Appendix 1 – KAVA 6 Knowledge Creation and Dissemination - Eligible Topics

Topic #1. Transition to Circular Cities

EIT RawMaterials Senior Advisor: Ignacio Calleja (ignacio.calleja@eitrawmaterials.eu)

Challenge: Cities have for centuries been a major attraction for people. The United Nations estimate that by 2030 about 5 billion people will live in cities, and by 2050 two thirds of the global population lives in urban areas (UNDESA, 2012). They are places of opportunity – a better life, economic, and entrepreneurial opportunity, concentration of food, people, creating a sustainable planet.

Cities struggle in their transition to implement a full circular economy model incorporating regenerative practices. There is a clear need for cities to become circular in order to alter urban consumption patterns and value chains, and to stimulate innovation, business opportunities, and job creation in both established and newly created sectors. New, more flexible systemic urban planning instruments enabling the design and implementation of circular urban processes would make urban and peri-urban areas regenerative and facilitate their adaptation to emerging economic, social and environmental challenges.

Scope: The project should define and describe the main factors to be considered when defining the transition to Circular Cities as well as description of the implementation framework (conditions) of those factors to achieve a successful transition process.

The project will consider the factors affecting resource efficiency/circular cities factors regarding six main challenges:

- Resource efficient cities, including new business models as reuse, and repairing
- Energy infrastructure, its materials and recycling
- Water management infrastructure, its materials and processing
- Housing and infrastructure construction and their materials
- Transport, (e) mobility, logistics and their embodied materials
- Industry and Urban planning-linking sustainable cities

The factors to be considered will include (non-exhaustive):

- Technological
- Social
- Regulatory
- Educational
- Fiscal
- Institutional
- ……….

The project will also include examples of factors (successful or non-successful) included in existing or past cities transition processes.

Project to be completed by 31 December 2019.

Up to one proposal to be funded.

Topic #2. Incentives for Circular Economy

EIT RawMaterials Senior Advisor: Ignacio Calleja (ignacio.calleja@eitrawmaterials.eu)

Challenge: Circular economy systems keep the added value in products for as long as possible and eliminate waste. They keep resources within the economy when a product has reached the end of its life, so that they can be productively used again and again and hence create further value. Transition to a more circular economy requires changes throughout value chains, from product design to new business and market models, from new ways of turning waste into a resource to new modes of consumer behaviour. This implies full systemic change, and innovation not only in technologies, but also in organisation, society, finance methods and policies. Even in a highly circular economy there will remain some element of linearity as virgin resources are required and residual waste is disposed of.

Circular economy approaches 'design out' waste and typically involve innovation throughout the value chain, rather than relying solely on solutions at the end of life of a product. For example, they may include (non-exhaustive):

- reducing the use of energy and materials in production and use phases (efficiency);
- creating markets for secondary raw materials (recyclates) (based on standards, public procurement, etc.);
- designing products that are easier to maintain, repair, upgrade, remanufacture or recycle (ecodesign);
- developing the necessary services for consumers in this regard (maintenance/repair services, etc.);
- incentivising and supporting waste reduction and high-quality separation by consumers;
- incentivising separation, collection systems that minimise the costs of recycling, and reuse;
- facilitating the clustering of activities to prevent by-products from becoming wastes (industrial symbiosis); and
- encouraging wider and better consumer choice through renting, lending or sharing services as an alternative to owning products, while safeguarding consumer interests (in terms of costs, protection, information, contract terms, insurance aspects, etc).

Scope: The project should identify and describe different type of incentives to promote and boost the implementation of the Circular Economy concept. Those incentives should consider (non-exhaustive):

- Technological
- Educational
- Social
- Regulatory
- Institutional
- Market conditions
- Fiscal
- Penalties
- ……….

The project should describe those incentives as well as their possible implementation ways.

The project should also evaluate the efficiency of positive incentives (as for example pricing reduction for secondary products) against negative ones (as for example penalties for not adequate waste collection).

Project to be completed by 31 December 2019.

Up to one proposal to be funded.

Topic #3. The Cost of Mobility

EIT RawMaterials Senior Advisor: Roland Gauss (roland.gauss@eitrawmaterials.eu)

Challenge: Currently, the automotive industry moves into a period of disruptive innovation, which is, for instance, expressed by the announcements of big OEMs to invest billions of Euro into e-mobility solutions and new mobility services. Raw materials and advanced materials are key enablers for this transition. It is assumed that their environmental and social footprints have a significant impact on the overall footprint of e-mobility. However, i) there is a lack of quantification and, ii) it is not clear to what extend stakeholders across the value chains are concerned about these footprints. After all, is there a business model to use sustainable materials in future mobility? To what extend will the sustainability of materials be influencing the purchasing of supply chain managers of big OEMs?

Scope: The scope of the project is two-fold: In a first part, the impact of the environmental and social footprints on the overall footprint of e-mobility (automotive) should be evaluated based on a literature survey of existing publications and reports (data collection, evaluation). Data gaps and challenges should be identified.

The second part should focus on analysing to what extend OEMs and consumers care about a truly sustainable future mobility (automotive). The conclusions should be based on own data collection and statistical evaluation (interviews) with leading industry stakeholders in the field (leading automotive OEMs and suppliers) and consumers.

Project to be completed by 31 December 2019.

Up to one proposal to be funded.

Topic #4. The Mobility Transition – A new chance for resource-rich Developing Countries

EIT RawMaterials Senior Advisor: Roland Gauss (roland.gauss@eitrawmaterials.eu)

Challenge: Key components in electric cars are made of functional materials that contain minor metals. The mass production of these cars is beginning to have a massive impact on the commodity market and supply chains of metals like lithium, cobalt, and nickel. Turning away from combustion engines, thus oil, offers new opportunities for the metals mining and processing industries in the western world; but also for minor metals producing developing countries. How can Europe, which claims to be as a leader in implementing clean energy and mobility solutions, create win-win solutions for developing countries?

Scope: The project should investigate possibilities to empower resource-rich Developing Countries in Africa to successfully create business in the context of the Mobility Transition. How can Europe strategically invest? How can Education make a difference? What would be a suitable strategy regarding

Chinese investments? Further aspects and challenges to be considered: responsible sourcing, artisanal mining, export of e-waste.

Project to be completed by 31 December 2019.

Up to one proposal to be funded.

Topic #5. Sourcing Raw Materials and Social License to Operate (SLO)

EIT RawMaterials Senior Advisor: Patrick Nadoll (patrick.nadoll@eitrawmaterials.eu)

Challenge: The Social License has been defined as existing when a project has the ongoing approval within the local community and other stakeholders, ongoing approval or broad social acceptance and, most frequently, as ongoing acceptance. From a European perspective, attaining and maintaining SLO is, perhaps, the greatest challenge facing the exploration and mining sector today.

At the level of a mining project the SLO is rooted in the beliefs, perceptions and opinions held by the local population and other stakeholders about the project. It is therefore granted by the community. It is dynamic and non-permanent because beliefs, opinions and perceptions are subject to change as new information is acquired. Hence the Social License has to be earned and then maintained.

A social license is usually granted on a site-specific basis. Hence an exploration project or a mining company may have a social license for one operation but not for another. Furthermore, the more expansive the social, economic and environmental impacts of a project, the more difficult it becomes to get the social license. For example, an independent fisherman who is member of an indigenous group will normally get an automatic social license from his community. A mining company wanting to relocate an entire village, for example, faces a much bigger challenge. (https://socialicense.com/definition.html)

Scope: The project should define and describe the main factors to be considered when defining SLO, as well as description of the implementation framework (conditions) of those factors to achieve a successful implementation process.

The project will consider the factors affecting SLO regarding the following challenges:

- Stakeholder dialogue/communication
- Waste management ⎤
- Energy management ⎬— Effects on environmental ecosystems
- Water management ⎦
- Transport infrastructures/systems
- Industry and Urban/Rural planning-linking sustainable development

The factors to be considered will include (non-exhaustive):

- Technological
- Social
- Regulatory
- Educational
- Fiscal
- Institutional

The project will also include examples of factors (successful or non-successful) included in existing or past SLO processes at European level.

Project to be completed by 31 December 2019.

Up to one proposal to be funded.

Topic #6. Deep Intelligent Exploration and Mining

EIT RawMaterials Senior Advisor: Patrick Nadoll (patrick.nadoll@eitrawmaterials.eu)

Challenge: Deep intelligence encompasses the collection, integration, interpretation and visualization of data. In other words, it is the practice of organizing and maintaining data processes to meet ongoing information lifecycle needs. As the exploration and mining sector engages more and more in automation, digitalisation, artificial intelligence, robotics etc. the challenge to decipher the data acquired is great. Not only explorers and mining companies face this challenge, but also service providers, OEMs and various suppliers to the sector.

Internal IT departments are generally not equipped with the experience or knowledge to deal with data management on an industrial scale, therefore the training of personnel within the various sections of the industry to handle the data is paramount to successfully negotiate a way through the maze.

Scope: The project should define and describe the main factors to be considered when defining data management for the sector, as well as description of the implementation framework (conditions) of those factors to achieve a successful implementation process.

The project will consider the factors affecting data management regarding the following challenges:

- Stakeholder dialogue/communication/workforce engagement
- Effects on environmental ecosystems
- Energy management /efficiency
- Transport and communications infrastructures/systems
- Industry planning-linking sustainable development

The factors to be considered will include (non-exhaustive):

- Technological
- Social
- Regulatory
- Educational
- Fiscal
- Institutional
- Efficiency/productivity

The project will also include examples of factors (successful or non-successful) included in existing or past data management processes at European level.

Project to be completed by 31 December 2019.

Up to one proposal to be funded.