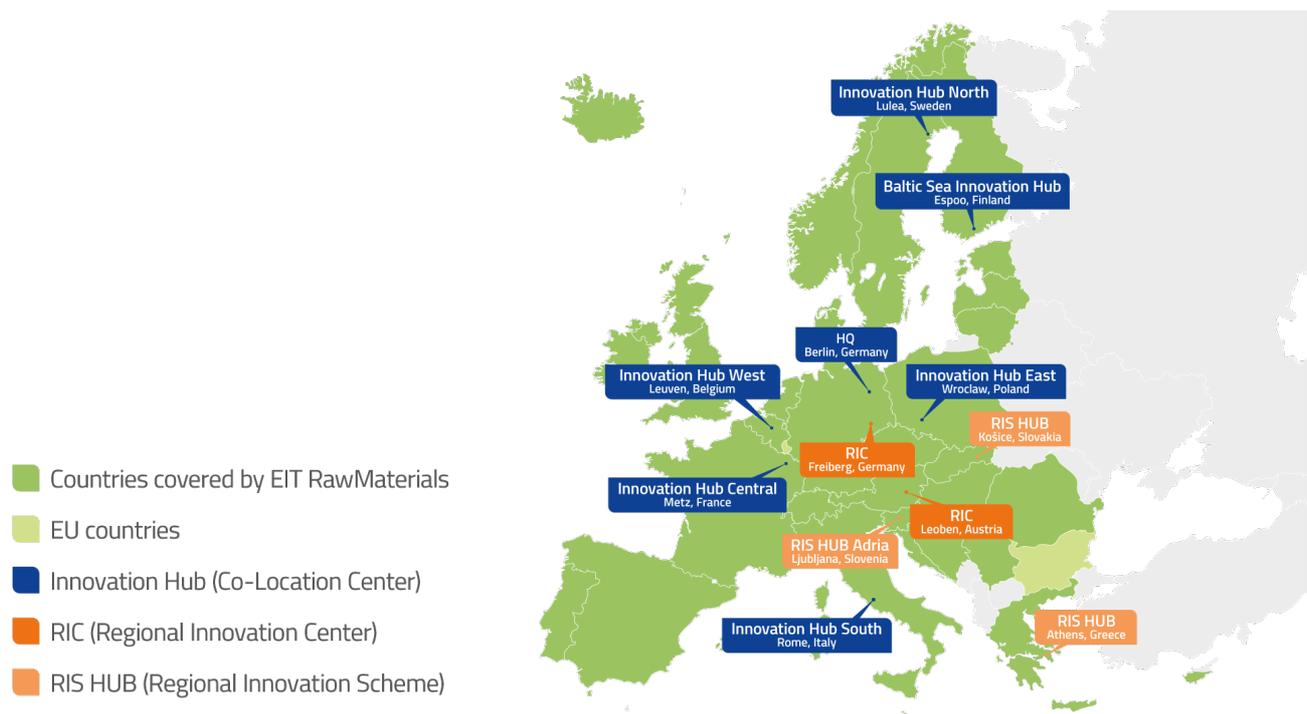


Figure 2. EIT RawMaterials presence in Europe

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

2. OPERATIONS

2.1. Governance and Operational structure

Legal structure

EIT RawMaterials is a service organisation for its partners. The administrative headquarters (HQ) and the legal seat of EIT RawMaterials (the KIC LE) are based in Berlin, Germany.

In 2015, EIT RawMaterials e.V. (Eingetragener Verein, German registered association) and EIT RawMaterials GmbH (Gesellschaft mit beschränkter Haftung, German limited liability company) were established as the top-level legal entities. EIT RawMaterials e.V. is the partner association and is the sole shareholder of EIT RawMaterials GmbH. The e.V. is legally independent and is bound to EIT by the Framework Partnership Agreement. It makes strategic decisions for the KIC, such as approving annual Business Plans, updating strategy or the adoption of Lighthouse programmes. The GmbH is legally responsible to EIT to report on the use of funds received and distributed as well as on the KPIs and impact achieved. This includes the application of monitoring and controlling measures as required by the EIT.

In order to allow for a fully compliant, best-practice organisational setup for the CLCs, a strict legal structure has been implemented, consisting of limited liability companies, under the umbrella and control of the top-level legal entity, as fully owned subsidiaries of EIT RawMaterials GmbH.

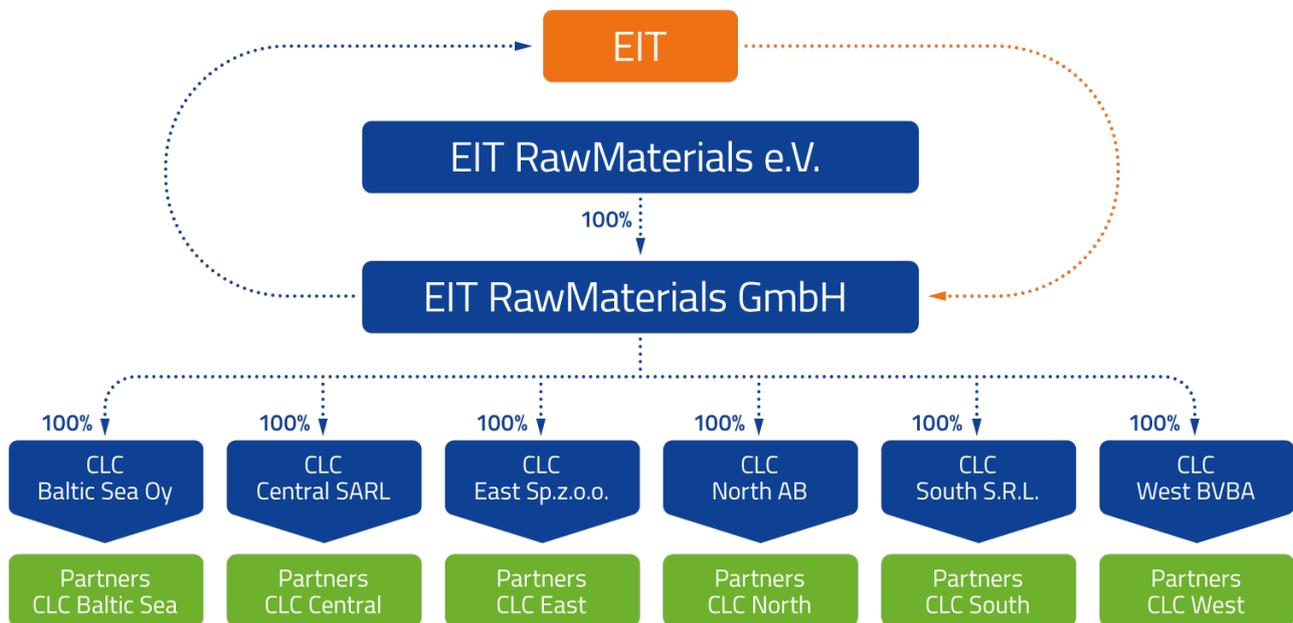


Figure 3. Legal structure

Governance structure, decision-making and advisory bodies

The EIT RawMaterials network-type organisation requires a simple and transparent governance structure, reflecting its orientation towards providing services to stakeholders and building excellence from the dual perspective of market and thematic expertise. The lean, agile and flexible governance structure is cohesive and allows effective and efficient management both at HQ and CLC levels. A sound collaborative culture between HQ and CLCs is deemed to be essential for efficiency in the decision-making process. The structure is set up to reflect the top-down approach of the decisions concerning the strategic planning and the bottom-up approach to facilitate partners' initiatives and project ideas.

The EIT RawMaterials governance model is shown in Figure 4. The LE decision-making bodies include the General Assembly (GA) and the Executive Board. The GA defines the mission and strategy of the organisation. The Executive Board is composed of six top management people from core partners (one from each CLC) and an external chair with relevant network and experience. 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 both over the entire value chain and within the knowledge triangle.

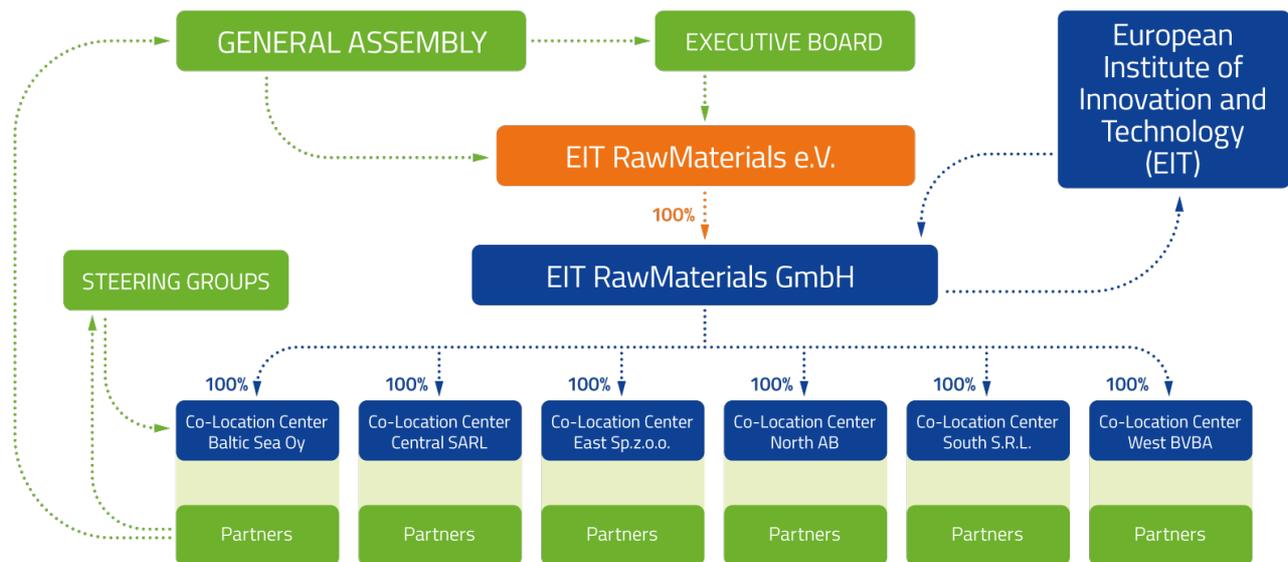


Figure 4. EIT RawMaterials governance model and operational structure

The KIC Operational Management Team (OMT) is responsible for the operations of the KIC. It is composed of two managing directors, the Chief Executive Officer (CEO) and the Chief Operational Officer (COO), the Director of Education, the Director of Operation, the Director of Innovation, the Director of Finance, and the 6 Innovation Hub/CLC directors. The OMT meets regularly to manage all aspects of day-to-day activities, sharing best practices, tools and methodologies, coordinating activities across different CLCs, etc.

Each Innovation Hub (CLC) is governed by a Steering Committee, consisting of representatives from the partners. The Steering Committees are responsible for strategically overseeing the Innovation Hub (CLC) operations and for their cooperation with local partners and raw materials actors as well as alignment with the overall goals of EIT RawMaterials.

Innovation Hubs (CLCs) provide local operational and administrative services to the partners. They support them in proposing, defining and setting up KIC Activities. Moreover, they contribute to and deliver the annual business plan and stimulate regional business development by triggering the emergence of new ideas and innovations, connecting people (innovators and entrepreneurs) and ensuring that infrastructures are shared amongst partners.

To ensure partner alignment in operations across EIT RawMaterials, the Strategic Management Team (SMT) has been established. The SMT members are the OMT and the Innovation Hub (CLC) Steering Group Chairs. It is the responsibility of the SMT to advise on activities, strategic direction and the approval of budgets for the Innovation Hubs (CLCs), and to supervise their performance. The SMT also discusses strategy, portfolio, KAVA call processes, etc. The SMT meets on a quarterly basis with additional meetings as needed.

The OMT and the SMT are supported in their duties by the IP Committee and the Education Committee and where necessary by other functional groups and task forces. In general, the task of the IP Committee is to facilitate, develop, implement and evaluate the formulation of the IP policy and to enable EIT RawMaterials to achieve its strategic goals. The Education Committee acts as an advisory board to the Education Team of EIT RawMaterials, providing recommendations and input on education activities in the KIC.

2.2. KIC portfolio

The three KIC Areas and the 12 KIC segments are the basis to ensure that the KIC added-value activities deliver relevant and significant impact.

AREA	Segment	Driver		
Matchmaking & Networking	RM InfoCenter*	KIC-driven	Lighthouses	Cross-KIC activities
	Events (Incl. RM Summit, Alumni Association)	Partner-driven / KIC-driven		
	Internationalisation	Partner-driven / KIC-driven		
	M&N RIS**	Partner-driven / KIC-driven		
Acceleration (Ex Validation & Acceleration)	Upscaling	Partner-driven		
	Growth booster (Incl. co-creation, RM Accelerator)	KIC-driven		
	Acceleration RIS**	Partner-driven / KIC-driven		
RM Academy (Ex Learning & Education)	Wider Society Learning	Partner-driven / KIC-driven		
	Master Education	Partner-driven / KIC-driven		
	PhD Education	Partner-driven / KIC-driven		
	Lifelong learning	Partner-driven / KIC-driven		
	RM Academy RIS**	Partner-driven / KIC-driven		

*incl. Networks of Infrastructure

**described in separate section

Figure 5. EIT RawMaterials portfolio structure

The segments included in Matchmaking & Networking will be used to facilitate the creation of other KIC activities, to ensure interactions between KIC Management, partners and relevant external stakeholders, and to brand EIT RawMaterials externally and create awareness of raw materials:

InfoCenter will provide a database of expertise and infrastructures available to support the open innovation approach of the consortium and stimulate links between education, research and industry.

EIT RawMaterials Events provide an open forum to exchange and test ideas between KIC innovators, researchers, educators and representatives from industry. Events promote the sharing of knowledge and best practices as well as benchmarking with other fields. Besides internal activities, public workshops and other campaigns for the general public concerning key raw materials challenges (e.g., security of supply or the needed transition to the circular economy) will generate awareness and improve the social acceptance of the raw materials field.

With the RM Events segment, EIT RawMaterials will develop and organise an annual flagship conference: *Raw Materials Summit*. The event will gather experts from Europe and the rest of the world to discuss strategies in relation to raw materials supply and access, innovation in the raw materials value chain as well as entrepreneurship and education. The summit will be an opportunity to understand and discuss EU positioning with respect to the challenges ahead, such as the energy transition and the impact this will have on raw materials supply and policies.

The objectives of the Raw Materials Summit are:

- Strengthen the brand of EU-funded organisations such as EIT RawMaterials, establishing the organisation as the reference point in Europe for innovation and entrepreneurial education within the raw materials value chain.
- Showcase innovation and technology in the raw materials sector covering the entire value chain: the event will be a chance to show what the most successful innovation projects of the EIT RawMaterials consortium have achieved so far and to show cutting-edge innovation emerging on the market.
- Provide partners with a unique opportunity to network, not only within the partner community, but also with external stakeholders in Europe and outside of Europe.
- Attract investors: showcase successful start-ups. Bridge the gap between smart idea and capital, that is, venture capital from big EIT RawMaterials companies and beyond.

Also, within the RM Events segment is the [Alumni Association](#). Founded in 2018, it assures longevity and legacy for the organisation by creating a community of interdisciplinary raw materials-related entrepreneurs and innovators who are actively collaborating to create positive impact on global challenges.

The Alumni Association offers a wealth of networking, collaboration and mentoring opportunities between individuals and organisations within EIT RawMaterials and beyond by connecting with the larger EIT alumni community. It ensures that the beneficiaries of the EIT RawMaterials experience, be it researchers, professionals or students, will be part of a community that goes beyond participation in any one individual project.

Internationalisation

Europe faces the dual challenges of high dependence on imports and insecurity of raw materials supply. The raw materials sector is inherently international as a result of economic, geological and geopolitical factors. The majority of the EIT RawMaterials partners operate internationally, both inside and outside of the European Union. Robust solutions to securing raw materials supply and to closing the loop of material flows can only be found in a global context. Therefore, EIT RawMaterials will collaborate internationally to support the KIC mission by: 1) ensuring that the whole global value chain is considered when securing raw materials supply, in particular with regard to critical raw materials (CRMs) for society and industry in the EU; 2) developing new markets for EU technologies and stimulating exports of products and services by the partners. This will contribute to new jobs and will have a focus on opportunities for start-ups and SMEs; 3) developing access to the pool of global talent available for the EU raw materials sector; and 4) helping to find opportunities to close materials loops across the value chain at the global level.

Global outreach and projects will build on the networks and current activities of consortium partners. EIT RawMaterials will take the optimal pathways to reinforce and expand activities towards international regions of strategic importance, taking into account synergies with the various raw materials actions that the EU Commission plans to implement.

In order to ensure that the contacts and actions initiated by EIT RawMaterials partners towards specific non-EU countries (third countries) and regions are coordinated and bring maximum impact, internationalisation projects will be part of the KAVA portfolio and subject to external evaluation.

International collaboration opportunities include education, public awareness and social acceptance, innovation and entrepreneurship, and international trade.

The segments included in the Acceleration area (Figure 6.) are selected according to the business maturity of the innovation.

Upscaling is tailored to bring innovations towards the market. The most promising innovations are mapped and analysed from different angles: the fit to EIT RawMaterials strategy, the market’s needs and how they most add value to the RM sector. Calls are set up to support upscaling of innovative technologies, processes and services. External expert panels support in the evaluation and selection of proposals. Projects are executed by diverse partners from industry, RTOs and universities, to ensure knowledge triangle integration. The added value of the upscaling projects comes from experimenting and testing ideas and technologies, their validation as well as demonstrating their feasibility in prototypes or in full scale. The selected ideas and technologies are first validated (concept building phase) and then developed to reach a pre-production stage (development phase).

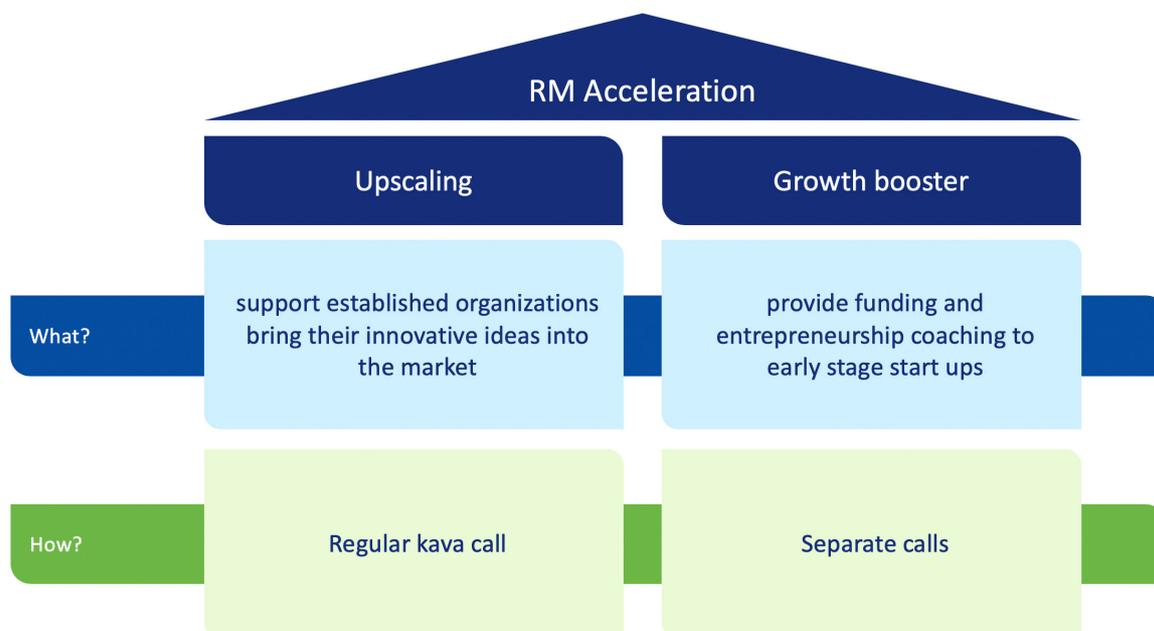


Figure 6. RM Acceleration segments

Growth Booster activities help to create novel business from innovations, e.g., finding out customer needs, related market areas and business segments. Incubator Services provide “one-stop shop” entrepreneurship services. They open up existing services from EIT RawMaterials partners to new start-ups, spin-offs and existing SMEs, and provide active support by top experts. The EIT Business Idea Competition presents a high-level challenge to identify the best novel ideas and business concepts. The winner gets intensive follow-up and coaching to develop his/her idea into a game-changing company or product. Growth booster has a specific focus on SMEs’ expansion beyond their existing local or regional reach. It utilises the industry network of EIT RawMaterials that enables an international expansion by matchmaking with complementary stakeholders. EIT RawMaterials funding instruments are developed to build up over the lifetime of EIT RawMaterials. They will be used to support the best businesses financially and carry innovation initiatives over the “valley of death”.

The Accelerator Programme is included in the Growth Booster. The overall objective for running an Accelerator programme is to improve the success rate of market entry of scalable start-ups, focusing on addressing market risk. It comprises three phases, and there are stage gates between each of the phases, where start-ups need to be approved before entering the next phase. Each phase has specific objectives, process, funding and time line. The support provided in each phase follows a clear process, which consists of both group work and individual coaching, as well as anchoring start-ups in their local and national ecosystems while at the same time opening up introductions on a pan-European level to partners in the EIT RawMaterials consortium.

The RawMaterials Academy acts as a collective, unifying brand for the entirety of the KIC's Learning and Education activities. The four segments included aim to ensure that the different segments of European society are equipped with the vital knowledge, skills and competences necessary for innovation in the raw materials sector and to make the sector strong and stable in Europe.

Within the four segments, there are two categories of activities: partner-driven and -coordinated activities, and complementary KIC-staff-driven and -coordinated activities that always involve partners.

The EIT RawMaterials Academy aims to attract people to the sector with an educational concept that accelerates skill development combined in a blended model comprised of:

- Standard technical skills in the relevant discipline
- Hands-on learning
- An overview of the entire raw materials value chain
- Innovation & entrepreneurship (I&E) training

This blended model ensures that learners benefit from systems-oriented programmes, which take a value chain approach while actively learning innovation and entrepreneurial skills necessary for maturing raw materials ideas to market solutions.

Our KIC RM Academy activities will continue to reach out to the public, students and policy makers to emphasise and showcase the significance of raw materials in society. We will underline how they as consumers and decision makers contribute to a society where raw materials are a strength and where the KIC will strengthen the creative potential of society and develop human capital, including securing diversity amongst entrepreneurs and leaders in our sector.

Wider Society Learning

The wider society activities of EIT RawMaterials vitally contribute to improve the competitiveness of raw materials actors in Europe. Besides improving awareness in the general public, the RM Academy currently targets the following focus groups:

- Young people (16-18 years): Ensure the availability of expertise in the future
- Policymakers: Ensure sound legislation through enhanced subject understanding

RM Academy will later increase emphasis on social diversity and expand to other segments, such as primary school students, and have already taken the first steps towards this.

Higher Education

The higher education activities aim at equipping Master and PhD students in the raw materials field both with a deep subject expertise as well as hone their entrepreneurial and innovation skills and

competencies. Activities include physical and online courses, seminars, workshops, exchange programmes, summer schools, doctoral schools and related tools. Activities will be consolidated based on real industrial cases, using industry and academic input. EIT RawMaterials will have focus on digital transformation in the raw materials sector, on harmonisation of innovation and entrepreneurship pedagogy and on financial sustainability. The RM Academy will prioritise developing EIT-labelled programmes and will actively promote all higher education content to increase recruitment to the raw materials sector.

Lifelong Learning

The training offer of the RM Academy in Lifelong Learning is, above all, industry-driven to equip professionals with the knowledge, skills and competencies needed to tackle industry’s technological advances. Training courses will be linked to certification schemes or European norms when applicable.

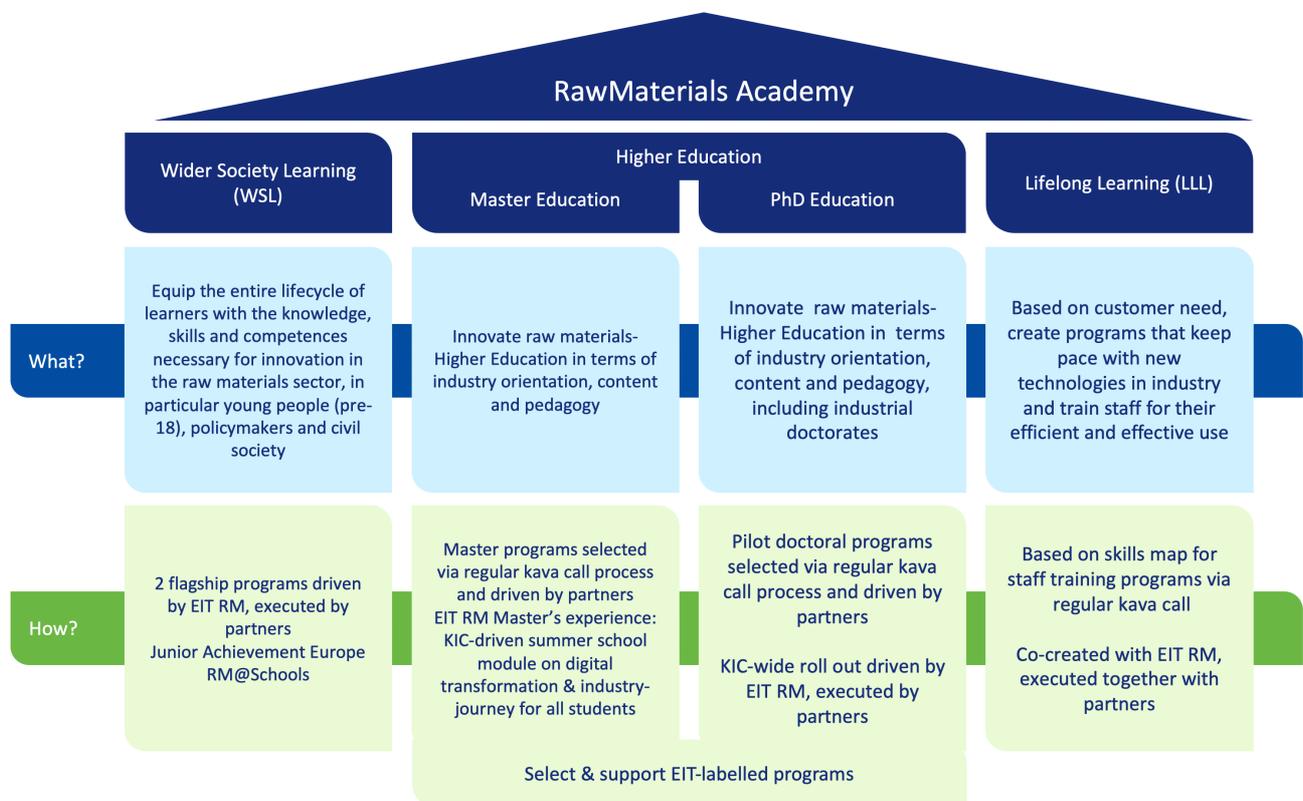


Figure 7. RM Academy segments Regional Innovation Scheme

Regional Innovation Scheme

Many RIS countries and regions in Europe are endowed with primary and secondary deposits of metallic and mineral ores and residues. EIT RawMaterials regards the RIS regions as areas where there are real opportunities to make an impact in line with our objectives. This is the reason why RIS projects are being integrated into the overall KIC portfolio structure, with the aim of them being fully part of our structure rather than a separate category.

Our strategy for delivering maximum impact in RIS regions is:

1. Engage strong key partners to enable outreach to the local stakeholders.
2. Carry out core KIC activities in innovation/upscaling and education with partners in RIS regions
3. Grow KIC participation from non-partners (and potential partners) from RIS regions by securing a strong presence in the RIS countries (Hubs) and by targeted matchmaking & networking events.

In terms of EIT RIS outreach the KIC is prioritising aligning strategic objectives with smart specialisation strategies that support the raw materials agenda. The ability to connect with stakeholders on a local level can only be achieved by creating local contact points and through working with groups or partners who are close to these stakeholders. Therefore, it is essential to extend Innovation Hub/CLC outreach by establishing local RIS hubs. EIT RawMaterials has established four RIS hubs (Regional Centres) with the intention to open more in the future:

- Regional Centre Adria
- Regional Centre Greece
- Regional Centre Košice
- Regional Centre Southern Italy

Lighthouses

The scope of the Lighthouses is to generate impact that goes beyond that created by individual projects and consortia. This is done by:

1. Funnelling synergies and expertise already existing within the partnership into coordinated high-impact activities that will contribute to the solution of important societal challenges and that will enhance the role of EIT RawMaterials as a leading innovation community; and
2. Identifying future challenges and developing the ability to address them in the partnership.

Lighthouses will build on the complementarity and individual strengths of our partners to develop the critical mass for a strong community that can address the complex challenges faced by modern society.

What is a Lighthouse and what will it achieve?

Lighthouses are large-scale and long-term coordinated innovation initiatives that address critical and specific raw materials challenges for Europe. They are mission approaches to innovation and education challenges, directly steering KIC activities towards the achievement of its strategic objectives. The long-term objectives and main KPIs of EIT RawMaterials will thus be achieved more efficiently through the lighthouse programmes.

Lighthouses will generate tangible solutions to societal challenges that have raw materials at their core. In doing so, they will enable the KIC to raise awareness of the role and importance of raw materials in a sustainable society and create a positive perception of raw materials and their associated industries.

Implementation

Lighthouses will be implemented through operational actions such as KAVA projects, matchmaking events and business support activities and through strategic actions such as close coordination with

external stakeholders, the European Commission, national initiatives and cross-KIC initiatives. Implementation of the Lighthouses will be facilitated by allocating a portion of EIT RawMaterials' resources to them, and by supporting partners to develop their innovation activities accordingly across all instruments provided by EIT RawMaterials. We will fully implement at least three Lighthouses by 2020 described below.

Raw Materials and Circular Societies Lighthouse

Challenge: The United Nations estimates that by 2030 about 5 billion people will live in cities. Today, cities account for 60% to 80% of global energy consumption and 75% of global carbon emissions while using only 3% of the land. Raw, processed and advanced materials, from primary and secondary sources, are the backbone of a basic urban infrastructure. The sustainability of modern urban environments and, ultimately, the successful transition to the circular economy on a global scale, depend on the reliable and sustainable supply and management of raw materials.

Approach: EIT RawMaterials will support activities that optimise the efficient discovery, characterisation, processing and flow of materials across the urban environment to move towards 'zero waste', a core concept of the circular economy. The Lighthouse will integrate results, knowledge and data into a digital map of resource locations and their flows within cities, and between cities and the surrounding environment ('smart materials grid'). This Lighthouse is aligned with the EU Circular Economy Package and the EU Zero Waste strategy to achieve a circular society and provides a focal point for cross-KIC collaboration.

Strategic Actions

- Initiate and strengthen collaboration with industrial associations (e.g., Sustainable Process Industry through Resource and Energy Efficiency (SPIRE), Factories of the Future (FoF)) on the circular economy.
- Initiate contacts with European city associations to define ways of collaboration; facilitate synergy workshop series. Strengthen the existing collaboration with the European Commission (DG Grow (including the Executive Agency for SMEs, EASME), DG Environment, DG RTD, DG Regio) on Circular Cities. Organise an impact assessment workshop bringing together projects from Horizon 2020 and EIT regarding Circular Cities.
- Integrate existing and new databases on the circular economy in the RM InfoCenter.
- Create a cross-KIC working group on Circular Cities for a possible joint call.
- Create an advisory board (including members external to the EIT RawMaterials partnership) to support EIT RawMaterials in discussion groups, policy groups, working groups, etc.

Sustainable Materials for Future Mobility Lighthouse

Challenge: Mobility is an essential and rapidly changing component of modern society and an important economic factor in European industrial competitiveness. Emerging energy and mobility technologies create a strong demand for raw materials, and for some critical raw materials this demand will dramatically exceed current production in the next 10 to 15 years. Limited access to these materials might negatively impact the mobility transition, thus reducing the competitiveness of European actors downstream.

Approach: EIT RawMaterials will support activities that support innovation and critical knowledge to solve challenges in the mobility sector. This Lighthouse focuses on the raw materials and advanced materials for two key innovation trends in mobility: electrification and lightweight design. It coordinates materials - related innovation actions across the mobility value chains with respect to exploration, mining, processing, recycling, substitution and the implementation of the circular economy.

Strategic Actions:

- Strengthen the role of EIT RawMaterials in relevant industrial alliances (e.g., the European Battery Alliance (EBA), the Energy Materials Industrial Research Initiative (EMIRI), the European Association for Electromobility (AVERE), and the International Energy Agency (IEA-HEV-TCP).
- Influence policy making at European and national levels to support innovation actions in sectors of raw and advanced materials for mobility.
- Support policy makers in improving regulations (e.g., exploration and extraction permitting, waste directives, battery directives) and in sourcing mobility materials from third countries.
- Minimise risk and leverage large investment funding for (pilot) industrial plants through public and private investors.
- Develop a data intelligence service to support emerging industry players in mobility value chains.
- Business creation – facilitation of industrial alliances through events and bilateral meetings, start- up support, compilation of feasibility studies linked to upscaling projects.
- Create an advisory board (including members external to the EIT RawMaterials partnership) to support EIT RawMaterials in discussion groups, policy groups, working groups, etc.

Sustainable and Responsible Discovery and Supply Lighthouse

Challenge: European Industries depend on raw, processed and advanced materials but these are not produced locally and therefore the EU has a significant import dependency and is very vulnerable to scarcity and supply shortage. Resources, both primary and secondary, exist in Europe but these are not fully exploited because of public concern over the sustainability of exploration, mining and processing operations.

Approach: EIT RawMaterials will provide technological innovation to develop our exploration, mining and processing capabilities. A strong focus of this Lighthouse will be on non-technological activities, specifically wider society initiatives aimed at increasing the level of social acceptance towards exploration, mining and processing activities involving both primary and secondary resources. This Lighthouse will promote the role and benefits of a strong minerals and materials sector in modern society and in the transition towards the green and circular economy This Lighthouse focuses on the exploration, mining and processing of raw materials, and on the public's (and thus policymakers') acceptance of these operations.

Strategic Actions:

- Strengthen the role of EIT RawMaterials in relevant industrial alliances (e.g., EUROMINES).
- Influence policymaking at European and national levels to support innovation actions.

- Support policymakers in improving regulations (e.g., exploration and extraction permitting, waste directives, and in sourcing raw materials from sustainably from third countries).
- Leverage large investment funding for (pilot) industrial plants through public and private investors.
- Business creation – facilitation of industrial alliances through events and bilateral meetings, start-up support, compilation of feasibility studies linked to upscaling projects.
- Create an advisory board (including members external to the EIT RawMaterials partnership) to support EIT RawMaterials in discussion groups, policy groups, working groups, etc.

2.3. Multi-annual Business Model Priorities and Financial Sustainability Plan

Business Model Principles – EIT RawMaterials as a service organisation

EIT RawMaterials presents a comprehensive and competitive business model that substantiates the vision, mission, strategic objectives and goals of the organisation. The business model relies on the overall added-value principle of EIT RawMaterials, which is to offer and deliver the highest quality of services. EIT RawMaterials expects to provide future value to partners through services and our network.

Besides driving innovation and education in the European RM sector, the service offerings are required to achieve financial sustainability for the KIC LE. Membership fees, service and success fees will ensure that the positive impact of EIT RawMaterials will endure beyond the initial EIT funding.

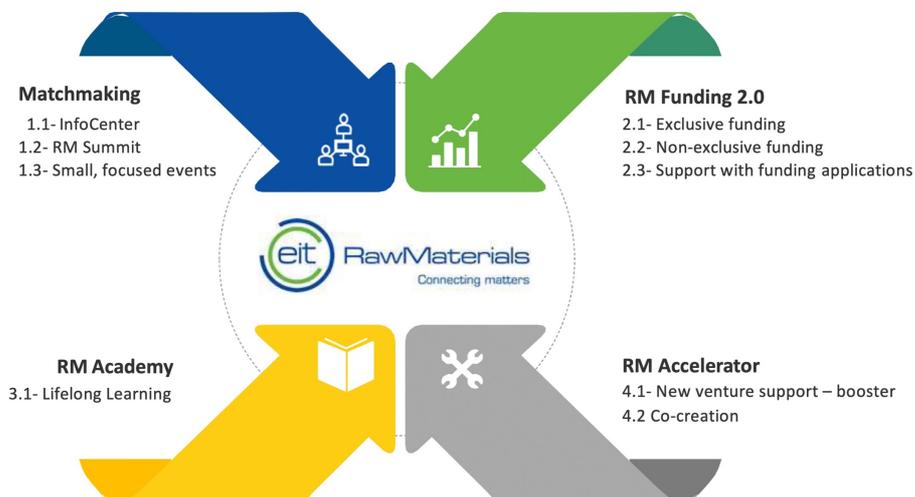


Figure 8. EIT RawMaterials Revenue generating streams (refined from Financial Sustainability Strategy)

Based on the involvement of KIC Partners in a dedicated Task Force on the Financial Sustainability Strategy of EIT RawMaterials, four strategic revenue-generating service streams are prioritised: Matchmaking, RM Funding 2.0, RM Academy and RM Acceleration. The strategy is based on the main focus of the KIC of becoming a highly effective network organisation that funds high-impact projects and delivers value-adding services to its partners. The network represents the Unique Selling Proposition (USP) of EIT RawMaterials and is the key success factor of the KIC.

Each service stream can be split into clearly defined activities that will generate benefits and revenue to the KIC and contribute to its financial sustainability. The activities presented in Figure 8 above and in more detail below are built on the original Financial Sustainability Strategy and will be operationalised and implemented beginning in 2018.

1. Matchmaking

The main value that EIT RawMaterials brings to partners is the network itself. EIT RawMaterials enables the partners and third parties to connect and work together on various initiatives that would not be feasible without the existence of the network. Therefore, EIT RawMaterials will further develop and capitalise on this network as well as the membership and service fees the partners are willing to pay for outstanding services, particularly focusing on the following activities:

1.1 InfoCenter

The InfoCenter is an information and collaboration platform that gives access to documentation, events and knowledge provided by partners and KIC staff. It is our aim that the InfoCenter will become the most relevant information center related to raw materials in Europe, directly contributing to the vision of the KIC to develop raw materials into a major strength for Europe. The InfoCenter will also serve as an entry channel for third parties to interact with partners and KIC staff, making it possible to not only introduce new fee-paying partners to the network but also to up- and cross-sell other KIC services to these parties.

1.2 RM Summit

The RM Summit will be the major raw materials related event in Europe, covering the entire value chain and leveraging the network of value- and impact-generating partners and projects. The RM Summit will bring various stakeholders together (e.g., start-ups, partners, investors, students) and will include technical sessions as well as a Venture and Career Forum. Revenues for this event will be generated via participation and other types of fees (e.g. booth space, sponsoring).

1.3 Small, focused events

EIT RawMaterials will continue to offer smaller targeted events that cover a specific thematic content or are positioned geographically to target a particular group of stakeholders in a relevant region (e.g., RIS). These events will also allow for matching partners and third parties such as start-ups, entrepreneurs or SMEs. Revenues from these events will be generated through charging participation and brokerage fees for the successful matching of interested parties.

RM Funding 2.0

Access to funding is key to any KIC. It allows the partners to participate in impact-generating innovation projects, develop outstanding education programmes and create new businesses in their specific sector. By the end of the EIT funding periods, EIT RawMaterials will have gained considerable expertise in effectively selecting, funding and supporting projects aiming towards commercialisation. This know-how – possibly being built up in collaboration with other KICs and the EIT and efficiently being implemented through shared services – will be applied to secure new resources for continuously driving innovation and entrepreneurship in the raw materials sector through integrating the knowledge triangle.

2.1 Exclusive funding

Access to exclusive funding means the continuation of the KIC's current main activities. EIT RawMaterials will further optimise its processes of running KAVA calls, evaluating proposals with the help from external experts, supporting funded projects and directing all efforts towards their successful commercialisation.

2.2 Non-exclusive funding

The KIC will also become a go-to partner in the raw materials sector for other institutions or in other funding schemes. This will be based on the technical expertise and knowledge of the sector that the KIC will offer, coupled with the experience of managing such funds gained through working with EIT.

2.3 Support with funding applications

EIT RawMaterials will actively support the partners in raising additional funds through co-developing proposals. The KIC will rely on its knowledge and experience with outstanding proposals and secure revenues through success-based fees for newly attracted funding.

3. RM Academy

While higher education programmes (MSc, PhD) will be primarily driven and offered by the KIC partners, there is an opportunity to develop the RM Academy as a brand name for professional courses in the field of raw materials (Lifelong Learning) and as an ambassador towards the public on the importance of raw materials in everyday life (Wider Society Learning). Whereas the former will have a direct impact on the revenue generation of the KIC and its education partners in the short- and mid-term, the latter will add to the long-term sustainability and competitiveness of the European raw materials sector at large. The added-value that will be offered by the KIC is as follows:

- High-quality professional courses in the field of raw materials across the whole value chain with input from major industry players in Europe
- Access to students and companies representing the raw materials sector
- In-depth knowledge and understanding of customer needs and ability to adjust educational offerings accordingly
- Customised training for professionals adapting to the changing environment

4. RM Accelerator

While product development takes longer and is costlier than ever before, product life cycles have become shorter. For this reason, a strategic objective for EIT RawMaterials is to support partners in bringing their ideas and products to the market more rapidly than they can do on their own. EIT RawMaterials will do this by linking actors from different parts of the supply chain as well as through the RM Accelerator, which will have two main components: start-up and portfolio acceleration.

4.1 Growth booster

EIT RawMaterials extensive network of partners, its deal-flow and in-depth knowledge of the sector will make the KIC a very attractive partner for venture capital, corporate and institutional investors for identifying, evaluating and supporting start-ups and idea holders.

EIT RawMaterials provides funding and entrepreneurship coaching to early stage start-ups, with a focus on idea-to-market / early-stage start-ups with relevance for the partners (e.g., first customer)

and support to find or leverage investment (making use of the strong network of multipliers, decision-makers and access to financing). The value that the KIC can offer includes:

- Access to partners who are potential customers of the start-up
- Strong know-how of regulation, technology and commercialisation
- Partner access to start-ups

4.2 RM Co-creation

EIT RawMaterials will build on the experience from intrapreneurship facilitators and co-creation workshops to run personalised innovation support activities for partners and externals. This could either be in the form of a workshop or some remote work arrangement. In the former case a typical workshop of this sort will be a 2-day event (similar to Rockathon, etc.). In the latter it would be a virtual / IT-driven request for proposals coordinated by KIC staff together with a partner. In both situations it could be focused on single-partner innovation challenges and targeted problem elucidation and solution.

The unique value proposition would be based on access to the partnership for external participants. The experience and insights of KIC staff in specific topics and competencies of partners would support this. On the other hand, the partners would be able to meet with interesting people from outside of the network or the usual representatives of the sector to create an invigorating environment for developing ideas.

Expected tentative contribution, taken from the estimated base case scenario as initially defined by the Financial Sustainability task force aims at to have revenue of ca. 8 M Euro by 2022. A detailed analysis of each stream's potential, as well as a roadmap and prioritisation plan will be prepared.

3. IMPACT AND RESULTS

3.1. Impact

In line with the EIT RawMaterials vision, mission and strategic objectives, the consortium will enable the creation of new European networks, innovation and entrepreneurial activity across the entire RM value chain. The comprehensive and highly complementary consortium will support the most promising and effective solutions, which will lead to an increase in resource efficiency, a reduction of environmental impacts and increased security of supply of materials that serve societal needs. This will strengthen the competitiveness of industries across Europe and contribute to increased employment and growth.

EIT RawMaterials has thus defined four impact areas that reflect strategic EU RawMaterials aims and focus on different perspectives. To measure the impact the community has in each of these focus areas and how the strategic objectives are being met, impact KPIs are defined. These are long-term indicators that measure the performance of the KIC's work as a whole. Since sometimes these outcomes only materialise beyond the duration of the specific project, EIT RawMaterials will use the Alumni Association and other resources to track the legacy of funded projects.

The impact areas and respective KPIs are defined as follows:

Industrial competitiveness – value chain focus

The EIT RawMaterials consortium consists of world-leading industries that will join forces with Europe's best universities and research organisations to develop their businesses. The industry partners are from across Europe and together cover the entire RM value chain. These factors will allow the industry partners to achieve breakthrough innovations that will have a mid- to long-term positive impact on their international competitiveness. The supply-side industries in Europe will benefit directly from increased opportunities for the production of RM or from innovative solutions they bring to market. Mid- to long- term impact also arises from demand-side industries in Europe as choices in substitution become available and dependency on imports of RM is reduced. This results in significant increases of resource productivity and competitiveness of EU industries and contributes to the strategic objective of EIT RawMaterials to secure RM supply for Europe. EIT RawMaterials will actively contribute towards achieving these impacts through:

- Attracting at least 800 M Euro of external investments, either private or public, into new pilot/demonstration infrastructure as a result of KAVAs;
- At least 20 industry partners attaining at least 15% savings resulting from a KAVA due to improved material and energy efficiency.

Knowledge & innovation capacity – network focus

The EU has identified several Key Enabling Technologies (KETs), which are crucial for European re-industrialisation and competitiveness. The partners in the consortium and its strategic approach represent an ideal starting point to integrate and enlarge the European basis from all sides of the knowledge triangle. This approach has strong links with the KETs, whilst addressing the requirements and constraints of the RM sector. A number of core partners of the consortium are amongst the top ten on global patent holders' lists within each of the six KETs. To ensure regional innovation impact, the KIC will integrate Regional Innovation Schemes (RIS) into its activities and specifically address SMEs. These companies can join the KIC and start interacting with the partners in extended user-supplier collaborations. By strengthening the SMEs' active role in the European eco-innovation system, a significant mid- to long-term impact will be created. EIT Raw Materials will also have a short-term impact on Europe's innovation capacity by:

- Implementing the KETs agenda by having a pivotal role in initiating breakthrough innovations building on a network of large demonstration and piloting environments in the field of RM – EIT RawMaterials aims to get at least one new KET-related breakthrough innovation accepted (with two others in progress);
- Developing at least 20 new or existing pilot/demonstration plants and prototypes or production units that offer improved process productivity and reduced material and energy costs, with the understanding that our initiatives will enable partners to have proof-of-concept for larger endeavours.

Environmental and social sustainability – society focus

All innovation actions in EIT RawMaterials embrace the principles of sustainability. The majority of commercial enterprises believe that sustainability in terms of environmental impact or occupational health and working conditions require the greatest amount of action if profitability and

competitiveness are to be assured in the future. An example of this can be seen in the Extractive Industries Transparency Initiative (EITI) to which relevant KIC activities and projects will have to adhere. Where applicable, partners will use life cycle analyses to encourage environmental sustainability of their innovation activities. This can be achieved through sharing best practices among the partners. EIT RawMaterials will enhance societal perceptions of the RM sector through establishing improved CSR communication strategies.

The KIC will establish PhD, master and continuing education courses to initiate a paradigm shift towards sustainable approaches in the RM sector. The KIC will act as a knowledge, education and transparency platform on sustainability issues that will connect partners from all sides of the knowledge triangle with other stakeholders and wider European society. These measures will have a profound long-term impact on European society, as it will contribute to Europe's transition towards a circular economy. This aligns with the corresponding strategic objective of EIT RawMaterials to close material loops. This will be achieved by:

- Innovation activities that deliver novel technologies that will evolve into new best available techniques (BAT). At least three shall be fully accepted and available to the market, at least six in process of coming onto the market;
- A focus on waste. According to Eurostat, 37% of the average 503 kg of waste each European generates annually ends up in landfill. From an environmental but also from a RM perspective this offers significant resource potential, as recognised by the EIP on raw materials. EIT RawMaterials therefore will activate at least 20 previously unused waste streams or deposits taken into use to recover critical or valuable raw materials.
- Developing, prototyping and marketing new or improved products with a reduced content of toxic materials such as Co in superhard materials for machining and rock drilling tools. The KIC will introduce 50 new or improved products with a reduced content of toxic materials to the marketplace.
- Integrating RIS participants into the whole scope of EIT RawMaterials initiatives (not only those classified as RIS projects) to have a true pan-European network. Due to their cross-cutting nature, EIT RawMaterials expects that these innovations will specifically drive systemic thinking.
- Providing knowledge, skills and technology for the design of new sustainable products and services that respond to consumer and end-user needs while at the same time substituting CRM and other (e.g., toxic) materials – resulting in at least 20 reported and proven cases of successful sustainable substitutions.

Education & human capital – people focus

This KIC contributes towards stimulating the development of people that combine expert materials knowledge and an entrepreneurial mindset to drive innovation and business creation with the aim of taking Europe to the forefront in raw materials. The KIC as an organisation consisting of partners and staff is committed to make every effort in supporting diversity in our sector. For example, by bringing more women into our STEM disciplines and education activities as women tend to be under-represented. This will create a very significant mid- to long-term impact. The educational programmes and courses under the EIT label, together with partners, will deliver a holistic understanding of the RM value chain including interactions and trade-offs. This will lead to the

formation of “T-shaped” professionals whose understanding is broad and holistic, and who will have a deep understanding of specific aspects of the value chain. There will be entrepreneurial courses and training delivered by renowned experts from the KIC’s network of excellence that utilise state-of-the-art teaching techniques. The graduates will act as change agents, intra- and entrepreneurs and will be responsive to the needs of the RM sector. The KIC achieves short-term impact by establishing the necessary basis of human capital specifically by:

- Creating or securing 10,000 jobs in the European RM sector. This will be achieved by successfully attracting students to the sector, guiding and re-educating professionals and by boosting growth of start-ups in the field.
- Increasing the number of students entering the RM sector from under-represented groups, in particular women. From the high visibility and quality of the KIC’s education programmes combined with targeted outreach, EIT Raw Materials expects more than 30% of its graduates will be women. This will address the gender imbalance and also reduce the skills shortage in the sector.

3.2. KPIs

The EIT RawMaterials key performance indicator structure is based on three levels. As indicated in Figure 9, the structure includes the top-down, long-term KPIs as defined above and tied to the impact areas; the project output indicators that contribute to the overall achievement of the KIC’s objectives; and finally, the process KPIs which provide the setting for project execution and success.

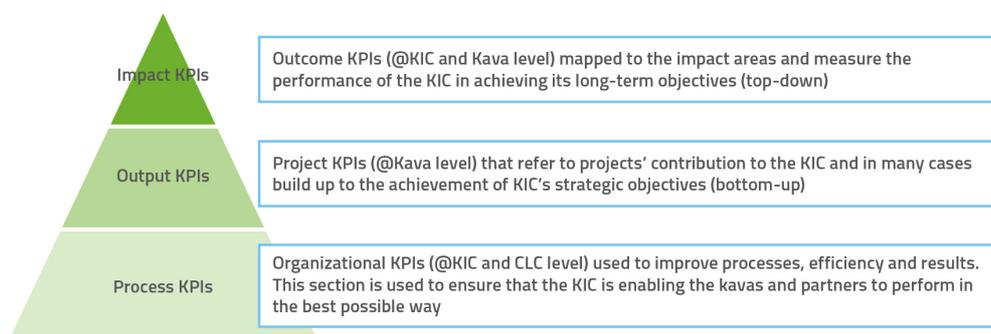


Figure 9. KPI structure

Impact KPIs

These are long-term indicators that measure the performance of the KIC’s work as a whole. Since sometimes these outcomes only materialise beyond the duration of the specific project, EIT RawMaterials will use the Alumni Association and other resources to track the legacy of funded projects.

The impact KPIs defined are not exclusive to a specific impact area, since long-term effects would most likely affect more than one area. However, for practical reasons, each impact KPI has been assigned one main impact area.

Area	KPIs	Targets (by 2022)
Industrial competitiveness	Investment attracted, such as in a new pilot/demo infrastructure	800 MEUR
	Industries with at least 15% savings due to higher material and energy efficiency	20
Knowledge & innovation capacity	New KET-related breakthrough innovations applied / in progress	1 / 2
	Number of new pilot/demo plants, prototypes, or production units as a result of a KAVA	20
Environmental and social sustainability	New/improved products with reduced content of toxic materials	50
	Integration of the RIS region – % funding RIS participants in non-RIS projects	15% of total funding
	Number of applied substitution cases	20
	New sustainable BAT accepted / in progress	3 / 6
	Previously unused waste streams or deposits taken into use to recover critical or valuable raw materials	20
Education & Human capital	Women graduating from RM-related courses	30% of all graduates
	Creating/ securing jobs in the RM sector	10,000

Output KPIs

This is a bottom-up approach whereby the strategic objectives of the KIC are achieved by each KAVA's target contribution. As projects are completed, they deliver output and impact KPIs. Special care has been taken to ensure that all segments find a relevant set of indicators that fit their project and represent their efforts accurately.

Process KPIs

As an organisation, EIT RawMaterials wants partners in the consortium to focus their efforts on generating impact and results via projects. For this reason, EIT RawMaterials has an enabler role to facilitate partner performance. A set of KPIs, known as process or organisational KPIs, has been set up to improve processes and drive efficiency and results. These KPIs will have targets at CLC level and/or at the KIC as a whole.

EIT RawMaterials will actively drive EIT's objectives of creating favourable environments to foster innovation and of promoting and strengthening synergies and cooperation among the knowledge triangle across the RM value chain. Specifically, our comprehensive and highly complementary consortium will make a valuable contribution to the key performance indicators that EIT has defined to measure its own success.

KPIs	Unit	19	20	21-22	TOTAL
EIT Core KPIs					
Graduates from EIT labelled MSc and PhD programmes	# graduates	57	114	300	471
Start-ups created by students enrolled and graduates from EIT labelled MSc and PhD programmes	# start ups	4	7	14	25
Products (goods or services) or processes launched on the market	# products	42	50	100	192
Start-ups created as a result of innovations projects	# start ups	12	16	18	46
Start-ups supported by KICs	# start ups	95	60	120	
Investment attracted by start-ups supported by KICs	M Euro	1M	1.1M	3M	5.1M
Success stories submitted to and accepted by EIT	# stories	35	40	80	155
External participants in EIT RIS programmes	# participants	900	900	1400	3200
Budget consumption of KICs	%	>80%	>80%	>80%	-
Error rate of KICs	%	3%	3%	3%	-
Financial sustainability: revenue of KIC LE & FS coefficient	M Euro	6.5 M	7 M	15 M	-
KIC's output KPIs (project level)					
Successful matchmaking events	%	70%	70%	70%	-
Events participation	# participants	1200	1500	3000	5700
Relevant participation in RM events	# events	35	40	60	120
Open innovation events	# events	4	6	12	22
Students in PhD Education	# students	200	350	650	1800
Students in Master Education	# students	620	700	1400	2720
Lifelong Education	# students	200	200	400	800
Wider Society Learning	# students	1000	1000	2000	4000
Students & Industry - KTI	# students	100	140	280	520
Start-up & Industry collaboration	# start ups	20	30	70	120
KIC's Process (Organisational) KPIs					
Partner Activity rate	%	90%	90%	90%	-
Partner satisfaction rate	%	70%	70%	70%	-
Academic Quality Labels	# labels	1			10
InfoCenter	# users	350	350	700	1400
CLC proposal eligibility control	%	90%	90%	90%	-
CLC project reviews	% completion	85%	90%	95%	-
CLC reporting quality control (kava clarifications)	%	20%	18%	15%	-
EIT branding contribution	# media pieces	20	24	48	92
Employee satisfaction	%	65%	68%	70%	-

3.3. Communication, outreach and dissemination

The EIT RawMaterials communication, outreach and dissemination strategy relies on 5 pillars (Figure 10):

1) EIT RawMaterials brand identity; 2) Internal communication and community building; 3) External communication and dissemination; 4) Content generation and key messages; 5) Public affairs and EU stakeholder engagement. Each pillar has clear objectives and action plans.

Communication Strategy, Outreach and Dissemination Strategy 2019-2022 Pillars



Figure 10. Communications Strategy Pillars 2019-2022

EIT RawMaterials brand identity

EIT RawMaterials aims to be recognised as a leading organisation in the minerals and metals sector in Europe, as well as a leading innovation community. EIT RawMaterials will establish a strong brand identity in direct link with the EIT Community brand.

We will enhance and build brand reputation and visibility at global, EU, national, regional and local levels. The EIT RawMaterials logo that was relaunched in 2016 incorporating the 'Connecting matters' tag line will continue to highlight the core of our value creation.

To increase EIT RawMaterials brand recognition we will continue to develop key messages and create narratives that support the vision and mission statement as well as activity areas.

EIT RawMaterials' brand identity builds on openness towards new thinking, innovation and the sustainable future of Europe, incorporating four impact areas: Industrial competitiveness, Knowledge & Innovation capacity, Environmental & Social Sustainability, Education & Human capital. Connecting the EIT RawMaterials brand to the impact areas will reinforce the role and visibility of EIT RM as a key booster of the innovation and entrepreneurship processes in Europe.

Internal communication & community building

The aim of internal communications of EIT RawMaterials is to foster collaboration and networking across the community, connecting all stakeholders across the entire value chain. The goal is to build lasting relationships and secure partner satisfaction and trust in the organisation.

Improved coordination and dissemination of the matchmaking and networking events across Innovation Hubs is a priority. EIT RawMaterials will ensure that the EIT RM Community speaks with one voice and deliver similar messages at global, national, regional and local levels to decision makers and stakeholders.

Matchmaking, collaboration and networking exchange using digital communications channels (such as InfoCenter) will be integral to facilitate knowledge and best practices sharing as well as to offer various services integrating data from projects.

EIT RawMaterials will continue building on successful events such as Brokerage, Matchmaking and Networking as well as the Open Innovation Events where innovation ideas are exchanged, and alliances are made. The annual flagship conference Raw Materials Summit will strengthen Matchmaking activity pillar and position EIT RawMaterials as a leader in innovation and technology in the raw materials sector. The Summit will be transversal to both Internal Communications@Community Pillar as well as to external communication, dissemination and stakeholder engagement.

External communication & dissemination

The external communication and dissemination pillar is designed to increase and leverage the overall impact and benefits generated by EIT RawMaterials and to inform various stakeholder groups about the relevance of KIC activities and achievements.

EIT RawMaterials operates in a complex community and therefore there is a need to reach out to a wide range of audiences. This pillar will target primarily European organisations and industries but also start-ups, SMEs, students and wider society. The EIT RawMaterials portfolio will be mapped against the United Nations Sustainable Development Goals, which will result in engaging material and representation of the project portfolio. Furthermore, relevant consumer examples of raw materials applications will be developed and become a foundation of all communications campaigns and materials. Smartphone, light bulb, wind turbine, e-car and the office building are some of the best examples that provide a clear connection between minerals and metals and everyday life.

To secure the engagement of target audiences and to mobilise all stakeholders in the raw materials value chain, the message needs to be focused on achievements: verified, engaging success stories backed by facts and figures and a demonstrated impact.

Efforts will be made to establish solid foundations for media relations, and to leverage partner media connections liaising closer to partner communications and external affairs functions.

Content Generation and Key Messages

Generating engaging and relevant content and visual branding delivers stakeholder engagement, redistribution of news and highlights as well as ensures news and partner media coverage across the EIT RawMaterials Community and external media channels.

The perception of a game-changing initiative is required to fulfil the EIT RawMaterials vision. The communications key message that will lay a foundation for narrative and development, visuals, video

and graphics is: A modern lifestyle is not possible without raw materials. Raw materials are everywhere. Raw materials are enablers of and essential to the green transition. These key messages will be the core for the development of a communications awareness campaign.

A storytelling approach can be used, as well as a simple and engaging messaging style based on the EIT RawMaterials impact areas, for example, societal and environmental challenges addressed by the community.

Considering current political, economic and societal trends, lighthouses will create a great opportunity for strong visuals, messaging, narrative, and will allow easy translation into communications campaigns that create an impact reaching out to wider society, promoting EIT RawMaterials and the raw materials sector at large.

Public Affairs and EU stakeholder Engagement

The EIT RawMaterials Public Affairs 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 at CLC Level 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 industrial competitiveness, increased knowledge and innovation capacity, and through growing human capital and entrepreneurship.

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 (DGs Grow, Environment, RTD, REGIO) 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 news.

4. Summary

Raw materials are essential to securing a transition to green energy technologies, to securing growth and sustainable consumption and to securing access to clean and efficient consumer technologies. Europe is highly dependent on importing raw materials to secure the global competitiveness of its manufacturing industries and to accelerate the transition to a resource efficient, sustainable society.

EIT RawMaterials has the ambitious vision to develop raw materials into a major strength for Europe and the mission to enable sustainable competitiveness of the European minerals, metals and materials sector along the value chain by driving innovation, education and entrepreneurship.

EIT RawMaterials integrates disciplines, diversity and complementarity across the entire raw materials value chain and along the three sides of the knowledge triangle. The EIT RawMaterials

partnership includes over 120 Core and Associate partners who are leaders in their fields. The KIC aims to be a highly effective network organisation that funds high-impact projects and delivers value-adding services to its partners.

EIT RawMaterials will create value by strengthening innovation, technology, services and skills, and especially by directly addressing raw materials challenges that require collaboration amongst stakeholders from all, or several parts, of the value chain. Integrating the knowledge triangle will be fostered through intertwining KIC activities in networking, acceleration and education. Lighthouses, large-scale and long-term coordinated innovation initiatives that directly address the three strategic objectives, will tackle fundamental innovation challenges in the raw materials field. The approaches will leverage impact through synergies and will provide a powerful way of maximising opportunities and impact in the raw materials sector in Europe.

EIT RawMaterials will generate significant impact on European competitiveness and employment. This will be realised through the introduction of innovative and sustainable products, processes and services and skilled human capital that will deliver increased economic, environmental and social sustainability to European society.