EIT Climate-KIC
2016 Pathfinder project application

Innovation is the application of new or more effective discoveries to market needs.

London | 01 February 2016

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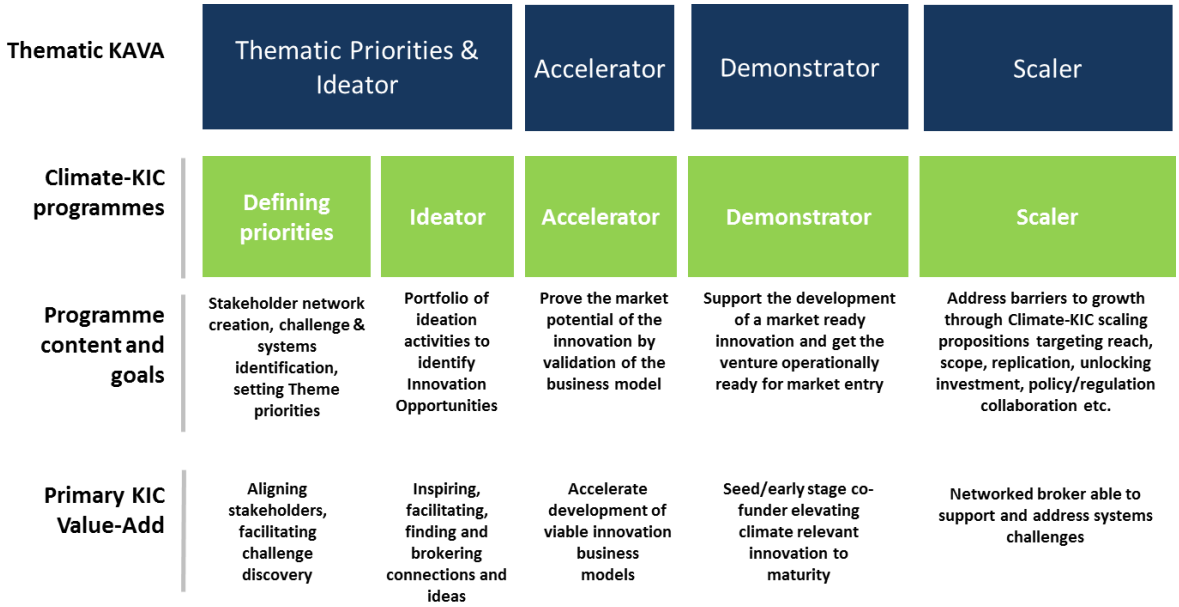
Introduction to Pathfinder projects

The new Innovation Pipeline

In 2016 Climate-KIC is introducing a new Innovation pipeline in a matrix of Strategic Themes. All C-KIC activities are required to address Theme Priorities and to explore and develop synergies with existing activities.

Short introduction of the new Innovation Pipeline:



Pathfinders in the new Framework

In 2016, Pathfinder applications contribute to the **Ideator programme**. The Ideator programme aims to generate ideas, or more precisely innovation opportunities, that can be subsequently exploited to produce innovations. This will be achieved through empowering the Climate-KIC community of partners and attracting potential entrepreneurs, professionals and students to develop and refine their ideas addressing thematic priorities identified in the Theme Strategies.

For this first 2016 call, Pathfinder projects are in continuity with the 2015 Innovation Pillar activities. **Through Pathfinders, Climate-KIC partners can build consortia and work together in a structured way to identify Innovation Opportunities**. We however intend to have quicker and smaller ideation activities with our Partners. Pathfinder programmes should be shorter (ideally less than 6 months) and smaller (between 10 and 50k€, with a nominal range 15-30k€). The number of teams involved need to be optimized and one-country teams will be allowed for point innovation ideas.

Pathfinder projects having an initial robust business model will be able to directly enter the Accelerator at stage 2 (business model *validation*) in order to accelerate the idea maturation.

The four Thematic areas of Climate-KIC

Decision Metrics and Finance Theme

Decision-makers, investors and high-carbon consumers must acquire the confidence and commitment to climate action, unlocking finance and driving the climate relevant economy. The mission of the DMF Theme is to build integrated competences, models, tools and mechanisms to provide the evidence informing systemic decision-making and realise the full potential of stakeholders to act against emissions and increase resilience

Sustainable Land Use Theme:

This theme aims to develop innovative tools and measures that enhance land use functions and their associated value chains in order to address climate mitigation and adaptation issues. It focuses on agriculture and food value chains, on forestry and bioeconomy value chains, on integrated territorial approaches. It ambitions to mobilise our diverse community of stakeholders to address climate issues affecting and resulting from land use, in order to overcome barriers, accelerate innovation and catalyse action that leads to high climate and socioeconomic benefits

Sustainable Production Theme

Based on Circular Economy Package Climate-KIC Sustainable Production Systems vision is: zero carbon value chains and zero waste systems in operation which are the future foundation of Europe's industry. Climate-KIC's SPS theme mission is to catalyze the transition to a zero carbon economy by seed-funding high-impact climate solutions, facilitating innovative cross-industry co-operation and supporting technological as well as unique business model innovation in regional clusters and value chains

Urban Transition theme

Climate-KIC's Urban Transition theme will develop integrated and scalable innovations that provide the core of the transformation towards livable, zero carbon and resilient cities in Europe and beyond. To this end, we bring together innovators and key stakeholders in developing urban systems to demonstrate that ambitious innovation with high socio-economic and climate benefits is possible and then support scaling up these innovations.

Eligibility

Pathfinder calls are only open to Climate-KIC partners. Non-Climate-KIC partners interested in joining the consortium of a Pathfinder project may be included but their participation will need to be validated with your local KIC team before submission.

Submission process and deadline

Please provide the information requested, following the sections as provided. Liaise with the relevant Climate-KIC coordinator of your region or Theme member prior to submitting an application, as they can support you and guide you through the process. Please submit proposals in pdf and word format to the Climate-KIC coordinator of your region (see table below).

Climate-KIC Office	Contact	Mail
France	Benoist Vercherin	benoist.vercherin@climate-kic.org
Germany	Sarah Teller-Tokarska	sarah.teller@climate-kic.org
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*Please include in CC **Mrs. Susanne Pedersen (susanne@climate-kic-nordic.org) Director of Nordics Climate-KIC office.**		

Thematic team members are available as support to ensure strategic fit:

Themes	Contact	Mail
Urban Transitions	Brian Kilkelly	brian.kilkelly@climate-kic.org
Sustainable Land Use	Catherine Laurent-Polz	catherine.laurent-polz@climate-kic.org
Sustainable Production Systems	Istvan Pocs	istvan.pocs@climate-kic.org
Climate Finance and Metrics	Katherine Foster	katherine.foster@climate-kic.org

Call for Proposals is open from February 01 2016, with a deadline on March 11 2016.

Budget information and duration

- The maximum total available budget for this first Pathfinder call is EUR 0.8-1 million. The availability of co-funding will influence the decision making.
- Most Pathfinder grants will fall in the range €15k-€30k. Up to a maximum of €50k is available for the most complex innovation opportunities, for example systems innovations across value chains, or where multiple stakeholders must participate in the Pathfinder consortium. In all cases, value for money will be assessed as part of the selection criteria, so please ensure the requested grant is justified by the complexity or potential of the innovation.
- Please note that successful projects will have to fill out Table in Annex IV Cost category distribution after final selection.
- The duration of a Pathfinder project should not be more than 6 months.

Performance Indicators

Key Performance Indicators (KPIs) and Deliverables are how Climate-KIC measures its overall performance. KPIs are mainly associated with Innovation projects. However, Pathfinders may achieve them in some circumstances. Thus, projects should aim to submit KPIs and Deliverables. They will also need to submit an overall performance report and cost report per partner at the end of the year.

There are 2 types of KPIs, namely EIT and Climate-KIC KPIs. Pathfinders are projects of an exploratory nature and constitute a pre-stage to the exploitation of innovation opportunities and, in this respect, outcome KPIs are not expected. Evidence of KPI achievement must comply with the definitions analytically presented in Annex III – Key Performance Indicators and Deliverable.

Application form

Please complete all sections and note that the entire documentation submitted should be **less than 6 pages**, any more pages will not be considered.

Project essentials

Please complete the following table.

Project name		
Acronym/short name		
Theme		
Expected project duration	Start date mm/yyyy	End date mm/yyyy
Lead partner (institution)		
Project Lead (name, email)		
Total EIT request, Euro (a)		
Partner co-funding, Euro (b)		
Total KIC Added Value Activities (KAVA), Euro (a)+(b)		
KIC Complementary finance (KCA), Euro		

Project summary

The summary of the project should capture its essence, what the challenge is, how the project addresses it, and what impact it sets out to achieve. As this summary is used in the project portfolio database, **the maximum number of words is 100** and therefore **additional words will be deleted**.

Partner information

Please complete the following table.

Organisation	Contact person	Email	Role	**Short** summary of responsibilities
KIC Partners				
Non-KIC Partners				

Confirmation of participation

An original signature is required from the authorised representative of the Lead Partner and Climate-KIC assumes that all project participants have been advised and have consented to the terms of this form and that this single Lead Partner acts as duly authorised agent of the others during the proposal submission and review process.

Signature of Lead Partner and date

Name in CAPITALS

Proposal and project implementation plan

The proposal needs to be described in a succinct yet comprehensive way and if possible accompanied by a graphic description of its main components and of their interrelations.

Pathfinders can start from either the supply or the demand side, and their role is to connect to the other side, in order to confirm an innovation opportunity. The proposal must convey why the project team believes innovation opportunities exist, and the activities during the project should:

- **Address one or several of the Thematic Priorities listed in** Annex I – Thematic Priorities
- Substantiate **both** the **supply** side discoveries – (new knowledge, technology etc.) **and demand** side needs of the potential innovations (a challenge, barrier, problem etc.).
- As a result of the above, confirm or not, the potential existence of a clearly defined innovation opportunity.

A list of selection criteria is included in Annex II - Review criteria. It is important that all criteria can be assessed from the proposal description (which should however not be structured along these criteria). Anticipated KPIs or key deliverables (see Annex III – Key Performance Indicators and Deliverable) should be provided.

Project implementation plan

Please include a project implementation plan including a Gantt chart, detailing the responsibilities and roles of each Partner. Please note Climate-KIC requirements during and after project implementation:

- Progress updates - Climate-KIC coordinator of your region require a quarterly update on progress in terms of spend, performance and progress against KPIs and Key Deliverables.
- EIT cost and performance report – January 2016
- Final meeting and final report - Each Pathfinder concludes with a meeting of project stakeholders and Climate-KIC representatives. Knowledge developed by the project is captured in a final report which includes details of whether or not the Pathfinder has identified an innovation opportunity.

Clear and easy to understand proposals and plans assist the reviewers in the decision making process.

Potential climate impact

The proposal needs to describe how the project mitigates climate change or supports adaptation to its consequences.

<u>Mitigation</u>

Describe what the project sets out to achieve and how it will potentially contribute to reducing GHG emission reductions or to carbon sequestration. Compare this to the baseline scenario, i.e. what is expected to happen in the absence of a successful mitigation action in that area.

Indicate the main GHGs that will be reduced by the proposed project and briefly describe their sources, i.e. where they are generated

<u>Adaptation</u>

Describe how the project aims to improve the situation in the area impacted by climate change and which impacts the innovation intends to address. Compare the improved situation with a baseline scenario, i.e. in the absence of a successful adaptation action in that area.

Key Performance Indicators (KPIs) and Deliverables.

*Please complete the following table describing **targeted** KPIs and Deliverables. Guidance in* Annex III – Key Performance Indicators and Deliverable.

Category	Type	Proposed evidence of achievement
EIT KPIs		
Knowledge adoption		
Knowledge transfer agreement		
New or improved products/ services		
New start-ups		
Climate-KIC KPIs		
Capital Attracted		
Policies/ standards implemented		
Key Deliverables		
Publications		
Demonstrators		
Reports		
Other		

Confidentiality

Your project will only be reviewed by KIC staff members who have all signed a non-disclosure agreement. Climate-KIC controls access to project documents at both review and implementation stages. In order to facilitate match-making, your Climate-KIC contacts may request your permission to share project material with other locations searching for potential partners. If you have additional questions or if you are facing specific confidentiality issues, please discuss this with the **Climate-KIC coordinator of your region**.

Annex I – Thematic Priorities

Themes and Priorities Overview

Please see detailed explanation of Thematic Areas at Appendices

Theme	Vision	Area Priorities	General Focus	Examples
Decision Metrics and Finance	Empower decision-makers, investors and high-carbon consumers to act for climate, unlock finance and drive the climate-relevant economy	1. Create innovative financial tools to unlock investment 2. Engage further sectors that can be major users of DMF outcomes 3. Effectively address the challenge of adaptation metrics 4. Identify financial flows and benchmark climate change investment 5. Develop innovation to support capital mobilization	1. Higher quality GHG measurement identifies precisely the actual emitters and allows those emitters to target reduction 2. Increased accuracy of climate risk assessment & resilience performance allows cities, land, business (sectors) and communities to adapt in a timely manner 3. Certified MRV provides regulators and investors with the data and security to inform better-targeted regulations, access financial tools and create stronger incentives for carbon reduction	1. Use innovative GHG tools to identify and address elements of food distribution chains where GHG emissions can be most effectively reduced 2. Test concepts combining cost-efficient MRV and financial innovation to unlock climate investment in data poor regions 3. Pilot experiments on a focused geographic area to apply and test a selection of adaptation metrics 4. Work with asset management companies to address identified barriers to capital mobilisation for climate
Sustainable Production Systems	Zero carbon value chains and zero waste systems in operation	1. Generate alternative feedstock substituting raw materials through secondary materials and/or renewable, less carbon intensive resources - Bio-based chemicals, fuels and materials - CO2 re-use, emissions as source of value from steel and cement industry (ideally link with Flagship EnCO2re) 2. zero waste systems in priority value chains: - Metals (steel, aluminum, copper) - Chemicals and Plastic 3. System layouts design and re-design: 4. Holistic approaches rethinking the whole material flows, production processes, supply chains, distribution and logistics	1. create symbiotic relationships between various industries and stakeholders, 2. implement the principles of circular economy and of industrial symbiosis 3. leads to an added value among different stakeholders 4. synergies identified with existing portfolio of Sustainable Production Systems	1. CO2 as raw material/feedstock 2. Pilot projects across the whole value chain connecting stakeholders across B2B and B2C industries 3. Bio-based chemicals and plastics, enzymes pilots considering both sustainability and scalability aspects 4. Eco-design and remanufacturing for fully circular vehicles 5. Post-consumer waste recycling for aluminum 6. High-value steel recovery in automotive and other mobility industries 7. Plastics recycling: packaging, household appliances, light-weight applications, e.g. automotive 8. Identification and separation technologies for effective plastic recycling

Theme	Vision	Area Priorities	General Focus	Examples
Sustainable Land Use	Land use climate mitigation and adaptation functions strengthened through innovative tools and systems that articulate new value chains and contribute to green growth	1. Traceability of food and wood supply chains 2. Monitoring of carbon stocks (agricultural soils, forests) 3. Carbon stock increase and sink function improvement 4. Climate friendly value chains from forest-derived products: wood construction or bio-based products 5. Connecting food value chains with climate-smart agricultural practices 6. Integrate better agriculture and forestry activities (circular economy, energy efficiency, carbon stocks, resilience) 7. Initiate integrated and resilient territorial approaches with specific focus on avoiding zero-sum games between land-use changes, and including water issues in the climate adaptation of territories	1. Connect better start-ups and innovation projects 2. Develop a consistent forestry portfolio to reinforce or preserve the sink functions of forests 3. Revisit the way we address adaptation, connecting resilience approaches with climate services 4. Developing a holistic framework for assessing resilience and adaptation approaches	1. Design a tool that improves the tracking of products within supply chains. See e.g. KIC supported start-up https://trakeo.com 2. New remote sensing method 3. New software that helps farmer improve their soil carbon storage through best farming practices 4. Innovative wood housing for refugees valuing degraded forests 5. Enhanced commercialization of beef meat or milk produced with reduced methane emissions 6. A new biochar value chain for increased carbon storage in agricultural soils 7. An innovative groundwater storage solution that creates a buffer against drought and protects critical ecosystems
Urban Transition	To demonstrate and scale integrated and scalable innovations to achieve livable, zero carbon and resilient cities in Europe and beyond.	1. District and city level innovation opportunities 2. Systems innovation, i.e. the innovation needs to drives change through entire systems or ideally across different city systems 3. Leverage our existing network at Climate-KIC locations [for exemplary challenges/questions please see Urban Transition Theme]	1. Building deep relationships with networks of urban demand-side 2. Supporting the set-up, financing, neutral coordination, evaluation and scaling of demonstrator projects (rather than the development of new technology) 3. [Adapation welcome]	1. Integration of urban systems - transport, energy, water, waste, buildings Examples: • Re-use of waste energy from transport systems to heat buildings • Balancing of energy demands across a district (Demand Side Response/Smart Grids) and the introduction of electric vehicles • Integration of multi-mode mobility solutions with district master planning

Decision Metrics and Finance (DMF) Theme

Decision-makers, investors and high-carbon consumers must acquire the confidence and commitment to climate action, unlocking finance and driving the climate relevant economy. The mission of the DMF Theme is to build integrated competences, models, tools and mechanisms to provide the evidence informing systemic decision-making and realise the full potential of stakeholders to act against emissions and increase resilience.

To achieve a low carbon future, the investment needed by 2030 is estimated at €85 trillion – an unprecedented level of spend in any human endeavour. A recent Climate-KIC study performed by the LoCal Flagship project identified two of the major challenges to unlocking investment:

- **How to identify the relevant actions, prioritise and verify their impact.** We need to comprehend the multi-faceted complexity of GHG mitigation and adaptation at all decision levels, raise technical capacity among stakeholders to define emission reduction targets and design appropriate responses, provide risk and climate adaptation impact assessment frameworks.

- **How to enable investment in these actions.** We need to collaborate with emerging mechanisms in developing innovation on guidelines and frameworks for investors to best integrate innovation needs for mitigation and adaptation, looking simultaneously at three levels of decision: individual investment, corporate- and institution-level, programmatic instruments & green bonds.

In answering these challenges, the DMF Theme draws on a number of insights gained from work to date:

- Higher quality GHG measurement identifies precisely the actual emitters and allows those emitters to target reduction.

- Increased accuracy of climate risk assessment & resilience performance allows cities, land, business (sectors) and communities to adapt in a timely manner.

- Certified MRV provides regulators and investors with the data and security to inform better-targeted regulations, access financial tools and create stronger incentives for carbon reduction.

We also know that system innovations & financial incentives foster investment in low carbon initiatives, divestment of high carbon products, and promote adaptation. Matching these innovations with the needs and full climate action potential of major customers (cities, big emitting sectors) requires capacity building to define relevant action plans and behaviour change to enable decision, implementation and adoption at scale.

The DMF Theme organises these insights into a more structured portfolio approach:

i. **Measuring and Monitoring**, to enhance understanding of mitigation and adaptation by strengthening and implementing MRV of emissions at all stages of the value chain, measuring risks and vulnerabilities, and providing visualisation to ensure effective allocation of resources.

ii. **Unlocking Climate Investment**, to innovate in systems, financial incentives and products for the investment in low carbon initiatives and divestment of high carbon products, and the reduction of climate vulnerability by promoting investment in adaptive capacity building. (There is a clear opportunity to work in synergy with the other Climate-KIC Themes.)

iii. **Informing Decision**, to integrate climate information in decision-making across all industries. This may include identifying which transformational barriers prevent long term investment needed to scale and where to accelerate enabling policies, climate-friendly business models and lifestyles.

A thematic taskforce has been working since May 2015 to define the thematic perimeter of DMF, identify the relevant part of the Climate-KIC heritage to date (from the GHG MRV, Adaptation Services and part of Making Transitions Happen platforms) and the most promising activities to build up the three focus areas.

A more compact subgroup of the taskforce shall continue work with the DMF team to bring out the more specific challenges during 2016, and make sure that the calls for ideas focus on where our unique added value lies in the growing wider ecosystem of climate finance. We shall initiate in-depth discussions in small groups, with stakeholders from the (re)insurance sector, from the investment banking sector, from potential new partners pertaining to sectors that can be major users of DMF outcomes, and with research teams that can inform us on emerging or potentially critical topics.

At this stage, the DMF team does not wish to strictly limit the list of priority topics, considering that there is room to densify the thematic landscape and relatively limited funding available. As a guide for thought, here are some of the questions around which innovative ideas could be welcome:

- How best to identify, prioritize and engage sectors that can be major users of DMF outcomes (e.g. food distribution, transnational river basin authorities)?
- How to reduce the costs of MRV, notably in data-poor regions?
- How to effectively address the challenge of adaptation metrics, as their lack of maturity and adoption is a clear barrier to upscaling innovation on adaptation?
- How can better risk assessment strengthen or accelerate investment in climate solutions?
- How to best address the growing need for local verification services?
- What DMF tools can be developed in link with sustainable production systems?
- What innovative financial tools can be provided to unlock investment (apart from city scale action – cf. LoCaL)?
- Can we better identify financial flows and benchmark climate change investment?
- What innovations can be developed to foster and increase capital mobilization for climate?

Further development of the DMF ideator could be strengthened by addressing questions such as:

- What sectors are most mature to integrate more strongly climate data and climate-friendly mechanisms in their strategic development?
- Should DMF tackle the challenges of black carbon and how?
- How could unconventional monetary policies help target green investments?
- Which areas of investment decision-making need to be better explored?
- How can Climate-KIC bring distinctive expertise in informing policy making and governance?

Note that the **LoCaL flagship programme** shall continue launching its own calls for proofs of concept along the year. LoCaL activities in 2016 fall into three main groups:

- Assessment: better integrating cities actions within national inventories & GHG accounting frameworks while reducing uncertainties in both emission factors and activity data; mainstreaming urban GHG reporting and allowing benchmarking across cities, identifying barriers to GPC implementation.

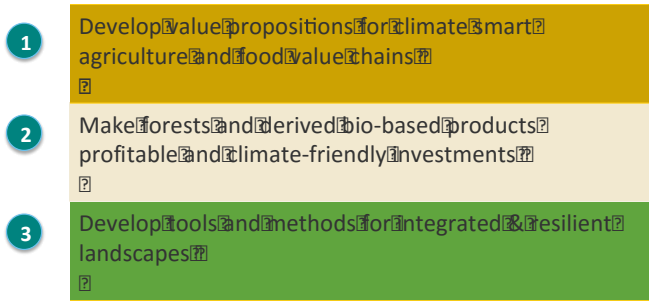
- Investment: matchmaking between cities and investors, building capacity of cities and project developers in attracting and managing mitigation investments; piloting and scaling-up new financial instruments and frameworks.

Sustainable Land Use (SLU) theme

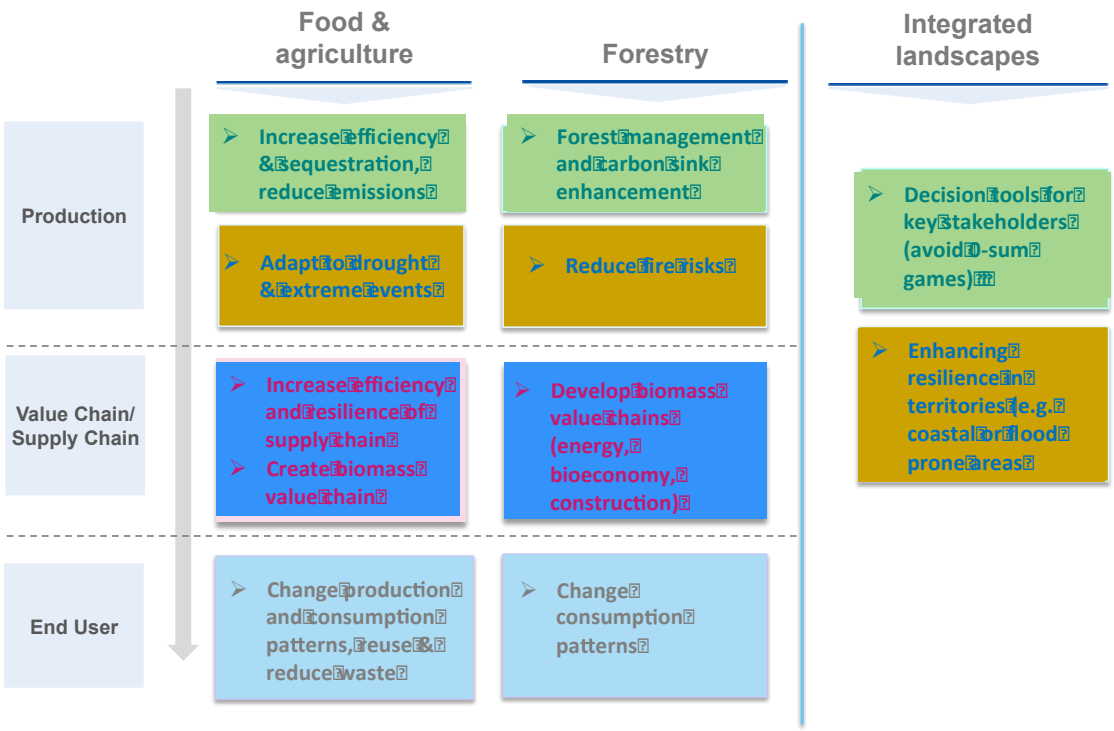
This note summarizes initial priorities identified as challenges for SLU theme for the first in-take of Innovation Ideas in 2016. It also presents the focus areas of the theme and a brief analysis of current portfolio as well as the rationale for the priorities selected.

1. Summary of thematic focus areas:

The 3 focus areas identified for the theme are presented in the figure below.



The main areas where innovative tools are proposed to be developed in these three focus areas are depicted below. They address climate change through mitigation, carbon sequestration and adaptation measures. They also stem from production to consumption and encompass entire value chain approaches.



A brief analysis of the portfolio of initiated KIC activities is presented in an Appendix hereafter. The main conclusions of this analysis are that:

- **Agriculture** has a good coverage but is lacking activities connecting production with downstream value chains, including circular economy, consumer or food producer-driven approaches. Food is currently one of the areas where a lot of innovation is happening (as shown by the number and diversity of start-ups) and it is important to connect new tendencies with production in order to maximize the benefits for the climate.
- **Forestry** remains poorly covered and there is a need to develop this focus area and especially to connect value chains (bioeconomy, wood products) with best practices on forest management. Connections with the three other themes of the KIC would need to be improved for this purpose.
- **Integrated and resilient landscape** approaches are also poorly covered. One of the difficulties that is being faced is that we lack a simple methodology to define and assess adaptation approaches and their impacts on resilience (in a way comparable to what is done for mitigation).

2. Thematic priorities for the year 2016

3.1. Generic priorities

A set of generic priorities are proposed that set general guidelines for our portfolio development. They may guide our partners in fine-tuning their innovation ideas.

1. **Connecting better start-ups and innovation projects**: especially in areas where we have a few projects and we see several start-ups; this shows that demand exists and should drive our portfolio development; but also in the area of agriculture/food chains to allow better synergies in the current portfolio of projects and start-ups.
2. **Connecting better agriculture and food value chains**: identify how value chains and consumer behaviour can be used to accelerate the evolution of agricultural practices;
3. **Starting developing a consistent forestry portfolio** looking in particular, at evaluating practices that reinforce or preserve the forest carbon sink functions, and at connecting these best practices with downstream value chains (bio-based products, wood construction);
4. **Triggering the development of integrated approaches** (i.e. connecting different land uses, taking a holistic territorial approach) ;
5. **Revisiting the adaptation approach**, connecting in particular with the climate services approach of the DMF Theme and bridging the gap between these approaches and the resilience approaches;
6. **Connecting the portfolio of activities to national, European and international initiatives**.

3.2. Thematic priorities

The proposed thematic priorities for the development of activities within the Innovation pipeline are as depicted hereafter

Type of innovation	Priority	Rationale
Point innovation	**Traceability** of supply chains (food, wood)	Developing value chains from climate-smart products requires better traceability in supply chains
	Monitoring of **carbon stocks** (agricultural soils, forests)	Important difficulty especially in agricultural soils; connection to the 4 p 1000 project initiated during COP 21 by the French government
	Carbon stock increase and **sink function improvement** through best practices (agricultural soils, forests)	Connection to the global 4 PM project[1], seeds for SLU forestry programme
Vertical systems innovation (value chain approaches	Development of climate friendly value chains from **forest-derived products**: wood construction or bio-based products	Creating value from downstream products while enhancing sink function is key for forestry sector
	Connecting food value chains with climate-smart agriculture practices	Innovation in agriculture is triggered mostly by changes in consumer demand
Horizontal systems innovation	**Integrating** better agriculture and forestry activities (circular economy, energy efficiency, carbon stocks, resilience)	Agriculture and Forests being managed by different people and institutions, several improvements can be derived from a better integration (starting with agroforestry approaches)
	Initiate integrated and resilient territorial approaches with specific focus on (i) avoiding zero-sum games and (ii) including water issues in the climate adaptation of territories	Holistic landscape approaches (including relationships between developing and developed countries) are in development by most international organisations
Methodology	Development of a **holistic assessment framework** for adaptation and resilience approaches	Objective to develop a Climate-KIC methodology for the assessment of adaptation activities entering our innovation pipeline

[1] For more information : https://ciat.cgiar.org/soils-2-2/soil-organic-carbon-and-the-4‰-initiative-soils-for-food-security-and-climate

Appendix: Analysis of overall KIC portfolio

The quick portfolio analysis below refers to the entire portfolio of partner projects and start-ups.

Areas of interest	Brief analysis
Agriculture	Good coverage in general, some interesting Pathfinders developed in 2015. CSA booster covers both mitigation and adaptation **Poor portfolio on carbon sequestration due to lack of entrepreneurial projects** Adaptation, despite its importance has seen few good projects
Agricultural value chains (food and bioeconomy)	Efficiency of the chain and associated mitigation potential is missing to a great extent Urban food, food waste reduction (and in general circular economy) well covered by several start-ups, but not (yet) in partner projects New consumer attitudes well represented in start-ups but not (yet) in partner projects On bioeconomy, most start-ups & projects relate to biogas capture and valorisation Value chain approaches represented mostly in one project on resilience/adaptation issues and in one project on methane reduction from cattle. CSA booster also starting to develop this.
Forestry and associated value chains (bioeconomy, wood…)	Very few projects, and mostly connected to other themes: - Renjet (bioeconomy): supply chains for bio-kerosene around airports - Building Technology Accelerator (BTA): wood construction technologies - Forest project: a set of tools to monitor forest status - Carbocount: a monitoring pilot for CO2 emissions in a Forested region (Les Landes, France) Few interesting start-ups. What is missing in general is a connection between downstream value chains and forest management. There is a need to ensure that forest management maintains the sequestration capacity of the forests and that downstream value chains can feedback positively on forestry management
Integrated and resilient landscape approaches	Few projects and few start-ups in general. Water issues have been addressed but the way the related developed innovations can increase the resilience of territories has not been convincing. A clear missing point is a **simple methodology to help selecting potential innovations that increase adaptation or resilience.** A methodology inspired by the simplicity of the abatement curve would be useful. A few horizontal systemic approaches have been developed so far. Exceptions are: Winners: connecting territories (producers) in developing countries with consumption (manufacturers and distributors) in industrialised countries. Several on-going innovations try to enhance these connections, often to ensure that landscapes are protected in tropical countries. Our shared risk and insurance mechanism approach could be a nice complement to the already existing innovations in this field. Besmetrics: This Pathfinder has investigated how companies could better protect biodiversity (and hence resilience). Precos: This pathfinder has developed a tool that can assess the resilience of a territory under climate change conditions.

Sustainable Production Systems

Circular Economy – the new approach

Y2016 Pathfinder Call is a tool to foster new ideas which are ready to support Circular Economy. For easy understanding of Circular Economy and its Package Commission issued FAQ on 2 December 2015:

> "*To ensure sustainable growth for the EU we have to use our resources in a smarter, more sustainable way. It is clear that the linear model of economic growth we relied on in the past is no longer suited for the needs of today's modern societies in a globalised world. We cannot build our future on a 'take-make-dispose' model. Many natural resources are finite, we must find an environmentally and economically sustainable way of using them. It is also in the economic interest of businesses to make the best possible use of their resources.*
>
> *In a circular economy the value of products and materials is maintained for as long as possible; waste and resource use are minimised, and resources are kept within the economy when a product has reached the end of its life, to be used again and again to create further value. This model can create secure jobs in Europe, promote innovations that give a competitive advantage and provide a level of protection for humans and the environment that Europe is proud of. It can also provide consumers with more durable and innovative products that provide monetary savings and an increased quality of life*"[2].

Based on Circular Economy Package Climate-KIC Sustainable Production Systems vision is: **zero carbon value chains and zero waste systems in operation which** are the future foundation of Europe's industry.

21% of global emissions originate from industrial production. This represents a broad spectrum of activities but the IPCC identifies that the **largest emission sectors**:

a) **ferrous and non-ferrous metal production (22%)**
b) **chemicals production (15%) and**
c) **cement production (12%).**

SPS Strategy is focusing to deal with major emitting sectors and subsectors among the most ready to engage in climate action and **we need to explore ways to identify benefit-led initiatives to stimulate change in the broader production activities** (responsible for the 35% of emissions that lie outside the 'big three' emissions sectors).

At the heart of our ambition to decarbonise Europe's industry, is the premise that economic growth must be decoupled from resource use and GHG emissions. Climate-KIC's SPS theme **mission is to catalyze the transition to a zero carbon economy by seed-funding high-impact climate solutions, facilitating innovative cross-industry co-operation** and supporting technological as well as **unique business model innovation in regional clusters and value chains.**

According to our strategy Innovation Proposals shall focus to following Thematic Priorities (minimum one shall be met):

1. Identifying **alternative feedstock** substituting raw materials through secondary materials and/or renewable, less carbon intensive resources

[2] Please see: Circular Economy Package: Questions & Answers, European Commission - Fact Sheet, Brussels, 2 December 2015, http://europa.eu/rapid/press-release_MEMO-15-6204_en.htm

a) Bio-based chemicals and plastics, enzymes, bio-based fuels considering sustainability criteria.

b) CO_2 re-use, emissions as source of value and raw material of the future. Rather than looking at CO2 as pollution or waste to be disposed, use it as a renewable resource for the future.

2. Aiming at **zero waste systems** through valorization of by-product streams and re-use of waste in the following value chains

   - Metals (steel, aluminum, copper):

     a. Pilot projects ideally across the whole value chain connecting stakeholders across B2B and B2C industries

     b. Eco-design/Remanufacturing for fully circular vehicles

     c. post-consumer waste recycling (e.g aluminum due to large reduction potential for GHG emissions)

     d. High-value steel recovery in automotive and other mobility industries

   - Chemicals:

     a. following waste management hierarchy defined by the EU (Directive 2008/98/EC on waste)

     b. eco-design, re-use for secondary products, plastics recycling, increasing quality of recovered plastic and supporting the transition to bioplastics and bio-fuels when sustainable and economically viable

   - Plastics:

     a. recycling on packaging, household appliances and light-weight structural applications such as those used in the automotive sector

     b. Identification and separation technologies for effective plastic recycling

   - Cement. -- CO2 re-use, emissions as source of value from steel and cement industry (ideally link with Flagship EnCO2re).

3. **System layouts design and re-design** improving resource efficiency & re-use, exploiting synergies within and between value chains. - The transition from a linear economy to a green economy will require systemic and holistic approaches including business models in a spirit of Circular Economy where the rethinking of whole material flows, production processes, supply chains, distribution and logistics will be crucial.

Selection Principles of Proposals

The following approaches will positively influence the selection:

A. **General Focus**:
   a. create symbiotic relationships between various industries and stakeholders,
   b. reflect the principles of circular economy and of industrial symbiosis, implying a material and/or energy exchange that
   c. leads to an added value among different stakeholders. Ideas providing multiple value-creation mechanisms which are decoupled from the consumption of finite resources will be at the core of our innovation portfolio.
   d. synergies identified with existing portfolio of Sustainable Production Systems.

B. **Business fit**:
   a. business concept exists
   b. market and client needs are understood
   c. business and climate impact is significant

For more information, please contact István Pócs: istvan.pocs@climate-kic.org | +36 7931974

Urban Transition Theme

"Great cities connect their assets and people in the most sustainable, resilient, and innovative ways"

Vision & Mission

Climate-KIC's Urban Transition theme will develop integrated and scalable innovations that provide the core of the transformation towards livable, zero carbon and resilient cities in Europe and beyond. To this end, we bring together innovators and key stakeholders in developing urban systems to demonstrate that ambitious innovation with high socio-economic and climate benefits is possible and then support scaling up these innovations.

Urban Innovation

Building upon the positive developments from our start-ups, projects, and Flagships, the rally call from the COP21 'Paris Accord' of a step change in city level action to support national emission reduction commitments, and recognising the unique value of the Climate-KIC community, we believe that this theme has an unprecedented opportunity to deliver climate mitigation and adaptation benefit.

However, cities are very complex. To support working and communicating with our community of collaborators we will use the following framework:

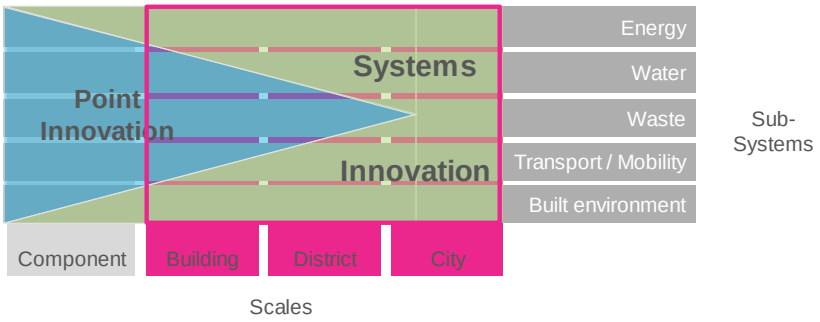


Figure 1: Dimensions of city systems and Climate-KIC's innovation focus

Bringing it together (Subsystems)

Typically, improvements and innovation have taken place within individual subsystems such as energy (e.g. renewables or district heating), water (e.g. rainwater management), waste (e.g. optimized waste collection), mobility (e.g. city road pricing) or the built environment (e.g. refurbishment). This served a purpose because there are actor networks around these systems who share the same language and have successfully collaborated to optimize systems. We believe innovation within these systems needs to diffuse faster. More crucially, ambitious integrated innovation across these systems is yet to emerge on a large scale. This is required if we are to succeed in making significant urban emission reductions and increased city resilience.

Climate-KIC partners and start-ups generally have strong expertise in one or two urban subsystems. Climate-KIC will use convening power, experience, and tools for multi-party integrated programme development to bring leading experts and the most promising ideas together to develop a step change in integrated urban solutions at scale.

Scale

Investment decisions often take place at a distinct scale like the building, district and city levels. It is at these scales where decision-makers and investors often look at a bundle of technologies and have the chance to make more integrated decisions across subsystems. While it is already a challenge to integrate individual innovations true systemic innovation still rarely happens, especially at district and city levels. This can be because problems are not necessarily shared by all relevant actors and solutions need to be provided by many companies and organisations which can lack an effective coordinating driver with long term interest.

Climate-KIC's focus

The experiences form our past and ongoing activities within the urban space as well as Feedback from Partners and stakeholders yielded interesting insights into urban innovation dynamics. Firstly, it is agreed by many that most technology is actually developed but that the challenge is to integrate them in a systemic way, demonstrate them in real-world settings and the scale them. Secondly, city authorities and increasingly corporate actors acknowledge that socio-technical systems and citizen behavior are at the core of fundamental and accepted transitions and thus need to be strongly incorporated in any innovation endeavor. Thirdly, it is perceived that there often is a lack of actors that can neutrally coordinate change in cities at systemic level. Finally, eenabling infrastructures and systems like IT/Data management are increasingly important to drive and replicate innovation effectively.

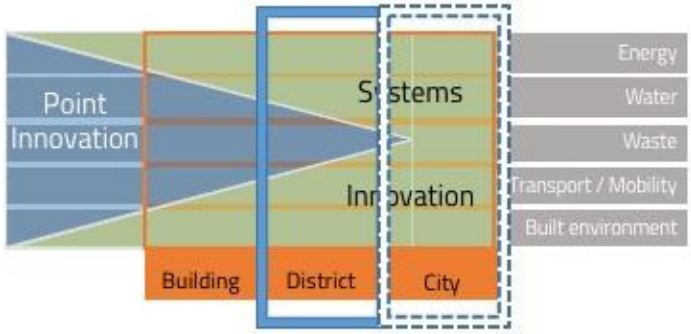
Based on these findings, Climate-KIC's urban transitions theme focuses on:

- **Building deep relationships with networks of urban demand-side** actors (like city authorities, housing associations, district developers) at building, distcrit, and city levels to start from real needs and broker our innovation to these groups.
- **Supporting the set-up, financing, neutral coordination, evaluation and scaling of demonstrator projects**.
- **Driving systems innovation** supported and animated from a pipeline of leading individual innovations
- **Leverage our existing network at Climate-KIC locations to then scale our impact.** While Europe is the source of our ideas, talent, and focus, we recognise that there is enormous demand for urban innovation internationally and that developing economies are where we will achieve impact at scale.

With time, we will increasingly focus on particularly interesting and rewarding innovation challenges at specific combinations of system scales and types.

Initial Priorities

For this initial period in 2016 we will focus our calls and activities mainly at the **District scale** with consideration for city scale.



We are interested in governance, business models, technological, and/or policy innovations that deliver significant improvements to urban environments at district scale, and potentially at city scale. In particular we are interested in:

- District level innovation opportunities that have significant potential for climate benefit
- Ideas that have excellent replication and scaling potential (within a city and beyond)
- Involve a range of public and private sector stakeholders

We believe that in addition to looking at whole districts as per the Smart Sustainable Districts (SSD) flagship, there are opportunities to look at specific district and city wide innovations across city subsystems such as energy and transport. This builds upon the needs identified through programmes such as SSD which provide insight into where climate benefit can best be achieved.

Next to the district focus, we wish to highlight focus on:

- Enabling, demonstrating, and scaling of innovations rather than new technology development
- Demand side verified needs (city authorities, district developers, housing associations)
- The replication potential, including the pathway how it would be replicable, is important and the actor(s) potentially driving the replication need to be engaged
- Systemic innovation (triggering fundamental changes in subsystems or even better those innovating at interface of different subsystem)
- Adaptation is explicitly welcome

Initial areas of study:

- Overview and prioritisation of innovative governance, business and financial models for district level innovation
- Overview of most innovative district level innovations ready for scale-up, including the establishment of the most promising pathways to accelerate this
- Identification of the 5-10 most important innovations in cities related to our existing partner municipal authorities that would be worth scaling
- Identification of the 5-10 most pressing innovation demands by the cities related to our geographic network and attempt to do match-making with potential solution providers

Ideas and proposals for innovation across the entire innovation framework are welcomed. Later in the year we will revisit the building and city scale.

The region of Euro 20,000-30,000 with the maximum set at 50,000.

Further briefings will be provided on the criteria and process that will be used for the programmes. For more information, please contact Brian Kilkelly:

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Annex II - Review criteria

Criteria	Explanation
Demand identified and/or addressed	*Demand-side needs – what new, existing or latent needs will form the basis of the innovation opportunity.* Market demand is necessary for the creation of self-sustaining economic activity. Climate-KIC interprets demand as the demonstrated willingness of stakeholders to purchase a product or service, or commit to implementing change by use of the products/services of the project. Demand needs to be clarified, so that a solution can be identified and matched by a potential product/service. The proposal must clearly identify the demand (in the case of a demand driven Pathfinder), or outline the activities within the Pathfinder that aim to identify the demand (in the case of a discovery driven Pathfinder). Interpretations of demand include: • Legislation to limit CO2 is not in itself considered to be demand, as there is no economic contribution from the policymakers. Whereas the stakeholders that are implementing, or are impacted by policy and are looking for solutions to it, are considered to be demand as they can purchase the product or service being developed by the Pathfinder project. • A new public policy is targeted as the innovation, where the demand comes from the political/governmental establishment that will implement (in effect pay for) the policy. • New knowledge that changes business behaviour, where the demand comes from the corporates who will implement (in effect pay for) communications programmes.

Innovation potential	*Supply-side discoveries – what new or existing discoveries will form the basis of the innovation opportunity, or will need to be identified.* The proposal must explain the ability of the innovation to fulfil or enable identified demand which had previously not been met or met less effectively. It must convey what is new or more effective in the ideas, knowledge, technologies, processes, services or products. As well as innovations identified by partners, this may be the result of combining existing innovations to be more effective together, or combining a new innovation that enables an existing innovation to scale up. If the discovery has not been identified (in the case of demand driven Pathfinder), the proposal must outline the activities within the Pathfinder that will stimulate and select the best ideas, knowledge, technologies, process, services or products that address the demand. These activities could include: • Desk research to drive insights • Assessing similar/related innovation challenges to look for crossover • Workshops brokering demand and supply side stakeholders • Community engagement • Open innovation events • Innovation competitions
Quality of the plan	The plan must explain how the Pathfinder objectives will be achieved, namely the identification and possible validation of an innovation opportunity. Good project management is required, with defined milestones and detail on the structuring of work within the project; how progress will be made and measured, including deliverables and KPIs targeted throughout the project. Plans should allow for flexibility, as projects may evolve during project implementation, due to their exploratory nature. • Consideration should be given to how the plan will consolidate and apply knowledge developed by the project. • Please indicate any activities or work packages in the plan not financed by Climate-KIC. Please provide any assumptions, including the rationale for why some work packages may be particularly large or different, and any significant risks associated with the estimated budget, or areas/amounts that are variable.

Strategic fit	Climate-KIC prioritises those projects which fit its strategic thematic areas. Thematic Areas priorities attached at the Annex I. Successful proposals will identify one of the four Themes and will reflect on selected Theme priorities. Some projects may fit in two themes. In such a case the first one mentioned will be used as the main one.
Value for money	Value for Money will be judged on a number of factors, including: • How well the proposed activities are focused on an impactful project outcome. • How appropriate the scale of the activities is compared to the anticipated benefit/importance of the activities. • How well the partnership is suited to the activities described and is the number of partners optimised. How many complementary activities are leveraged to kick-start the Pathfinder project.
Climate relevance	This criterion evaluates the impact of the project in terms of climate mitigation (target GHG emissions saved or carbon sequestration) and adaptation (assets protected).
Project outputs	Potential outputs intended for the project should be detailed, for example: • Market/stakeholder analysis. • Assessment of competition (market benchmarking). • Identified risks and barriers to success. • Insights, primary/secondary research or experimental evidence of the demand and solution. • Clearly articulated innovation opportunity and nature of the solution (knowledge, service, product, policy etc.) that addresses market needs. • Model demonstrating viability of self-sustaining outcome (including the scaling-up of the innovation). • Knowledge and competencies required to exploit the innovation opportunity. Opportunities to attract investment in the exploitation of an innovation opportunity. In particular, evidence of co-finance that can be secured for any subsequent Innovation Project.

Annex III – Key Performance Indicators and Deliverables

EIT Core KPIs

KPI Type	KPI description	Supporting documents
Number of start-ups or spin-offs created (Outcome KPI)	*A new start-up/spin-off* can be acknowledged if: ▪ It results from a KIC activity; AND ▪ Has commercialised a product/service in the reporting year. ▪ Must be legally incorporated according to national law of a European Member State. ▪ Must have won its first customer(s) or demonstrate the existence of a potential first customer or investor (for example by a Letter of Intent). ▪ Must fulfil either one of the following conditions: it has been coached / incubated within a KIC or it is a spin out arising as direct output of a KIC activity.	▪ An official document proving the registration at a competent local registry/Chamber of Commerce. ▪ A proof (e.g. Letter of Intent or an order form/invoice) demonstrating that this start-up has won its first customer, or the existence of a potential first customer, or other document demonstrating that the start-up has commenced commercial operations. ▪ The formalised agreement between the KIC and the entrepreneur that creates the start-up/spin-off describing the KIC added value Activity provided by the KIC (See the agreement following the Start-up cover page).
New or Improved products/services/ processes launched (Outcome KPI)	▪ Product/service created and commercialised in the course of a KIC activity; OR ▪ Product/service improved considerably and commercialised in the course of a new KIC activity, e.g. new project functionality added, improved material.	Supporting doc. for a **new product/service** demonstrates first commercial transaction. Supporting doc. for an **improved product/service** demonstrates added-value to customer. In both cases originating party shall be Climate-KIC, a CKIC Partner, or a CKIC start-up (for this latter from its second year of operations).

Knowledge adoption (Progress KPI)	Knowledge adoption takes place when outputs created within a KIC activity - e.g. patent, trademark, know-how, copyright – are adopted by a Climate-KIC partner. In this case partners acknowledge use of the knowledge for their own purposes.	▪ Statement/declaration between the originating Partner (the KIC LE or a KIC partner) and the recipient or other document that defines the originator, recipient, the knowledge transferred, and the conditions of the transfer transaction. Written statement of the KIC LE (if it is the KIC LE who adopted the outputs) or KIC partner (if it is the KIC partner who adopted the outputs) that states how it has adopted the outputs created by the KIC activity(ies). ▪ The types of Knowledge transfer/adoption are: Patent, Trademark, Know how, Copyright. The types of contract can be: Licensing, Sales, Consultancy. ▪ KICs activities of the past years shall be referred to, if they have contributed to the measure. This is due to establishing the cross-references between the declared KPI inputs and the KIC activity(ies) having contributed to these results in the past years (i.e. not only limited to the direct previous year).
Knowledge transfer agreement (Progress KPI)	Knowledge transfer takes place if a KIC Partner sells created knowledge assets – e.g. patent, trademark, know-how/expertise, copyright - to a Climate-KIC Partner or licences them to a third party.	▪ Transfer agreement between the originating Partner (Climate-KIC or a CKIC partner) and the recipient of the knowledge, a third party to C-KIC. It is substantiated by a licensing agreement (patents, copyright) or service contract (know-how). ▪ The types of Knowledge transfer/adoption are: Patent, Trademark, Know how, Copyright. The types of contract can be: Licensing, Sales, Consultancy. ▪ KICs activities of the past years shall be referred to, if they have contributed to the measure. This is due to establishing the cross-references between the declared KPI inputs and the KIC activity(ies) having contributed to these results in the past years (i.e. not only limited to the direct previous year).

Climate-KIC KPIs

KPI Type	Description	Proof
Capital attracted to sustain outcomes	Amount of non-KIC capital – e.g. venture capital, investor, other public finance - attracted for further development of Climate-KIC activity, and development when KIC finance ends.	▪ Evidence for new capital attracted in the current reporting year (e.g. official confirmation) ▪ Clarification by the benefiting party on what the new capital attracted is going to be used for.
Policies/ standards implemented	Policies and standards developed with support of Climate-KIC and adopted/ implemented by a public authority or industry organisation.	A signed statement by the policy/standard implementing party, clarifying: ▪ the benefit (benefit) of the policy/standard – in what way it improved the previously applied practices. ▪ the role of KIC project in developing the policy standard in question; AND (if available) An official reference document to the policy/standard implemented. Example: benchmarking methodology for the assessment of the climate benefits of products manufactured.

Deliverables*

Publication	Publications that result from knowledge developed due to Climate-KIC activity.	Publication in PDF format, or a link to the publication, if available online.
Demonstrators	Demonstration site equipped or prototype developed.	Description including photo or visuals of demonstration site/prototype.
Reports	Reports resulting from finalisation of a project task, work package, project stage - e.g. feasibility study, market analysis, final report.	Copy of report, or link if available online.

* A deliverable proof is a tangible document, medium, or other artefact encapsulating the quantifiable outputs (e.g. products, services) created by a project. Please add any more deliverables, e.g. a database, software, a draft policy, a communication doc, feasibility studies, stakeholders analysis, market studies.

Annex IV Cost category distribution

This table shall be filled in ***only in case of successful application and for each partner of your project.*** *All costs in Euros.*

Cost category	Project total cost	Climate-KIC finance request	Partner co-funding	Comments and assumptions
Salaries				
Travel and subsistence				
Equipment/ infrastructure				
Subcontracting				
Subgranting				
Other unspecified				
Indirect costs *25% of total eligible direct costs (excluding subcontracting and sub-granting costs).*				
Total				