Latin American And Caribbean National Contact Points Network

(LAC NCP Network)

With the support of the Service Facility

Special Newsletter Nº 6

July 2020

Introduction:

Dear members of the LAC Network,

As you all know, one of the main objectives of the The Latin American And Caribbean National Contact Points Network, is to deliver information to researchers, companies, civil society organizations, hospitals, and any other kind of institution willing to promote science, technology and innovation in the Latin American region.

We have compiled a list of open announcements which are listed in the "Funding And Tenders" website that are still valid to apply, so that you can share with your partners, and have access to these calls.

As you all may know, these are the last announcements that HORIZON 2020 PROGRAMME has, prior to what will be the new programme to be launched by the European Union next year, known as HORIZON EUROPE.
For this reason, we hope for each and every of us can optimize the calls that are presented in this announcement.

That is all for the present. We hope that this will be very useful for the development of science, technology and innovation in the Latin America and Caribbean región.

Claudia Romano Nuñez, Liaison Office Coordinator. Linkedin.

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HORIZON 2020 PROGRAMME. LATIN AMERICAN AND THE CARIBBEAN COUNTRIES NETWORK CALLS (LAC NCP)

Last Update July 23,2020   **Source: Funding & tenders portal.**

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 01 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 10 September 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

34) Human factors, and social, societal, and organisational aspects of border and external security.
Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

36) Demonstration of applied solutions to enhance border and external security.
Deadline Date: 27 August 2020 17:00:00 Brussels Time

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Deadline Date: 27 August 2020 17:00:00 Brussels Time

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

44) Human factors, and social, societal, and organisational aspects to solve issues in fighting against crime and terrorism**.**
Deadline Date: 27 August 2020 17:00:00 Brussels Time.

45) Technologies to enhance the fight against crime and terrorism.
Deadline Date: 27 August 2020 17:00:00 Brussels Time.

46) Information and data stream management to fight against (cyber) crime and terrorism.
Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 27 August 2020 17:00:00 Brussels Time.

50) Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe.
Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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51) Upscale the production of bio-based platform molecules for larger market applications.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

52) Use enabling technologies to improve feedstock availability and sustainability for the bio-based industry.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

53) Develop integral fractionation of lignocellulose to produce components for high-value applications.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

54) Extract bioactive compounds from new, under-exploited and/or recalcitrant residual bio-based streams for high-value applications.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

55) Demonstrate superior bio-based packaging solutions with minimal environmental damage.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

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Deadline Date: 03 September 2020 17:00:00 Brussels Time.

57) Help start-ups and spin-offs to gain access to finance.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

58) Provide insight on emerging technologies for bio-based value chains.
Deadline Date: 09 September 2020 17:00:00 Brussels Time.

59) Create and interlink bio-based education centres to meet industry's needs of skills and competences.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

60) Expand circular economy to include the underexploited circular bioeconomy.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

61) Resolve supply-chain hurdles for turning residual waste streams into functional molecules for food and/or non-food market applications.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

62) Valorise the organic fraction of municipal solid waste through an integrated biorefinery at commercial level.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

63) Develop bio-based solutions to recycle composites.
Deadline Date: 03 September 2020 17:00:00 Brussels Time.

64) Turn lignin into materials and chemicals for high-end applications.
Deadline Date: 03 September 2020 17:00:00 Brussels Time

65) Produce food ingredients with high nutritional value from aquatic sources.
 Deadline Date: 03 September 2020 17:00:00 Brussels Time.

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66) Mutual learning and common tools and resources for national/regional schemes supporting innovation projects of start-ups and SMEs.
Deadline Date: 22 September 2020 17:00:00 Brussels Time.

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Deadline Date: 14 October 2020 17:00:00 Brussels Time.

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Deadline Date: 02 September 2020 17:00:00 Brussels Time.

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Deadline Date: 15 September 2020 17:00:00 Brussels Time.

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Deadline Date: 30 September 2020 17:00:00 Brussels Time.

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Deadline Date: 14 October 2020 17:00:00 Brussels Time

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Deadline Date: 29 September 2020 17:00:00 Brussels Time.

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Deadline Date: 09 September 2020 17:00:00 Brussels Time.

75) Widening Fellowships.
Deadline Date: 27 August 2020 17:00:00 Brussels Time.

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Deadline Date: 26 August 2020 17:00:00 Brussels Time.

77) Call for proposals for ERC Proof of Concept Grant.
Deadline Date: 17 September 2020 17:00:00 Brussels Time.

78) SME instrument
Deadline Date: 07 October 2020 17:00:00 Brussels Time.

79) RESponsible Island - Prize for a renewable geographic energy island.
Deadline Date: 29 September 2020 17:00:00 Brussels Time.

80) EIC Horizon Prize for 'European Low-Cost Space Launch.
Deadline Date: 01 June 2021 17:00:00 Brussels Time

81) EIC Horizon Prize for 'Early Warning for Epidemics.
Deadline Date: 01 September 2020 17:00:00 Brussels Time.

82) EIC Horizon Prize for 'Innovative Batteries for eVehicles
Deadline Date: 17 December 2020 17:00:00 Brussels Time.

83) EIC Horizon Prize for Fuel from the Sun: Artificial Photosynthesis.
Deadline Date: 27 October 2020 17:00:00 Brussels Time.

SOCIETAL CHALLENGES:

1) Restricted call to maximise impact of IMI2JU objectives and scientific priorities

Types of action: RIA (Research and Innovation Action)
Opening Date: 22 June 2020
Deadline Date: 29 September 2020 17:00:00 Brussels Time
Budget: € 11.427.098   **Acronym:**   IMI2-2020-22-01

Description:
IMI wants a major challenge in life sciences, in particular within the medicines development process, is the scale of the investment required, the stepwise approach, very long development timelines and the successful involvement of relevant stakeholders. Certain IMI2 JU topics, launched under IMI2 JU Calls for proposals that are now closed, anticipated in their corresponding work plans the need for a stepwise approach.

Scope:
The scope of the restricted Call will be to support further research activities in those exceptional cases where it is necessary to enable successful consortia to build on the achievements of their initial action, move onto the next step of the challenge, and maximise the impacts of the initial action results.
Please refer to Call topic text.

Expected Impact:
Enhancement of the impacts already delivered by the consortium in the initial action;
Improvement drug development process;
Public health benefits and improved European citizens' health and well-being;
Contribution to the EU's industrial leadership including small and medium-sized enterprises (SMEs);
Impact on regulatory, health technology assessment, and healthcare practices, if relevant;
Further maximisation of the IMI2 JU public-private partnership value by harnessing support from different stakeholders, including the mobilisation of funds through the inclusion of contributing partners – not necessarily involved in the initial project – to reflect the public-private character of IMI2 JU actions.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-22-01

How to apply:
Eligibility and admissibility conditions are described in the following link:
https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf.

See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

Proposal page limits and layout:

Unless stated otherwise in the AWP applicable to a specific Call, in a two-stage submission and evaluation process the page limit for a stage 1 – RIA/IA short proposal is maximum 30 pages and for CSA short proposal is 20 pages. The page limit for a single stage/stage 2 – RIA/IA full proposal is maximum 70 pages and for CSA short proposal is 50 pages.

2) Returning Clinical Trial Data to study participants within a GDPR compliant and approved ethical framework.

Types of action: RIA (Research and Innovation Action)
Opening Date: 22 June 2020
Deadline Date: 29 September 2020 17:00:00 Brussels Time
Budget: € 95.150.00   **Acronym:** IMI2-2020-23-01

Description:

A large amount of high-quality health data is collected during clinical studies (interventional and non-interventional), but, beyond the immediate objectives of the study, these valuable data are not used to the extent they merit. Subject to appropriate legal grounds, these data could be used to enrich patient's healthcare records to improve clinical decision-making and reduce duplication in procedures/investigations. In addition, returning clinical trial data to patients could allow them to contribute their data for additional scientific research (e.g. patient-powered research), in particular for rare diseases where treatments and data are scarce or unavailable. Finally, the lack of transparency and sharing of clinical trial data could contribute to the lack of patient willingness to be involved in studies, delays in clinical study set up and conduct, and delays in conducting health research in Europe to the detriment of vulnerable patients and public interest in general.

Scope:

This project has two main objectives, which are equally important:

The first one is to align local and pan-European implementations and best practice for handling personal data protection regulations in order to foster the harmonisation of the legal framework applicable to medical research in the Member States;

The second one is to deliver a pan-European prototype process to return clinical trial data to study participants, building on previous and ongoing EU-level activities on citizen-centric access to health records. This prototype process will be delivered as part of the project alongside a robust business plan to ensure its sustainability.

Expected Impact:

In their proposals, applicants should describe how the outputs of the project will contribute to the following impacts and include, wherever possible baseline, targets and metrics to measure impact:

For patients: the project results should empower patients by returning their clinical trial data to them and to their medical records. Data acquired during clinical trials will aid better shared medical decision-making and reduce duplication in procedures/investigations;

For healthcare professionals: enriched healthcare data obtained during clinical care should aid better clinical decision making and reduce duplication in patient procedures/investigations;

For EU research: giving patients control of their clinical trial data will open possibilities for ethical data re-use e.g. if the patients opt in to donate their data to a common data sharing platform;

For pharma: returning clinical trial data to study participants during study conduct has the potential to improve adherence to study procedures and improve overall patient retention. Facilitate conduct and setup of clinical studies as well as access to health data for research. Doing this in a meaningful way will further help to educate patients and in doing so empower them to be equal partners in the management of their disease;

For regulators: it is an opportunity to exchange opinions with counterparts from other countries and researchers to propose informed workable aligned positions;

From a societal perspective: the project will increase the transparency of clinical study and therefore increase the trust of patients in clinical research. At a time where clinical trials are increasingly complex, this may help with recruitment for studies and improve oversight by patients and regulators on clinical data re-use. In their proposals, applicants should outline how the project plans to leverage the public-private partnership model to maximise impact on innovation, research & development; regulatory, clinical and healthcare practices, where relevant. This could include a strategy for engagement with patients, healthcare professional associations, healthcare professionals, regulators, ethics committees, HTA agencies, payers etc., where relevant. In addition, applicants should describe how the project will impact the competitiveness and growth of companies, including SMEs.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-23-01

How to apply:
Eligibility and admissibility conditions are described in the following link:
https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-

documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf

See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

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3) Modelling the impact of monoclonal antibodies and vaccines on the reduction of antimicrobial resistance.

Types of action: RIA (Research and Innovation Action)

Opening Date: 22 June 2020 /
Deadline Date: 29 September 2020 17:00:00 Brussels Time
Budget: € 95.150.00   **Acronym:** IMI2-2020-23-02

Description:
Vaccines and monoclonal Antibodies (mAb) may reduce antimicrobial resistance (AMR). However, individual vaccine developers and manufacturers, as well as organisations developing mAbs and health authorities, acting alone, do not have the resources and the full expertise required to make a realistic and comparable assessment of the use of the different products on the reduction of AMR. This could instead be possible through the development of a mathematical model. For such a model to be representative of the concerns and interests of the various actors (i.e. industry and the public health sector), it should take into account the perspectives of these different actors in order to capture all relevant impacts both in terms of costs and health outcomes.

Scope:
The proposal has the following scope:
1) Evaluate the burden of disease of AMR by estimating inpatients' (acute care hospitals and long-term care facilities) and outpatients' infection rates in at least 8 EU countries for which suitable data is collected and available, as well as in the US, and the relative attributable risk for morbidity, mortality and costs.
2) Build a comprehensive AMR model (i.e. model structure, parameters, assumptions) based on an analysis of the strengths and weaknesses of existing models, and a gap analysis.
3) Collecting, gathering, and analysing data from existing databases to feed the model.
4) Develop and test a cost-effectiveness analysis (CEA) to estimate the cost and benefits of covering defined target groups (e.g. 18+, 60+, surgeries) with mAbs and vaccines.
5) Set up a study to test, monitor, evaluate and improve the model.
6) Ensure a public and broad access to the model

The epidemiological repository that will be obtained by the applicant consortium, besides providing a transparent basis for the BOD estimation, will be made accessible through an internet database to be designed within the project. Any researcher will benefit from using the most comprehensive database on the epidemiology of infectious diseases and resource consumption associated with sensitive and resistant pathogens. Producing a reliable repository with clear description of the methods used to derive the estimates of the BOD and AMR will benefit the credibility of the results of the mathematical model. During the project, the access will be free of charge. The ambition is to favour open access as much as possible.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-23-02

How to apply:
Eligibility and admissibility conditions are described in the following link:

https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf
See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

Proposal page limits and layout:
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4) A platform for accelerating biomarker discovery and validation to support therapeutics development for neurodegenerative diseases.

Types of action: RIA (Research and Innovation Action)
Opening Date: 22 June 2020
Deadline Date: 29 September 2020 17:00:00 Brussels Time
Budget: € 95.150.00   **Acronym:** IMI2-2020-23-03

Description:
Neurodegenerative diseases, and in particular Alzheimer's disease (AD) and Parkinson's disease (PD), represent a huge economic and societal burden. One of the key barriers to the development of treatments for neurodegenerative disease is an insufficient toolbox of biomarkers and associated clinical progression data to easily screen populations, diagnose patients, monitor progression and response to treatment, all of which would improve the efficiency of clinical trials. Investments by both funders and pharmaceutical companies have created significant amounts of data and samples that could be used to accelerate biomarker discovery and development in a major way. However, these valuable resources remain in silos, and cannot easily be shared and accessed by the research community. Key unmet needs limiting the use of samples and data for the discovery, development and validation of neurodegenerative disease biomarkers today include:

Sample and data access for research use: There is currently insufficient access to high-quality, longitudinal, and well-characterised samples (including clinically well diagnosed and controls) and accompanying clinical data to meet current and future demands.Sample quality: A lack of standardisation in collecting and processing samples and linked datasets causes large disparities in sample quality and decreases the utility of banked samples for researchers.Transparency: There is currently no centralised resource documenting what sample types and accompanying clinical datasets are available across different organisations (public and private), and what access restrictions may be in place.Data sharing: Platforms and processes for sharing clinical data to accompany samples and then to enable reutilisation of derived data are lacking or inadequate in terms of interoperability.

Scope:
There are five objectives in the scope of this topic:
Create a set of agreed principles to enable sharing and access to data and samples, taking into consideration all the established legal and ethical research standards and principles

(e.g. General Data Protection Regulation (GDPR), legal, intellectual property (IP), ethical, regulatory, societal issues) and their practical implementation.

Establish a network that can house high quality data and samples, which could have federated and centralised elements. This must build on existing ongoing and relevant cohorts (see objective 4). The overall solution has to be interoperable (e.g. with other global data platforms), scalable and suitable for a broad variety of both data types (including digital), and samples, from public and private (e.g. proprietary clinical trials) sources, whether they be part of the consortium or provided from external donors. Activities related to building a biorepository or data management and sharing platform from scratch are out of scope for this topic. Instead, these must build upon existing resources (including ongoing longitudinal cohorts or studies), knowledge and infrastructures to deliver a novel solution able for seamlessly incorporating existing retrospective samples and data with prospective samples and data collections.

Establish fair and transparent governance and processes specifically to enable sharing and access to data and samples.

Test the above with the defined case studies and apply the learnings to fine-tune processes and use the outcomes to grow the platform. Case studies need to include (but are not limited to) the amyloid-tau-neurodegeneration (ATN) system (in cohorts with early Alzheimer's disease) and the complement pathway (in Parkinson's disease).

This platform must be a self-sustainable entity by the end of the project.

Expected Impact:

The self-sustainable network platform composed of a European biobank operation, and accompanying data platform, will positively fuel and impact basic research and development and drug development campaigns in neurodegenerative diseases, and in particular Alzheimer's disease (AD) and Parkinson's disease (PD).

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-23-03

How to apply:
Eligibility and admissibility conditions are described in the following link:

https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf
See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

5) Optimal treatment for patients with solid tumours in Europe through Artificial Intelligence

Types of action: RIA (Research and Innovation Action)
Opening Date: 22 June 2020
Deadline Date: 29 September 2020 17:00:00 Brussels Time.
Budget: € 95.150.00   **Acronym:** IMI2-2020-23-04

Description:

Demands of cancer care in Europe continue to increase significantly, with the number of incident cancer cases in Europe projected to increase by 14.1% by 2030. This leads to a growing demand for innovative cancer treatments among patients, payers, physicians, and society. At the same time, the understanding of the complex biology of cancer is growing, and as a result, pharmaceutical companies are developing a multitude of new therapeutic agents.This trend for new, effective therapies creates more treatment options for patients. However, it confronts physicians with an increasingly expanding number of potential therapeutic options, which each need to be understood and adopted effectively. To become familiar with the huge volume of available information, physicians need to learn continuously about medical guideline changes and marketed treatments. In conclusion, future decision-making processes will become ever-more complex, with the potential outcome of sub-optimal or even incorrect treatment choices being made. Furthermore, some patients have disease characteristics for which evidence of guideline recommendations is scarce and physicians lack information about real-world treatment outcomes. Hence, the challenges to be addressed are assisted guideline-based decision-making and the discovery of knowledge about treatment outcomes in real-world settings.

Scope:
The scope of this call topic is to establish guideline-based decision support and platform solutions to generate knowledge discovery for breast, lung and prostate cancer with applicability to other indications, in several European (EU member states and H2020 associated countries) 'model' regions. The funded action will focus only on breast, lung and prostate cancer. These indications show a high number of cases per year, a high, unmet medical need, multiple available therapeutic options and a fast-evolving treatment environment. The three core objectives of this call topic are as follows:
Objective 1: Establish a guideline-based decision support for prioritised indications
Objective 2: Establish a structured and interoperable data platform to unlock real-world-data potential in an oncology network
Objective 3: Leverage the real-world-data gathered by the action to establish an AI-knowledge base and support treatment decisions for prioritized indications.

Expected Impact:
In their proposals, applicants should describe how the outputs of the project will contribute to the following impacts and include wherever possible baseline, targets and metrics to measure impact.
An explainable AI-based knowledge discovery platform should enable the development of data-driven solutions with the goal to sustainably improve oncologic treatments throughout the EU and beyond;
The results obtained from these model regions are expected to be of relevance to countries with different socioeconomic backgrounds;
The platform should allow oncologists to save valuable time due to the automatic data gathering and facilitated guideline-based assessment;
In addition, physician-patient communication and shared decision making should be supported which might improve proactive therapy involvement to accomplish increases in individual quality of life as well as overall patient satisfaction;
The platform may also allow research questions from various stakeholders to be answered through data analysis and data pooling as well as data extraction. Besides overall survival, this could include real-world quality of life (QoL) and safety evaluations of new therapies as well as novel combinations under real world conditions. This can potentially contribute to value-based healthcare assessments at EU level;
The solutions provided by a public-private consortium will significantly benefit European society: patients receive optimal personalised treatment; physicians are supported in complex decision-making processes; and payers as well as pharmaceutical companies

receive information about real world treatment outcomes as a foundation for value-based healthcare approaches;

The topic is well aligned with the EU Commission's strategy to develop a European Health Data Space and Europe's Beating Cancer Plan.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-23-04

How to apply:
Eligibility and admissibility conditions are described in the following link:

https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf

See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

6) Shortening the path to Rare Disease diagnosis by using newborn genetic screening and digital technologies.

Types of action: RIA (Research and Innovation Action)
Opening Date: 22 June 2020
Deadline Date: 29 September 2020 17:00:00 Brussels Time.
Budget: € 95.150.00   **Acronym:** IMI2-2020-23-05

Description:
Approximately 5,000-8,000 distinct rare diseases (RD) affect 6-8% of the EU population i.e. between 27 and 36 million people; 263-446 million people are affected global. Despite scientific advances, in Europe, the fact remains that fewer than 10% of RD patients receive treatment and only 1% are managed using an approved treatment. Delivering effective treatments to RD patients where the prevalence is low has been described as one of the major global health challenges of the 21st century. One of the main challenges for RDs is related to diagnosis because RDs are characterised by a broad diversity of syndromic disorders and symptoms that vary from disease to disease and from patient to patient suffering from the same disease. In isolation, these symptoms can be very common, leading to misdiagnosis. Altogether, this leads to a lengthy and burdensome path to diagnosis that can take, on average, take eight years, often involving pointless treatments, creating a heavy human and societal burden that could be avoided by earlier diagnosis.

Scope:
The overall objective of this call topic is to shorten the path to RD diagnosis by using newborn/ paediatric (infants during their first weeks of life) genetic screening; and, via application of advanced digital technologies that enable rare disease diagnosis/ identification. The latter might require consolidation of existing fragmented efforts.

Expected Impact:
In their proposals, applicants should describe how the outputs of the project will contribute to the following impacts and include, wherever possible, baseline, targets and metrics to measure impact.
The Rare Disease conundrum:
Despite the recent rise in RD research and development, most RDs remain under-studied, and therefore under-treated / cared for. This can be attributed for the most part to:
Patients are not identified / diagnosed;

Lack of epidemiological data;
No natural history of disease data;
No validated endpoint / patient-reported-outcomes (PROs);
Patient are rare, experts are even rarer.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-23-05

How to apply:
Eligibility and admissibility conditions are described in the following link:
https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf

See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

7) Behavioural Model of Factors Affecting Patient Adherence

Types of action: RIA (Research and Innovation Action)
Opening Date: 22 June 2020
Deadline Date: 29 September 2020 17:00:00 Brussels Time.
Budget: € 95.150.00   **Acronym:** IMI2-2020-23-06

Description:
Patient non-adherence to prescribed treatment is an issue that affects patient health outcomes and healthcare system costs worldwide. It is estimated that it contributes to 200 000 premature deaths in the EU each year, and the annual costs of avoidable hospitalisations, emergency care and adult outpatient visits are assessed at EUR 125 billion. Addressing the issues of adherence would significantly improve both individual patient outcomes and reduce societal costs.Many researchers have approached the topic of adherence but insights have necessarily been limited to specific sub-topics due to the breadth of the field. Unless the underlying problem is well-defined and understood, the probability of developing effective solutions with broad and consistent impact is low.Consequently, there is a need to generate a more comprehensive theoretical and empirical understanding of the underlying causes of these patient behaviours and any interactions. This topic proposes the creation of a generalised model, grounded in behavioural theory, which integrates significant factors affecting non-adherent behaviour. This would provide a robust definition of the problem – a foundation for understanding and predicting patient behaviour – and guidance to develop and implement cost-effective tools and solutions for patients, healthcare professionals (HCPs) and other healthcare stakeholders, which directly target the causes of non-adherence and, ultimately, improve patient outcomes and reduce health system costs.Creating the necessary understanding for an effective model will require broad engagement and skills, particularly since we are targeting a disease agnostic model.

Scope:
The aims of the Call topic are to:

Develop a comprehensive understanding of the factors which affect patient needs and adherence, independently from the therapeutic area (i.e. generic or disease-agnostic), in a real-world context (as opposed to clinical setting);
Identify the most significant factors;
Evaluate existing models and then either create an open access behavioural model or further develop an existing model;

Collect additional real-world data to refine the model;

Provide tools that will enable healthcare stakeholders to cost-effectively develop and implement solutions to address patient needs and improve adherence rates.

This list is not exhaustive. Where opportunities arise to validate in other additional therapeutic areas, these should be explored.

In their proposals, applicants should describe how the outputs of the project will contribute to the following impacts and include wherever possible baselines, targets and metrics to measure impact:

Positive impact on healthcare at a societal level through enhanced adherence, targeted use of resources, and improved overall patient outcomes;

Validated foundation to compile and understand factors affecting patient non-adherence to treatment regimens and the relative weighting of these factors;

Identification of sub-groups of the population with similar causes of non-adherent behaviour such that solutions can be tailored to population needs and applied in a cost-effective manner to multiple treatment conditions;

Model for the basis of a consistent approach to non-adherence across the industry; a framework for future development of patient-centric solutions, with the capacity for the model to evolve with the future needs of patient populations;

Guidance, based on the validated model, for identifying patient needs and tailoring support tools for patients and HCPs which most closely address patient adherence needs and improve patient outcomes and quality of life;

The data collected during the project will provide a broad and deep resource for future understanding of adherence.

In their proposals, applicants should outline how the project plans to leverage the public-private partnership model to maximise impact on innovation, research & development, as well as regulatory, clinical and healthcare practices, where relevant. This could include a strategy for engagement with patients, healthcare professional associations, healthcare providers, regulators, Health Technology Assessment (HTA) agencies, payers etc., where relevant.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/imi2-2020-23-06

How to apply:
Eligibility and admissibility conditions are described in the following link:
https://www.imi.europa.eu/sites/default/files/uploads/documents/apply-for-funding/call-documents/imi2/IMI2_ManualForSubmission_v1.7_November2018.pdf
See also: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32014R0622

8) Social Sciences and Humanities (SSH) aspects of the Clean-Energy Transition

Types of action: RIA (Research and Innovation Action)
Opening: 04 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time
Budget: € 10.000.000   **Acronym:** LC-SC3-CC-1-2018-2019-2020

Description:
The clean-energy transition doesn't just pose technological and scientific challenges; it also requires a better understanding of cross-cutting issues related to socioeconomic, gender,

sociocultural, and socio-political issues. Addressing these issues will help to devise more effective ways of involving citizens and to better understand energy-related views and attitudes, ultimately leading to greater social acceptability as well as more durable governance arrangements and socioeconomic benefits.

Scope:

Energy citizenship: SSH research offers many insights into the conditions favouring civic engagement, active participation and interaction with institutional or corporate actors. Such "energy citizenship" is not limited to early technology adopters or environmental activists, and it goes beyond (but also encompasses) mere "consumer involvement". Rather than using SSH research as an instrument to achieve particular outcomes (e.g., social acceptance) it can help to understand in what kind of environments collaborative goal setting and commitment can take place, how relevant decisions are made and any trade-offs between competing goals are addressed.This should include factors such as digitalisation, social media, social group dynamics (e.g. creating trust, finding shared goals), societal factors (e.g. institutional, corporate or legal environment), demographics and social justice. It should result in practical recommendations for policy-makers. Specifically, proposals are expected to focus on one or several of the following questions:

Is energy citizenship more likely to emerge locally, or at regional, national or supranational levels? For what reasons?

What is the relative importance of processes internal to relevant social groups (e.g., creating trust and connection, finding shared goals and solutions, building coalitions), as opposed to external environmental variables (e.g., relative openness of institutional or corporate environments, availability of sympathetic interlocutors, access to financial or other sources of support, legal or other obstacles)?

What impact does the digitisation of the energy system and the proliferation of social media have on the emergence and consolidation of energy citizenship?

Under what conditions is energy citizenship conducive to reaching broader policy goals, particularly the decarbonisation of the energy system, and under what conditions does it have the opposite effect?

Expected Impact:

The proposed research will:

provide a better understanding of socioeconomic, gender, sociocultural, and socio-political factors and their interrelations with technological, regulatory, and investment-related aspects, in support of the goals of the Energy Union and particularly its research and innovation pillar;

Social innovation in the energy sector (2018): yield practical recommendations for using the potential of social innovation to further the goals of the Energy Union, namely, to make Europe's energy system more secure, sustainable, competitive, and affordable for Europe's citizens; Challenges facing carbon-intensive regions (2019): yield practical recommendations for addressing the challenges of the clean-energy transition for Europe's coal and carbon-intensive regions, including socioeconomic and political ones.

Energy citizenship (2020): based on a better understanding of socio-economic, gender, socio-cultural, and socio-political factors, their interrelations with technological, regulatory, and investment aspects, yield practical recommendations for harnessing energy citizenship to achieve the energy and decarbonisation goals in the European Union and Associated Countries.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-cc-1-2018-2019-2020;freeTextSearchKeyword=LC-SC3-CC-1-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

9) European Energy and Climate Modelling Forum (2020-2024)

Types of action: RIA (Research and Innovation Action)
Opening: 04 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time
Budget: € 5.000.000   **Acronym:** LC-SC3-CC-7-2020

Description:
The European Union aims to decarbonise its economy according to policies for 2020 and 2030 and long-term visions for mid-century. The Commission has extensively used energy and climate economic models to assess the impacts of its policies and has supported the development of new knowledge in this field. As the energy transition will require radical changes in energy production, distribution and use, there is a need for a diversified set of modelling approaches to add robustness to the technical feasibility of the identified pathways and the evaluation of their respective costs and benefits.Currently, the European energy and climate modelling landscape is quite fragmented. Structured, multilateral communication between modelling groups and other stakeholders was only recently initiated via the Energy Modelling Platform Europe, whereas similar initiatives have a long history in the USA and at UN leve and also exist in China. The European capacity to explore the pathways to achieve its long-term climate and energy objectives needs to be enhanced and these efforts need to be made within a structured and transparent framework that results in tools that are open for use by all stakeholders.

Scope:
A new "European Energy & Climate Modelling Forum" will structure and manage joint model benchmarking and comparison exercises on the EU energy system, climate mitigation and its regional and sectoral components along relevant policy questions. This does not include new model development, but will:
1. Benchmark and compare different assumptions, data sources, scenario building and modelling suites to explore the pathways to long-term climate – energy policies;
2. Interpret the results across different societal, economic, and policy perspectives;
3. Provide robust evidence supporting the development of near-term and long-term policies for the implementation of the 2030 and 2050 objectives;
4. Support the development of modelling capacity in Member States/Associated Countries and create a technical (IT-based) communication channel between the EC and Member States. This will complement existing channels like the Energy Economics Group (which gathers experts from the Member States/Associated Countries) and new groups arising from the regulation on the governance of Energy Union or groups from Framework Programme research projects. No group currently exists for climate policy, but the project could actively support engagement between member states stakeholders and modellers.
Link with existing global modelling projects, such as COMMIT, and projects under Horizon 2020 Work Programmes to support the transition to a low-carbon energy system (LC-SC3-

CC-2-2018) or to improve integrated assessment models and use them to inform policy-making (LC-CLA-01-2018)
Contribute to joint scientific publications from modelling teams.

Expected Impact:
Results from the Forum's activities (modelling comparisons, scenarios etc.) will inform the development of future energy and climate policies at national and European level.
The Forum will create a closer, stronger, European modelling community. It will present a more coherent, unified evidence base that will, in turn, form a concrete basis for action by policy makers.
It will also improve collaboration beyond Europe, which will lead to a greater influence on global energy and climate policy.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-cc-7-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

10) Industrial (Waste) Heat-to-Power conversion

Types of action: IA (Innovation Action)
Opening: 04 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 14.000.000   **Acronym:** LC-SC3-CC-9-2020

Description:
Better use of process excess/waste heat represents a significant source of energy savings for industries. In a context of reducing greenhouse gas emissions and introducing the concept of circular economy in heat management in view of industrial process electrification, European industries have a clear interest in finding new ways to capture the heat produced by their process and to reuse it or to produce electricity. The conversion of excess heat back to electricity would also improve energy efficiency, mitigate the increase of electricity consumption due to industrial electrification and thereby reduce the load on the power grids. This will also facilitate balancing the grid due to intermittent supply of electricity from renewables.Innovative heat to (mechanical or electrical) power conversion cycles using either organic fluid or supercritical CO_2 fluid, present several benefits compared to conventional steam cycles. Organic cycles have the potential to recover waste heat sources as low as 150 °C, whereas steam systems are limited to heat sources above 260 °C. The supercritical CO_2 cycle covers medium and high temperatures with drastically reduced footprint, higher efficiency, reduced or eliminated water requirement, reduced operational costs, compared to steam cycles.These technologies are also transferable to renewable and

conventional power generation with higher efficiency and reduced footprint than established technologies.

Scope:
Accounting for the results of previous research, proposals will integrate an industrial waste heat-to-power conversion system using one type of fluid (supercritical CO_2 or organic) and demonstrate the system operation in industrial environment at an output power level of at least 2 MW, with improved cost efficiency compared to existing solutions. Proposals are expected to bring the technologies to TRL 6 or 7 (please see part G of the General Annexes)
In order to reach this goal all the following development areas need to be covered:
Optimisation of thermal cycles for different temperature levels of recovered heat and constrained industrial environment, in terms of efficiency and economics (capex, opex);
Development/improvement of design tools at components and system levels;
Development/improvement of materials and components: heat exchangers, turbomachinery, waste heat recovery unit, power generator and electronics, etc.
Integration and demonstration of the system in industrial environment;
Technical, and economical life cycle assessment of heat-to-power systems adapted for at least 4 energy intensive industrial sectors, to demonstrate economic viability, define business cases and exploitation strategy;
Dissemination of the technical and economic benefits.
Expected Impact:
Actions are expected to make substantial contributions in terms of industrial excess/waste heat use and impact on power distribution networks:
Improved cycles to achieve scalability to higher power levels, higher cost effectiveness, wider input temperature ranges, significantly reduced system size compared to steam turbines, allowing wider take up of heat recovery from more industrial processes;
Primary energy savings (GWh/year) in industry (heat recovery) and potential primary energy savings in the power generation sector, assuming full deployment in EU Member States and (as far as data are available for the calculation of the impact) in Associated Countries.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-cc-9-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

11) Integrated local energy systems (Energy islands): International cooperation with India

Types of action: IA (Innovation Action)
Opening: 04 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.

Budget: € 9.000.00   **Acronym:** LC-SC3-ES-13-2020

Description:
The fast growth of energy production from renewable energy sources offers new and economically attractive opportunities for decarbonising local energy systems (e.g. isolated villages, small cities, urban districts, rural areas with weak or non-existing grid connections). It is also a technological and financial challenge for the electricity network to integrate more renewables, but it is also an opportunity to optimise the electricity system operation in synergy with other energy carriers/vectors to increase the hosting capacity for renewables, not just for electricity but also for heating/cooling, transport and/or industry in a sector coupling approach. Novel approaches to optimize network architecture, planning and development based on the opportunities offered by integrated local energy systems and enabled by digitalisation and power electronics can contribute to addressing the challenge, as can storage of electricity in all energy vectors (e.g. electricity, heating, cooling, water, wastes, etc.), including possibilities offered by batteries and electric vehicles. Integrated local energy systems can be used to create economically attractive conditions to boost local energy sources and activate local demand-response. Innovative approaches, for example based on Renewable Energy Communities, in line with the recently adopted Renewable.

Scope:
Proposals will develop and demonstrate solutions which analyse and combine, in a well delimited system, all the energy vectors that are present and interconnect them, where appropriate, to optimise their joint operation that is demonstrated by an increased share of renewables in and higher energy efficiency of the local energy system.
Proposals should present a preliminary analysis of the local case as part of the content of the proposal and propose to develop solutions and tools for the optimisation of the local energy network, that also have a high replication potential across Europe and India.
Local consumers, small to medium industrial production facilities and/or commercial buildings should be involved in the projects from the start, preferably by creating energy renewable energy communities
The cooperation must be under the form of a proposal demonstrating a local energy system (or several local energy systems) in either the EU/Associated Countries or India or both, and through a project work programme with meaningful contributions by entities from the EU/Associated Countries and India.
Mutual learning and extensive exchange between demonstrations in European and Indian contexts is encouraged under this topic. Accordingly, the notion of 'first application/deployment in the market' as specified in the definition of an Innovation Action applies reciprocally to India and thus 'first' means new also in India.

Expected Impact:
Validate solutions for decarbonisation of the local energy system while ensuring a positive impact on the wider energy infrastructure, on the local economy and local social aspects, and local air quality;
Enhance the involvement of local energy consumers and producers, preferably by creating energy communities in the development and the operation of local energy systems and test new business models;
Validate approaches, strategies and tools to safely and securely operate an integrated local energy system across energy vectors (electricity, heating, cooling, water, wastes, etc.) so that it is able to integrate higher shares of renewables (than it would in case of separate operation of infrastructures);
Benchmark technical solutions and business models that can be replicated in many local regions and that are acceptable by local citizens.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-es-13-2020;freeTextSearchKeyword=LC-SC3-ES-13-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

In addition to the minimum number of participants set out in the General Annexes, proposals shall include as international partners under the grant agreement [[Article 14a of the Horizon 2020 Model Grant Agreement.]] at least three legal entities from India that apply for and are eligible for DST funding.Proposals will only be selected on the condition that the contribution to the project of Indian international partners will be funded by the DST.

12)Low carbon industrial production using CCUS

Types of action: IA (Innovation Action)
Opening: 05 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 15.000.000   **Acronym:** LC-SC3-NZE-5-2020

Description:
CCUS in industrial applications faces significant challenges due to its high cost and the fierce international competition in the sectors concerned. However, these sectors currently account for 20% of global CO_2 emissions, and in the 2 degree scenario, should represent half of the stored CO_2 by 2050. Relevant sectors with high CO_2 emissions are for example steel, iron and cement making, oil refining, gas processing, hydrogen production, biofuel production and waste incineration plants.

Scope:
Projects will focus on integrating CO_2 capture in industrial installations, whilst addressing the full CCUS chain. Projects will elaborate a detailed plan on how to use the results, i.e. the subsequent transport, utilisation and/or underground storage of the captured CO_2. Important aspects to address are of technical (e.g. the optimised integration of capture plant with industrial processes; scalability; CO_2 purity), safety (e.g. during transportation and storage), financial (e.g. cost of capture; cost of integration) and strategic nature (e.g. business models; operation and logistics of industrial clusters and networks).

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with relevant Mission Innovation countries such as China.
Proposals submitted under this topic should include a business case and exploitation strategy, as outlined in the Introduction of this part of the Work Programme.
The Commission considers that proposals requesting a contribution from the EU of up to EUR 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

Successful, safe and economic demonstration of integrated-chain CCUS from relevant industrial sources such as mentioned in the specific challenge will accelerate the learning, drive down the cost and thus help break the link between economic growth and the demand for industrial output on one hand, and increasing CO_2 emissions on the other hand. The impact of projects under this call will to a large extent be determined by the extent to which the results will be exploited, i.e. the plan on how the captured CO_2 will be actually utilised and/or stored, either in the project or planned as a future phase.

This will be evaluated based on the maturity and quality of the proposed post-capture solutions. Projects under this call that are carried out in areas where there is both a high concentration of CO_2 emitting industries and a nearby capacity for geological storage are considered prime sites for hub and cluster developments, and will generate the highest impact on full-scale deployment in the medium to longer term.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-nze-5-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:

https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

13) Geological Storage Pilots

Types of action: RIA (Research and Innovation Action)
Opening: 05 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 14.000.000   **Acronym**: LC-SC3-NZE-6-2020

Description:
The total geological storage capacity in Europe is estimated to be over 300 billion tonnes (Gt) of CO_2. This is sufficient to permanently hold all the CO_2 that could be captured in the EU for decades to come. The significant lead time for the development and permitting of geological storage, which is in the order of 7-10 years, demands speeding-up storage site identification and characterisation in Europe. The appraisal and development of storage capacity in promising regions has to provide the necessary confidence that the required CO_2 storage capacity will be available when needed. In addition, storage pilots will play a crucial role in unlocking European CO_2 storage capacity, assessing the potential risks and visualising CCS technology to the wider public. A portfolio of pilot storage sites in different geological settings, onshore or offshore, either in depleted hydrocarbon fields or in deep saline aquifers, is therefore needed to catalyse full- scale deployment of CCS in the medium to longer term.This topic responds to the targets in the SET-Plan CCUS Implementation Plan have at least 3 new CO_2 storage pilots operating in different settings, and SET Plan countries having completed feasibility studies on applying CCS to a set of clusters of major industrial and other sources by 2025-2030.

Scope:
The objective is to carry out the identification and geological characterisation of new prospective storage sites for CO2 (including the 3D architecture of the storage complex) in promising regions of future demonstration and deployment (onshore or offshore) through the implementation of new CO2 storage pilots. This will result in new data, knowledge and detailed models of potential storage complexes and their response to dynamic pressurisation. Important aspects include (but are not limited to): detailed geological characterisation, including faults and facture systems; analysis of initial stress field and geomechanical behaviour of the storage formations and seals under varying stress and pore-pressure conditions; estimation of storage capacity; accurate modelling of injectivity; overall storage risk assessment, including induced seismicity and blow-out or blockage during injection, and including proposed mitigation action. Detailed plans should propose site-specific solutions for CO2 injection strategies, pressure management, mitigation of induced seismicity, and MMV (measurement, monitoring and verification).

Expected Impact:
Detailed geological characterisation and development planning of promising and safe storage sites and successful realisation of storage pilots will facilitate the subsequent application for storage permits and the kick-start of CCS in the concerned Member States and Associated Countries. Such a 'pipeline of sweet spots' can provide a baseline for estimation of storage cost, increase public awareness and help prepare the ground for full and active development into operational storage sites in the mid 2020's.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-nze-6-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

14) Efficient combination of Concentrated Solar Power and desalination (with particular focus on the Gulf Cooperation Council (GCC) region)

Types of action: IA (Innovation Action)
Opening: 05 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 10.000.000   **Acronym:** LC-SC3-RES-20-2020

Description:
Several arid and semi-arid regions of the world are highly dependent on desalination and the demand for desalination is projected to grow. Many of these regions have also an abundant solar resource, which is suitable for the application of Concentrated Solar Power (CSP). Several technical aspects need to be addressed to match the thermal cycle of a CSP plant to the energy needs of a desalination system in an effective way.

Scope:
Support will be given to demonstrate efficient solutions that couple the thermal cycle of a CSP plant to a water desalination system.

The proposals are expected to bring technologies to TRL 6 (please see part G of the General Annexes) at the end of the project activities.
The Commission considers that proposals requesting a contribution from the EU of between EUR 6 to 10 million would allow this challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.
In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The participation of organisations from these countries as partners in the project will be positively evaluated.
Expected Impact:

The expected impacts are a substantial reduction of CO_2 emissions from desalination and strengthened international cooperation. This will support the objectives of the many international initiatives that are currently addressing the crucial nexus between energy and water systems.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-20-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

15) International cooperation with Japan for Research and Innovation on advanced biofuels and alternative renewable fuels

Types of action: RIA (Research and Innovation Action)
Opening: 04 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 5.000.000   **Acronym:** LC-SC3-RES-25-2020

Description:
Disruptive conversion technologies are needed for replacing completely the use of fossil fuels in the transport and heating sectors with advanced biofuels and alternative renewable fuels. International collaboration is mutually beneficial in strategic areas where knowledge can be exchanged and Europe can obtain leadership together with its international partners.

In line with the strategy for EU international cooperation in research and innovation (COM (2012)497), actions will contribute to the Mission Innovation Challenge.

Scope:
Proposals will aim at international cooperation with Japan involving Japanese organisations in the consortia for the development of disruptive catalytic technologies, by developing novel catalysts and linked lab-scale components/systems with significantly improved performance for conversion efficiency and specific marginal cost reduction for obtaining low-cost bioenergy carriers, non-food/feed based advanced biofuels and alternative renewable fuels (excluding hydrogen) and maximizing GHG abatement.

Expected Impact:
It is expected that the exchange of knowledge through the targeted research activities with Japan will progress the technology state-of-the-art and in addition it will strengthen the European and Japanese technology base. At the same time, it is expected that the development of renewable fuels that outperform the best fossil fuel alternatives is accelerated.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-25-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals must include as beneficiary at least one legal entity established in Japan.

16) International Cooperation with USA and/or China on alternative renewable fuels from sunlight for energy, transport and chemical storage

Types of action: RIA (Research and Innovation Action)
Opening: 04 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 10.000.000   **Acronym:** LC-SC3-RES-3-2020

Description:
Decarbonisation of the energy and transport systems requires the ultimate replacement of fossil fuels in the long-term and the flexibili ty to store sustainable energy on a large scale and for a long time in new kind of energy storage compounds. To achieve this goal, the production of clean forms of storable chemical energy carriers from direct sunlight will be necessary. International collaboration is mutually beneficial in strategic areas where knowledge can be exchanged. The specific challenge is for Europe to precede together with its international partners in global development of specific disruptive technologies for the ultimate replacement of fossil fuels.

Scope:
Proposals will aim at international cooperation with the USA and/or China on targeted research activities for obtaining advanced biofuels and alternative renewable fuels for energy and transport through photochemical/ photobiological or electrochemical reaction. The ranking of the successful proposals will ensure that a balanced portfolio of activities is covering both cooperation with USA and China (please see call conditions).

The proposals will develop breakthrough artificial photosynthesis technologies in terms of sunlight conversion efficiency for the production of energy carriers (other than electricity) with either de-novo synthetic biological and artificial/biochemical hybrid systems or novel photo-catalysis or photo-electro catalysis coupled with CO_2 reduction.

At least one of the following technology-specific challenges has to be addressed:

Improved light-harvesting and efficient charge separation in photocatalytic systems;

Photoelectrochemical cells – PECs and catalyst development

Improved light harvesting coupled with improved CO_2 reduction efficiency in synthetic biological systems

Expected Impact:
It is expected that the exchange of knowledge through the targeted research activities with USA and/or China will progress the scientific understanding and the technology state-of-the-art and in addition strengthen the European and international partners' technology base. At the same time, it is expected that the development of renewable fuels that outperform the best fossil fuel alternatives is accelerated

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-3-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals must include as beneficiary at least one legal entity established in the following countries: USA or China.

7) Demonstration of innovative and sustainable hydropower solutions targeting unexplored small-scale hydropower potential in Central Asia

Types of action: IA (Innovation Action)
Opening: 05 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 10.000.000   **Acronym:** LC-SC3-RES-34-2020

Description:
The challenge is to demonstrate innovative solutions targeting unexploited small-scale hydropower potential in Central Asia that will contribute to solve the particular cross-border water and energy management challenges in the region. Therefore, the hydropower technological solutions will need to be socio-economically and environmentally sustainable and embedded in a forward-looking cross-border Water/Food/Energy/Climate nexus concept for this region.

Scope:
Projects will demonstrate innovative hydropower equipment exploiting unexplored small-scale hydropower potential in Central Asia up to 10 MW installed capacity by means of sustainable and cost-effective small-scale hydropower solutions. The demonstration will provide solutions for realising innovative and sustainable hydropower, based on synergies between innovative European hydropower technology, research and industry partners, and the Central Asian hydropower sector. Therefore, the demonstration activities shall take place in Central Asia (Kazakhstan, the Kyrgyz Republic, Tajikistan, Turkmenistan or Uzbekistan), with participation of local partners.
The project should also fulfil the highest standard in terms of socio-economic and environmental sustainability and impact, and engagement of local civil society. It should also demonstrate how it will contribute positively to the regional cross-border Water/Food/Energy/Climate nexus and refer to embedded sustainable hydropower auxiliary services.

Expected Impact:
The action is expected to support the competitiveness of the European hydropower technology sector as a responsible actor in global markets in the long-term, with a strong focus on overall sustainability of the provided hydropower solutions within the Water/Food/Energy/Climate nexus in Central Asia. The expected outcomes will strengthen the worldwide leadership of the European hydropower industry in providing innovative and sustainable hydropower solutions and will support international cooperation with developing countries. Expected are outcomes which are in line with UN sustainable development goals.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-34-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals must include as beneficiaries at least two legal entities established in one of the following Central Asian countries: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Uzbekistan.
The demonstration activities shall take place in one or more of the following countries, with participation of local partners: Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan or Uzbekistan.

18) International cooperation with Canada on advanced biofuels and bioenergy

Types of action: RIA (Research and Innovation Action)
Opening: 05 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 5.000.000   **Acronym:** LC-SC3-RES-36-2020

Description:
The optimisation of advanced biomass supply chains and overcoming specific conversion technology barriers are needed to improve the market up-take of sustainable advanced biofuels and bioenergy and accelerate their deployment for replacing the use of fossil fuels in the transport, power and heating sectors. International collaboration is mutually beneficial in strategic areas where knowledge can be exchanged and Europe can obtain leadership together with its international partners.In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), actions will contribute to the Mission Innovation Challenge.

Scope:
Proposals will aim at international cooperation with Canada for fostering the deployment of advanced biofuels and bioenergy while substantially decreasing the costs of the feedstock supply or the conversion process.
Proposals should address at least one of the following issues:
Development of the full supply chain of biomass-to-bioenergy applications including intermediate bioenergy carriers, advanced biofuels, heat and power generation. Sustainable biomass production and collection strategies that facilitate sustainable bioenergy production and decrease feedstock supply costs will be included. All types of non-food/feed biomass including forestry, agricultural and their residues, organic fractions of municipal and industrial wastes can be targeted.
Thermochemical, biochemical and chemical processing of sustainable biomass to advanced biofuels focusing on the pre-treatment and the conversion process and in particular on reducing the respective marginal cost.
Expected Impact:

It is expected that the exchange of knowledge through the targeted research activities with Canada will progress the technology state-of-the-art, strengthen the European and Canadian technology base and accelerate the development of sustainable fuels to replace the fossil fuel alternatives. At the same time, it is expected that the development of secure, long- term supply of sustainable feedstock and/or the technology advances will also significantly contribute to increase the viability of advanced biofuels and bioenergy in the EU and Canada.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-res-36-2020;freeTextSearchKeyword=LC-SC3-RES-36-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals must include as beneficiary at least one legal entity established in Canada.

19) Positive Energy Districts and Neighbourhoods for urban energy transitions

Types of action: ERA-NET COFUND
Opening: 05 May 2020
Deadline: 01 September 2020 17:00:00 Brussels Time.
Budget: € 5.000.000   **Acronym:** LC-SC3-SCC-2-2020

Description:
The ambition of the SET-Plan Action 3.2 is the planning, deployment and operation of 100 Positive Energy Districts/Neighbourhoods (PED/PEN) in Europe by 2025. This requires integrated and holistic sustainable system approaches including technological, social, urban planning, economic, financial and legal/regulatory perspectives. Tackling such challenges, calls for integrated and innovative solutions to spur the implementation of Positive Energy Districts and Neighbourhoods on larger scale. The aim is to accelerate the ongoing energy transition and to support the parties to the Paris Agreement to reach their national greenhouse gas emissions targets, and so contribute to achieve sustainable urban transformation process to decrease greenhouse gas emissions and ensure high liveability and affordability for citizens.

Scope:
Proposals will mobilise networks of national (and/or regional) research, innovation and demonstration programmes in the field of smart and sustainable cities and sustainable decarbonised integrated energy systems. They will pool the necessary financial resources with a view to implementing a joint call for proposals resulting in grants to third parties with EU co-funding in this area, and for related programme management, synthesis and dissemination of the results. Activities funded through the joint calls should focus on a circular, resource efficient and low carbon integrated system perspective. The joint calls should include the following three formats, which should be interlinked and integrated to achieve highest impact.

The joint calls will firstly include applied research, strategic innovation and demonstration projects to develop specific innovative approaches and solutions for the planning, implementation and operation of PED/PENs, which are relevant in many European cities and urban areas. Strategic innovation projects resulting from the joint calls should create opportunities for cross-linking and collaboration and target more than one of the following aspects:

increasing energy efficiency of neighbourhoods and reduction of performance gaps, reducing climate impact and facilitating energy transition at urban scale promoting integrated and holistic approaches through optimization of the energy system in the built environment, innovative building solutions and innovative approaches for interoperability of new and existing technologies;

Integrating renewable energy production and transformation technologies to support and optimize storage and transfer of locally produced energy to other parts of the districts for synthetic on-site energy production and supply, including flexibility and resilience of PED/PENs through concepts for seasonal transferability of energy as well as PED/PEN integration in regional energy systems through flexible and optimised energy consumption within the district and through compensation measures and smart interfaces to balance real time energy supply and promotion of the prosumer concept;;

support integration and development of integrated and smart solutions for sector-coupling in PED/PENs with focus on innovation need across energy, mobility, and ICT in a systemic setting, including user involvement and different socio-cultural target groups, local governance aspects and balancing urban green-blue-grey infrastructures;

streamlining and alignment of the spatial planning processes and developing digital planning strategies and optimization tools (e.g. using building/neighbourhood information modelling (BIM)) along the entire life cycle of PED/PENs;

developing societal innovation, social entrepreneurship and citizen participation aiming to integrate all relevant stakeholders to spur the implementation of PED/PENs within an integrated urban transformation process, where relevant, aspects of gender and diversity, inclusiveness and accessibility should be addressed and

developing business models for implementing and operating PED/PENs on full scale that consider the whole process of planning, operation and operation of PED/PENs; as well as for refurbishment of existing housing stocks to safeguard accessible and affordable housing and sustainable mobility; engaging all actors such as users, owners, city authorities, real estate developer, operators of the energy infrastructure, and investors to create economically viable models for all parties.

Expected Impact:

The ERA-NET Cofund will significantly support and contribute to:

The testing, implementation and replication of 100 Positive Energy Districts and Neighbourhoods in Europe by 2025 as set out in the SET-Plan Action 3.2 Implementation Plan;

Transitions towards sustainable urban development, as set out in the UN SDGs and the Urban Agenda of the EU;

The fulfilment of the role of Europe in Challenge 7 of Mission Innovation, where PED/PENs

A physical aggregator of technologies/solutions collaborating each other with the aim of promoting the transition to a sustainable urbanization - would be a decisive asset for the climate and energy performance of the European built environment; and

An enhancement of European capacities and knowledge to become a global role model and market leader for the development of PED/PENs.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-scc-2-2020;freeTextSearchKeyword=LC-SC3-SCC-2-2020

How to apply:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

An example template on how to apply can be found in the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/call_ptef/pt/2018-2020/h2020-call-pt-ria-ia-2018-20_en.pdf

20) Use biogenic gaseous carbon to increase feedstock availability for the industry

Types of action: Bio-based Industries Innovation action - Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO1-D2

Description:
Gaseous-carbon emissions are a threat to climate stability when they exceed the extraction capacity of plants, forests and the sea. This threat has been present since gaseous-carbon emissions from industrial activities started to add to the natural (biogenic) carbon cycle. Some sections of industry are therefore seeking to create a low-carbon emission economy by avoiding or reducing fossil-based carbon emissions or capturing these emissions for storage or use. Carbon-containing emissions are also potential feedstock sources for industry (serving as 'C1-carbon' sources). Some conversion and use technologies for gaseous carbon have been proven in the laboratory and even at pilot scale. It is now time to scale up these technologies to demonstration level so they can subsequently be commercialised.The bio-based industry can demonstrate efficient recycling and recovery concepts for its biogenic gaseous emissions. Turning biogenic emissions into something of value by producing valuable chemicals contributes to the industry's 'zero-waste' biorefining objectives and abates climate change.Biogenic gaseous carbon can be used: (i) as a feedstock for the conversion into platform chemicals; (ii) to increase the growth of biomass as feedstock for industrial exploitation;, to create energy solutions. However, the last option is not within the scope of this topic.The **specific challenge** is to use biogenic gaseous carbon as a feedstock for the bio-based industry through: direct conversion into bio-based chemicals or intermediates; growing new biomass sources.

Scope:
Demonstrate the conversion of biogenic gaseous carbon into chemicals or intermediates for: (i) further processing into value-added applications; or (ii) using to grow new biomass.

Eligible gaseous feedstocks within the scope of this topic are: (i) C1-carbon emissions from biorefineries or any other bio-based operation, including anaerobic fermentation processes (e.g. in brewing and bioethanol production) and hydrothermal liquefaction and gasification of biogenic feedstock; and (ii) CH_4 (methane) and CO_2 from biogas [1] or syngas plants.
All proposals must include a description of the necessary logistics for the capture and preparation of the biogenic C1-carbon feedstock.
If the biogenic gaseous-carbon sources are mixtures, proposals must include cleaning or purification phases to prepare the C1-carbon feedstock for efficient conversion steps.
Enviromental impacts:
Reduce greenhouse gas (GHG; including CO_2) emissions (expressed in CO_2 equivalents) by at least 20% through the capture and use of the biogenic gaseous carbon from the value chain being addressed;
Help replace fossil-based products with bio-derived GHG-based alternatives; or prevent the use of fossil-based feedstock by introducing new bio-based products for needed applications for which there is no fossil-based counterpart;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossil-based material by using biogenic emissions as raw materials.
Economic Impacts:
Diversify the incomes of the bio-based sector(s) from which the targeted gaseous emissions originate;
Produce at least one B2B or B2C GHG-based product in sufficient quantities to allow validating the value chain.

Social Impacts:
Create new job opportunities in the bio-based sector in rural, coastal and/or urban areas;
Increase the competitiveness of European biomass producers and the bio-based industry by increasing: (i) feedstock and energy efficiency; (ii) business growth; and (iii) investment, while ensuring environmental sustainability and an increase in local biodiversity.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so1-d2

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

21) Financing for energy efficiency investments - Smart Finance for Smart Buildings

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 10.000.000   **Acronym:** LC-SC3-B4E-11-2020

Description:
Energy efficiency is not yet considered as an attractive investment by the financial sector which limits the possibility to use external private finance on top of equity of project owners and available public funding. The lack of statistical data on the actual energy and costs savings achieved by energy efficiency investment projects, as well as on payment default rates, results in financial institutions attributing high risk premiums to energy efficiency investments.Energy efficiency represents high transaction costs for rather small investments, which is not financially very attractive. Technical and legal standardisation is highly needed at all steps of the investment value chain in order to simplify transactions and increase the confidence of financial institutions. The lack of standardisation of projects also prevents securitisation of energy efficiency assets (loans or equity) so that financial institutions are not able to refinance their debt on the capital markets.Whereas energy efficiency investments are usually expected to be paid back exclusively through the reduction of the energy bill, there is increasing evidence that non-energy benefits play a key role in the decision to invest in energy efficiency. This includes for instance increased building value, lower tenant turnover or vacancy rates etc. These benefits need to be quantified through data collection and monetised in order to evolve the parameters used by financiers to assess an energy efficiency investment.Moreover, there is a need to set up innovative financing schemes at regional or national level in order to create the conditions for adequate supply of private finance for energy efficiency investments. Innovative financing schemes for energy efficiency aim to progressively maximise the leverage ratio of public funds to private finance. This is in line with the Smart Finance for Smart Buildings initiative that aims at using public funds more effectively.

Scope:
a) Mainstreaming energy efficiency finance

b) Innovative financing schemes for energy efficiency investments
Expected Impact:
Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:
a) Mainstreaming energy efficiency finance
-Number of financial institutions and other stakeholders reached as well as their potential volume of investment concerned;
Frameworks, standardisation, benchmarking, standardised descriptions and data evidence of financial returns of energy efficiency investments agreed and accepted by the market;
Higher allocation of institutional investments to energy efficiency; standardisation of assets enabling securitisation; development of a secondary market for energy efficiency assets (in million Euro of investment within 5 years after the end of the project);
Investments in sustainable energy triggered by the project (million Euro).
 Primary energy savings triggered by the project (in GWh/year);
b) Innovative financing schemes for energy efficiency investments
Delivery of innovative financing schemes that are operational and ready to finance energy efficiency investments;
Regional/national aggregators with demonstrated/traceable capacity to set up a large-scale pipeline of (standardized) sustainable energy investments (in terms of number of and/or amount of investment);
Investments in sustainable energy triggered by the project (million Euro);
Primary energy savings triggered by the project (in GWh/year).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-11-2020;freeTextSearchKeyword=LC-SC3-B4E-11-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

At least three legal entities shall participate in an action; each of the three legal entities shall be established in a different Member State or Associated Country.

22) National roundtables to implement the Smart Finance for Smart Buildings initiative

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 3.000.000   **Acronym**: LC-SC3-B4E-12-2020

Description:
Access to private finance for energy efficiency and integrated renewables remains challenging. One obstacle is the lack of common understanding of the topic between government, public sector, private sector, and the financial sector. The Smart Finance for Smart Buildings initiative has proposed a comprehensive approach based on the more effective use of public funds, aggregation and project development assistance, and de-

risking. However, this approach still needs to be rolled out and shared with all stakeholders at the national level. The Commission is piloting this through the Sustainable Energy Investment Forums initiative since 2016.

Scope:
Proposals should set up national roundtables focused on energy efficiency investment, as permanent multilateral discussion forums gathering the relevant stakeholders, including but not limited to government, local and regional authorities, financial sector, ESCOs, homeowners, industry sector, construction sector and SME sector. The focus of the roundtables should include existing private and public buildings, industry and SME's; it could also include the renovation of street lighting, district heating and transport infrastructures. Integrated renewable energy sources can be part of the focus when combined with energy efficiency measures.

The roundtables should (among others) analyse the possibility to upscale existing best practices from the national and European level, develop strategies, roadmaps and action plans, propose improvements in the national policy frameworks and measures, and follow their implementation, develop jointly template documents and contracts leading to a better functioning of the market. The roundtables should act as a forum where all stakeholders can learn from successful market initiatives, and can provide input into the policy making process.

Proposals should build on the activities of the Sustainable Energy Investment Forums initiative. Proposals involving only one country are eligible; however, they should include a small share of activities to exchange with similar roundtables across Europe; those exchanges will be coordinated by the Commission services.

Expected Impact:
Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:
Establishment of national energy efficiency investment roundtables;
Number of national / regional policy documents resulting from the roundtables;
Number of key stakeholders involved in the roundtables, in particular from the financial sector;
Investments in sustainable energy triggered by the project (in million Euro);
Primary energy savings triggered by the project (in GWh/year).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-12-2020;freeTextSearchKeyword=LC-SC3-B4E-12-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

23) Aggregation - Project Development Assistance

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 6.000.000   **Acronym:** LC-SC3-B4E-13-2020

Description:
Investors and lenders need to gain more confidence on investment projects related to energy efficiency which are still seen as risky and fragmented. European added value can be realised in particular where projects introduce innovation to the market regarding project aggregation and financing solutions minimising transaction costs and engaging the private finance community. European added value could also be realised where projects demonstrably remove legal, administrative and other market barriers for mainstreaming large scale sustainable energy investment schemes.

Scope:
Project Development Assistance (PDA) will be provided to public and private project promoters such as public authorities or their groupings, public/private infrastructure operators and bodies, energy service companies, retail chains, large property owners and services/industry. The action will support building technical, economic and legal expertise needed for project development and leading to the launch of concrete investments, which are the final aim and deliverable of the project.

Proposals should focus on one or more of the following sectors:
Existing public and private buildings including social housing, with the aim to significantly decrease energy consumption in heating/cooling and electricity;
Energy efficiency of industry and service;
Urban transport and mobility such as the use and integration of innovative solutions for alternative fuels in urban mobility and more energy-efficient urban transport and mobility measures including public transport fleet, passenger and freight logistics; and
Energy efficiency in existing infrastructures such as street lighting, district heating/cooling and water/wastewater services.
Expected Impact:
Proposals are expected to demonstrate, the impacts listed below, using quantified indicators and targets wherever possible:
Delivery of a series of sustainable energy investment projects and innovative financing solutions and/or schemes;
Every million Euro of Horizon 2020 support should trigger investments in sustainable energy worth at least EUR 15 million;
Primary energy savings, renewable energy production and investments in sustainable energy triggered in the territory of participating parties by the project (respectively in GWh/year and in million Euro of investments);
Demonstration of innovative and replicable investment financing solutions, documenting feedback/uptake from potential replicators.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-13-2020;freeTextSearchKeyword=LC-SC3-B4E-13-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

24) Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 6.000.000   **Acronym:** LC-SC3-B4E-14-2020

Description:
Energy Efficiency services (e.g. Energy Performance Contracting (EPC)) are available on the market already for quite some time. However, there is a big untapped potential in sectors and with actors not yet engaged in services triggering energy, CO2 and cost savings. At the same time, new technologies have emerged opening the door for new types of services which use ICT to better control and steer energy consumption according to market and system needs and to the availability of renewable energy; others are able to integrate energy services with non-energy benefits such as comfort. By bundling various services and benefits, additional target groups, sectors and financial resources can be accessed.Finally, ICT-tools and big data generated by smart meters, smart devices and sensors will help monitor and verify energy savings and flexibility and thus provide for appropriate remuneration of optimised consumption. A particular challenge for energy services of this kind is that while they aim to involve different services (e.g. system services) and benefits (e.g. comfort) towards increasing their viability, they should nevertheless result in real, measurable energy savings and performance improvements of the overall energy system.

Scope:
Actions should take up and advance smart energy services concepts which have evolved in the market, in parallel with the progressive deployment of new technologies, including concepts which have been developed, proved and tested under Horizon 2020. Proposals should demonstrate that they gather and help converge innovative, successfully tested service elements which are well adapted to the needs of the market and of the potential users and which are compatible with on-going technological innovation.

Expected Impact:

Proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:
Primary Energy savings triggered by the project (in GWh/year);
Investments in sustainable energy triggered by the project (in million Euro);
Improved viability of innovative energy services.
In addition, proposals are expected to demonstrate the impacts listed below, using quantified indicators and targets wherever possible:
A growing offer and up-take of services that combine energy efficiency with other energy services, technologies and non-energy benefits;
A growing up-take of innovative data gathering and processing methods in the monitoring and verification of energy savings and flexibility;
The application of methods and concepts to ensure that: (i) innovative energy services are reliable and verifiable, (ii) service providers are trustworthy and accessible.
Additional positive effects can be quantified and reported when relevant and wherever possible:
Reduction of the greenhouse gases emissions (in tCO2-eq/year) and/or air pollutants (in kg/year) triggered by the project;
Increase of flexibility in the energy system.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-14-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

25) Stimulating demand for sustainable energy skills in the building sector

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: €4.000.000   **Acronym**: LC-SC3-B4E-2-2020

Description:
Based on results of the BUILD UP Skills initiative, in particular the National Qualification Platforms and Roadmaps, as well as the qualification and training schemes developed in various European countries, the challenge is now to act at market level and to support legislative changes that will stimulate the demand for sustainable energy skills.The objective is to increase the number of skilled building professionals ("blue collar" and "white collar" professions) across the building design, operation and maintenance value chain (e.g. designers, architects, engineers, building managers, technicians, installers, on-site workers and craftsmen, including apprentices, and other building professionals), with a specific focus on the engagement of SMEs. Recourse to skilled professionals for renovations and new constructions of buildings as well as district scale solutions should be made more attractive and easier for companies (e.g. ESCOs) and homeowners alike.

Scope:
The focus of submitted proposals should be on the direct stimulation of demand for energy skills in construction. This is calling for the development, up-scaling and/or combination of a range of tools and initiatives, e.g.:

Tools facilitating the mutual recognition of energy skills and qualifications in the building sector: development of sustainable energy skills passports/registers for building professionals at regional/national level and support for their take up at European level; mobile applications facilitating the comparison of professionals' skills and qualifications between countries (e.g. by enabling the direct comparison of learning outcomes);
National, regional or local initiatives raising awareness of home and building owners and tenants about the benefits of sustainable energy skills and providing financial incentives for renovations and new constructions done using skilled professionals;
Support to public authorities for the development of new legislative frameworks, e.g. requirements for skilled professionals in public procurement;
Partnerships with producers and retailers of construction products (e.g. DIY stores) to raise awareness of the salesforce and of consumers about energy efficient products, skilled professionals and good practice in new constructions and renovations;
Initiatives reinforcing the link between skills/education and energy performance/quality of construction e.g. tools showing the reduction of the building's performance gap as result of an increase quality of the works.

Expected Impact:
Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:
Primary Energy savings triggered by the project (in GWh/year);
Renewable energy production triggered by the project (in GWh/year);
Investments in sustainable energy triggered by the project (in million Euro);
Increased number of certification schemes for energy efficiency skills;
Improved mutual recognition of sustainable energy skills between Member States and neighbouring countries;
Improved collaboration and understanding across different trades and professional groups;
Increased market acceptance of sustainable energy skills;
Legislative changes stimulating the demand for energy skilled building professionals;
Demonstrated reduction in the gap between designed and actual energy performance through improved quality of construction.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-2-2020;freeTextSearchKeyword=LC-SC3-B4E-2-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

26) Upgrading smartness of existing buildings through innovations for legacy equipment

Types of action: IA (Innovation Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 8.000.000   **Acronym:** LC-SC3-B4E-3-2020

Description:
An essential part of Europe's clean energy transition is the changing role of buildings from consuming energy to actively controlling and optimising indoor environment while contributing to energy system flexibility by ensuring distributed energy generation from renewable energy sources, energy storage, facilitate smart charging of EVs, smart metering, load reduction through energy efficiency and load shifting through demand response. Innovative technologies will enable smart buildings to interact with their occupants and the grid in real time and to manage themselves efficiently, so as to become an active element of the energy system. Intelligent and connected devices, smart sensors and controllers, supported by the development of new business models for new energy services, will create new opportunities for energy consumers.Today, the existing building stock represents the main challenge for a more efficient energy use, in buildings as well as across the whole energy system. The smart readiness of buildings may evolve faster for devices and systems easily replaced and installed, than for other parts of the building's equipment such as HVAC and DHW systems due to higher costs of replacement, longer life cycles and difficulties related to integration in buildings. This installed equipment remains highly relevant for

buildings interactions with the energy system, making its upgrade to higher levels of smartness an essential step. The revised Energy Performance of Buildings Directive introduces a Smart Readiness Indicator (SRI) to reflect the level of services offered by a smart building. Once established, this indicator will give a framework to assess the smart readiness of buildings and building units to adapt operation to the needs of the occupant and the grid and to improve energy efficiency and overall performance.

Scope:
Proposals should develop and demonstrate cost-effective low-carbon technological solutions to manage energy within existing buildings and interact with the grid providing energy efficiency, flexibility, generation and storage, based on user preferences and requests. These solutions should be aimed to upgrade existing buildings, either residential or tertiary, using automation and IT to offer new services and control to the building users, thereby improving their comfort and increasing their satisfaction. This upgrade should translate into improvements in the areas put forward by the revised EPBD, in relation to the smart readiness indicator.

Proposals should demonstrate how the smart systems, smart controls, smart metering and smart appliances can be integrated seamlessly in existing buildings to interface and/or to control the major energy consuming domestic appliances that are already installed. These pilots should involve several types of domestic appliances and technical building systems with longer lifecycles (boilers, radiators, DHW preparation, motors for ventilation, windows opening and shading; lighting etc.) and with shorter lifecycles (dryers, washing machines, fridges, etc.), testing several types of control modes (ON/OFF, power modulation, etc.) possible for a given type of appliance. Recharging points for electric vehicles, vehicle-to-grid and other forms of energy storage should also be incorporated in the pilots. The proposed solutions should not adversely affect the original functionalities, product quality, lifetime, as well as warranties of the appliances.
Besides the pilot demonstrations, proposals are expected to include clear business model development and a clear path to finance and deployment. Key partners should have the capability and interest in making the developed solution a core part of their business/service model to their clients.

Expected Impact:
Proposals are expected to demonstrate the impacts listed below using quantified indicators and targets wherever possible:
Primary Energy savings triggered by the project (in GWh/year);
Investments in sustainable energy triggered by the project (in million Euro);
Upgrade of existing buildings to higher smartness levels, including a significantly enlarged base of existing building equipment and appliances monitored by energy management systems and activated through demand response actions;
Reduction in energy consumption and costs, exceeding the additional consumption from IT and its cost.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-3-2020;freeTextSearchKeyword=LC-SC3-B4E-3-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

27) Next-generation of Energy Performance Assessment and Certification

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 6.000.000   **Acronym:** LC-SC3-B4E-4-2020

Description:
Under the Energy Performance of Buildings Directive, all EU countries have established independent energy performance certification systems supported by independent mechanisms of control and verification. However, current practices and tools of energy performance assessment and certification applied across Europe face a number of challenges.Assessment processes and certificates have to become more reliable, user-friendly, cost-effective, have comparable good quality and be compliant with EU legislation in order to instil trust in the market and incite investments in energy efficient buildings. They have to increasingly reflect the smart dimension of buildings and at the same time, facilitate convergence of quality and reliability of Energy Performance Certificates (EPCs) across Europe. The building energy performance methodologies should also ensure a technology neutral approach, be transparently presented making use of International and European standards, in particular the ISO/CEN standards developed under Commission mandate M/480 aimed at enabling the presentation of national and regional choices on a comparable basis.Next-generation energy performance assessment schemes will value buildings in a holistic and cost-effective manner across several complimentary dimensions: envelope performances, system performances and smart readiness (i.e. the ability of buildings to be smartly monitored and controlled and, to get involved in demand-side management strategies). The assessment should be based on an agreed list of parameters/indicators, such as e.g. calculated annual final energy use, share of renewable energy used, past (climate corrected) final energy consumptions and energy expenditure, comfort levels or the level of smartness. The assessment methods should increasingly take into account output measures of performance (actual measured data) making use of available and increasing number of building energy related data from sensors, smart meters, connected devices etc.

Scope:
Proposals should involve relevant stakeholders (including national and regional certification bodies) to take on board the lessons learnt and the innovative approaches demonstrated in the previous projects as well as any developments on the use of EPCs that have taken place in the Member States, in order to further stimulate and enable the roll-out of next-generation of energy performance assessment and certification.

Proposals should develop strategies to encourage convergence of EPC practices and tools across Europe so as to ensure a comparable level of high quality, independent control and verification. The applicability of assessment and the certification schemes should be assessed through a broad set of well-targeted and realistic cases, featuring various locations, building types, climatic conditions and field practices including existing national EPC schemes. The assessment will aim at demonstrating the potential of a Europe-wide uptake of the proposed assessment and certification schemes, along well-defined criteria.
Expected Impact:
Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets wherever possible:
Primary energy savings triggered by the project (in GWh/year);
Investments in sustainable energy triggered by the project (in million Euro);
Increased convergence of good quality and reliable energy performance assessment and certification and uptake and compliance with EU Directives and related standards;

Increased rate of application and compliance of EPCs and independent control systems with the provisions of EU and national legislation, in a defined region;

Increased use of EPC databases for compliance checking and verification, linking with financing schemes and building stock characteristics research etc.;

Increase convergence of training requirements and certification procedures for experts working on EPCs;

Increased integration of inspections and energy audits in the EPCs.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-b4e-4-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

28) The role of consumers in changing the market through informed decision and collective actions

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 6.000.000   **Acronym:** LC-SC3-EC-1-2018-2019-2020

Description:
A precondition for active demand is for consumers to be aware of their own potential to permanently or temporarily reduce energy consumption; and moreover, for them to know how to offer this potential to the market and what it would represent in terms of monetary value by bringing benefits to the energy system. Different forms of collective action have the potential to assist consumers in forming critical mass and to facilitate increased uptake of energy efficiency & active demand solutions and services. Although collective actions on energy efficiency have emerged in recent years, a lack of awareness on the potential benefits of such actions, together with regulatory barriers, continues to hamper their full development and uptake. Finally, important challenges involve installed appliances (such as boilers for space and/or water heating) of which a big share is inefficient and fossil-fuel based, resulting in increased fuel consumption and fuel costs for households. Informing consumers of the potential energy savings and their monetization, as well as other benefits such as increased comfort and improved air quality, can result in increased motivation for replacing inefficient appliances, thereby permanently reducing consumption.

Scope:
The proposed action should set up and/or support energy communities (consumer cooperatives, consumer collective purchase groups, and/or other consumer driven collective actions) to increase energy efficiency and/or optimise energy management to integrate a higher share of renewable energy (generated locally or provided from the grid) within the community by, for example, combining collective solutions to distributed generation, distributed storage, and/or demand-response aggregation. The focus of the proposed action should be on households, however, this does not preclude the complementary involvement of non-residential buildings.

The proposed action should cover the following points:
Identify and address regulatory barriers and contractual conditions with utilities, suppliers, grid operators, technology providers etc. for cooperative actions, possibly linking activities with structural solutions involving public authorities;
Demonstrate that collectively organised energy-related actions are financially viable and attractive to the consumer-members of the energy community.
In addition, the proposed action could cover the following points, as relevant:
Identify and implement solutions to address split incentives (e.g. allowing tenants to set up/join the consumer driven collective action);
Demonstrate collective actions of energy consumers based on the solutions and business approaches using digital tools and technologies (such as digital platforms or blockchain transactions). If the proposed action includes smart home/IoT solutions, it should link to the developments under the call DT-ICT-10-2018: Interoperable and smart homes and grids.
Expected Impact:

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets, wherever possible:
Primary energy savings triggered by the project (in GWh/year);
Investments in sustainable energy triggered by the project (in million Euro);
Contribution to reducing regulatory barriers and improving contractual conditions;
Increase domestic uptake of energy efficient products and services;
Involvement of at least 5.000 consumers per million Euro of EU funding.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-ec-1-2018-2019-2020;freeTextSearchKeyword=LC-SC3-EC-1-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

29) Mitigating household energy poverty

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 6.000.000   **Acronym:** LC-SC3-EC-2-2018-2019-2020

Description:
European households continue to spend an increasing share of income on energy, leading to higher rates of energy poverty and negatively affecting living conditions and health. Recent estimates suggest that more than 50 million Europeans are affected by energy poverty. Although roots of this phenomenon lie mainly in low incomes and poor thermal efficiency of buildings, energy efficiency measures at the household level and increased use of renewable energy are key tools in addressing energy poverty and can bring energy savings, leading to lower fuel costs and improved living conditions. The issue is in part exacerbated by a lack of sufficient knowledge on how to identify energy poor households.In this context, the role of local and national authorities, related networks and initiatives, and

availability of support schemes are important to ensure the sustainability and larger scale uptake of the measures.Energy Efficiency Obligation Schemes can also be used to promote social aims, such as tackling energy poverty. The obligated parties (utilities) have potentially at their disposal the necessary data and means to identify energy poverty among their customers and effectively address it by fulfilling in this way the energy efficiency obligation. Building the capacity of the obligated parties is needed in order to spread such schemes across the EU.

Scope:

Actions should contribute to actively alleviating energy poverty and developing a better understanding of the types and needs of energy poor households and how to identify them, taking into account gender differences where relevant, building on any existing initiatives such as the European Energy Poverty Observatory.

The proposed action should cover one or more of the following:

Facilitate behaviour change and implementation of low-cost energy efficiency measures tailored for energy poor households (e.g. provision of information and advice, energy efficiency services such as draught proofing or optimisation of existing building technology systems, as well as energy efficiency devices & kits such as low-energy lighting);

Support the set-up of financial and non-financial support schemes for energy efficiency and/or small scale renewable energy investments for energy poor households. These actions should be embedded in, and add value to, structural frameworks and activities involving local, regional, and national authorities, and/or networks such as the Covenant of Mayors;

Develop, test and disseminate innovative schemes for energy efficiency/RES investments established by utilities or other obligated parties under Article 7.

Expected Impact:

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below using quantified indicators and targets, wherever possible:

Primary energy savings triggered by the project (in GWh/year);

Investments in sustainable energy triggered by the project in(million Euro);

Contributions to policy development and to best practice development on energy poverty;

Support schemes established for energy efficiency and/or small-scale renewable energy investments and to be sustained beyond the period of EU-support.

Involvement of at least 5.000 consumers per million Euro of EU funding.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-ec-2-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

30) Supporting public authorities in driving the energy transition

Types of action: CSA (Coordination and Support Actions)
Opening: 05 March 2020
Deadline: 10 September 2020 17:00:00 Brussels Time
Budget: € 9.000.000   **Acronym**: LC-SC3-EC-5-2020

Description:

The delivery of the Energy Union targets requires the full engagement of the public sector at all governance levels.Local and regional public authorities have a crucial role in setting ambitious energy efficiency strategies, for instance in the framework of the Covenant of Mayors for Climate & Energy and Smart Cities & Communities or the Clean Energy for EU islands initiative. The political commitment at local level should be enhanced and the focus should turn to implementation and effective monitoring of concrete energy efficiency solutions and actions, which can contribute to modernise and decarbonise the European economy. Synergies should be sought, whenever possible, with local and regional air quality plans and air pollution control programme to reduce costs since these plans rely to a large extent on similar measures and actions.Support should continue and be reinforced in building capacity of public authorities and empowering them to take up their role of energy transition leaders at regional and local level, by permanently improving their skills as public entrepreneurs and supporters of market transformation towards more efficient energy systems.At national level, the Energy Efficiency Directive has triggered numerous positive developments in the Member States by setting targets to incentivise and enable investment in energy efficiency programmes across all sectors. However, Member States have yet to fully implement the Directive and additional support in building capacity and know-how is needed.

Scope:

a) Support to local and regional public authorities

The Commission considers it to be equally relevant to address one or more of the following bullet points, as appropriate:

Enhance decision-making processes of regional and local authorities, to deliver a higher quality, coherence and consistency of energy efficiency measures - and accelerate reaching targets. Actions should foster horizontal and vertical integration of different governance levels, joint application of the energy efficiency measures across local and regional authorities, improved monitoring and verification schemes, and more efficient use of public spending. Proposals should demonstrate political commitment and lead to subsequent institutionalisation of the improved processes in support of the Energy Union Governance Regulation.

Support public authorities in the development of policy scenarios and transition roadmaps that clearly outline the path to the European long-term 2050 targets and inform the ongoing implementation of SEAPs/SECAPs or similar plans and the development of future plans/targets for 2030 and beyond. Actions should link closely to the Covenant of Mayors initiative and the Energy Union Governance Regulation, where relevant.

Innovative ways to enable public engagement in the energy transition, developing interface capacities within public authorities to engage with civil society.

Deliver innovative capacity-building programmes for cities and/or regions to step up their capacity to drive the sustainable energy transition in their respective territories. Proposals should foster a sustained increase in the skill base of public authorities, adapted to their needs and challenges, and support the diffusion of the learning within participating organisations and beyond. The proposed actions should include a strategy to replicate results across Europe and a solid impact monitoring.

Proposals should build on existing initiatives such as the Covenant of Mayors[5], ManagEnergy or any other relevant initiative as appropriate.

b) Supporting the delivery of the Energy Efficiency Directive

Proposers should focus their proposed action on:

Actions assisting Member States to fulfil their obligations under the Energy Efficiency Directive (EED) and – where relevant to the implementation of the EED – under the Energy Union Governance Regulation. Proposals should support efficient implementation by taking into account existing effective practices and experiences from across Europe. Proposals may address, for example, the harmonisation of energy savings calculations under Article 3, the effective implementation of Article 7 including consistent monitoring and verification

systems, higher efficiency of the generation under Article 14 and of transmission or distribution systems under Article 15 or an efficient development and continuous reporting of Integrated National Energy and Climate Plans.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

Proposals are expected to demonstrate, depending on the scope addressed, the impacts listed below, using quantified indicators and targets wherever possible:

Primary energy savings, renewable energy production and investments in sustainable energy triggered in the territory of participating parties by the project (respectively in GWh/year and in million Euro);

Number of institutionalised collaborations on the energy transition between public authorities;

Numbers of stakeholders active in delivering the energy transition;

Number of public authorities and public officers with improved capacity/skills in delivering the energy transition;

Number of policies influenced through the action;

Number of Member States with improved implementation of the EED and linked Energy Union Governance Regulation, clearly attributable to project activities.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/lc-sc3-ec-5-2020;freeTextSearchKeyword=LC-SC3-EC-5-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

31) Developing a research roadmap regarding Artificial Intelligence in support of Law Enforcement

Types of action: Coordination and support action
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 1.500.000   **Acronym:** SU-AI01-2020

Description:
As indicated in the Coordinated Plan on Artificial Intelligence and in the Cybersecurity Joint Communication there is a need to better understand: how AI-based systems, services and products could enhance the objectives of the security sector; how AI technologies can be protected from attacks; how to address any potential abuse of AI for malicious purposes; how to establish cybersecurity requirements for AI. From the Law Enforcement point of view, these dimensions have to be analysed in a longer term, taking into account that the potential AI benefits for Law Enforcement Agencies (LEAs) are threefold, i.e., through: 1) proactive policing (from reactive to anticipative policing); 2) data analysis (e.g., connecting the dots, discovering criminal patterns and defragmenting LEA actions), and 3) identity checks (improving detection, targeting and interdiction).

Scope:
Proposals under this topic should provide an EU AI roadmap for LEAs, meeting their specific operational and cooperation needs, by identifying, in a longer-term perspective: the key areas in which AI would be beneficial for LEAs, the key areas in which it could pose a threat to security, cybersecurity requirements for AI based technologies in use or to be used by LEAs as well as means of prevention and mitigation of malicious use of AI for criminal activities. As such this project would not only need to continuously interact (in a cluster mode) with projects funded under SU-AI02-2020 and SU-AI03-2020 but also provide recommendations for further work to be done under Horizon Europe, Digital Europe, or the Internal Security Fund as well as for policy and market uptake. The objective is to develop a research roadmap that provides answers to, e.g., following questions: What are and will be the AI needs of LEAs in their daily work? What are the major research gaps in the area of AI in support of LEAs? What are the challenges that need to be addressed, both from the fighting crime, including cybercrime and terrorism, and from improving cybersecurity (re)actions? Which approaches might be desirable? What needs to be set up for test and evaluation? How to prevent and mitigate malicious use of AI for criminal activities and terrorism?

Starting from these considerations, proposals must demonstrate commitment to produce recommendations that are updated continuously, and at least every 6 months, about the following lines of actions: which AI based technologies, systems and solutions could support/enhance the work of LEAs and how, what the corresponding restraints (including ethical and legal) are, as well as related risks, security challenges and protection measures. The proposal shall provide specific real-life LEAs scenarios, examples and evidence supporting their recommendations. The proposing consortium is expected to incorporate relevant security practitioners, researchers, civil society organisations and LEAs.

As indicated in the Introduction of this call, proposals should foresee resources for clustering activities with other projects funded under this call to identify synergies and best practices.

The Commission considers that proposals requesting a contribution from the EU of around EUR 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

Short term:

Effective contribution to the overall actions of this call;

Medium and longer term:

In the longer term perspective, identification of key areas in which AI would be beneficial for LEAs, meeting their operational and collaborative needs, and of key areas in which it could pose a threat to security;

A carefully planned roadmap in order for Law Enforcement to benefit as much as possible from the AI based technologies, systems, solutions, including their protection;

Increased awareness regarding the state of the art and trends in AI-based criminal activities (short-, mid- and long-term).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ai01-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

32)Secure and resilient Artificial Intelligence technologies, tools and solutions in support of Law Enforcement and citizen protection, cybersecurity operations and prevention and protection against adversarial Artificial Intelligence

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 17.000.000   **Acronym:** SU-AI02-2020

Description:
The increasing complexity of security challenges, as well as more and more frequent use of AI in multiple security domains, such as fight against crime, including cybercrime and terrorism, cybersecurity (re-)actions, protection of public spaces and critical infrastructure makes the security dimension of AI a matter of priority. Research is needed to assess how to mostly benefit from the AI based technologies in enhancing EU's resilience against newly emerging security threats (both "classical" and new AI supported) and in reinforcing the capacity of the Law Enforcement Agencies (LEAs) at national and at EU level to identify and successfully counter those threats. In addition, in security research, data quality, integrity, quantity, availability, origin, storage and other related challenges are critical, especially in the EU-wide context. To this end, a complex set of coordinated developments is required, by different actors, at the legislative, technology and Law Enforcement levels. For AI made in Europe, three key principles are: "interoperability", "security by design" and "ethics by design". Therefore, potential ethical and legal implications have to be adequately addressed so that developed AI systems are trustworthy, accountable, responsible and transparent, in accordance with existing ethical frameworks and guidelines that are compatible with the EU principles and regulations.

Scope:
Proposals under this topic should aim at exploring use of AI in the security dimension at and beyond the state-of-the-art, and exploiting its potential to support LEAs in their effective operational cooperation and in the investigation of traditional forms of crime where digital content plays a key role, as well as of cyber-dependent and cyber-enabled crimes. On the one hand, as indicated in "Artificial Intelligence – A European Perspective", AI systems are being and will increasingly be used by cyber criminals, so research into their capabilities and weaknesses will play a crucial part in defending against such malicious usage. On the other hand, Law Enforcement will increasingly engage in active usage of AI systems to reinforce investigative capabilities, to strengthen digital evidence-making in court and to cooperate effectively with relevant LEAs. Consequently, proposals should:
develop AI tools and solutions in support of LEAs daily work. This should include combined hardware and software solutions such as robotics or Natural Language Processing, in support of LEAs to better prevent, detect and investigate criminal activities and terrorism and monitor borders, i.e., opportunities and benefits of AI tools and solutions in support of the work of Law Enforcement and to strengthen their operational cooperation.
Building on existing best practices such as those obtained through the ASGARD project, proposals should establish a platform of easy-to-integrate and interoperable AI tools and an associated process with short research and testing cycles, which will serve in the short term perspective as a basis for identifying specific gaps that would require further reflection and development. This platform should, in the end, result in a sustainable AI community for LEAs, researchers and industry as well as a specific environment where relevant AI tools would be tailored to specific needs of the security sector, including the requirements of LEAs. Those AI tools would be developed in a timely manner using an iterative approach to define, develop and assess the most pertinent digital tools with a constant participation of end-users throughout the project. By the end of the project, the platform should also enable a direct

access for Law Enforcement to an initial set of tools. Specific consideration should be given to the issue of setting an appropriate mechanism to enable a proper access to the relevant data necessary to develop and train AI based systems for security.

Expected Impact:

Proposals should lead to:

Short term:

Effective contribution to the overall actions of this call;

Development of a European representative and large enough high-quality multilingual and multimodal training and testing dataset available to the scientific community that is developing AI tools in support of Law Enforcement;

EU common approach to AI in support of LEAs, centralized efforts as well as solutions on, e.g., the issue of huge amount of data needed for AI.

Medium term:

Improved capabilities for LEAs to conduct investigations and analysis using AI, such as a specific environment/platform where relevant AI tools would be tailored to specific needs of the security sector including the requirements of LEAs;

Ameliorated protection and robustness of AI based technologies against cyber threats and attacks;

Raised awareness and understanding of all relevant issues at the European as well as national level, related to the cooperation of the scientific community and Law Enforcement in the domain of cybersecurity and the fight against crime, including cybercrime and terrorism regarding the availability of the representative data needed to develop accurate AI tools;

Raised awareness of the EU political stakeholders in order to help them to shape a proper legal environment for such activities at EU level and to demonstrate the added value of common practices and standards;

Increased resilience to adversarial AI.

Longer term:

Improved capabilities for trans-border LEA data exchange and collaboration;

Modernisation of work of LEAs in Europe and improvement of their cooperation with other modern LEAs worldwide;

A European, common tactical and human-centric approach to AI tools, techniques and systems for fighting crime and improving cybersecurity in support of Law Enforcement, in full compliance with applicable legislation and ethical considerations;

Fostering of the possible future establishment of a European AI hub in support of Law Enforcement, taking into account the activities of the AI-on-demand platform;

Making a significant contribution to the establishment of a strong supply industry in this sector in Europe and thus enhancing the EU's strategic autonomy in the field of AI applications for Law Enforcement;

Creation of a unified European legal and ethical environment for the sustainability of the up-to-date, representative and high-quality training and testing datasets needed for AI in support of Law Enforcement; as well as for the availability of these datasets to the scientific community working on these tools;

Development of EU standards in this domain.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ai02-2020;freeTextSearchKeyword=SU-AI02-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

33) Human factors, and ethical, societal, legal and organisational aspects of using Artificial Intelligence in support of Law Enforcement

Types of action: Coordination and support action
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 1.500.000   **Acronym:** SU-AI03-2020

Description:
Advantages of AI are numerous. However, the lack of transparency of AI technologies and tools complicates their acceptance by users and citizens. Ethical and secure-by-design algorithms are necessary to build trust in this technology, but a broader engagement of civil society on the values to be embedded in AI and the directions for future development is crucial. This fact is generally correct, and it becomes extremely important in the security domain. Social engagement has to be part of the overall effort to fortify our resilience across institutions, civil society and industry, and at all levels - local, national, European. There is a need to find ways to build a human-centred and socially driven AI, by, amongst other, fostering the engagement of citizens and improving their perception of security. Possible side effects of AI technological solutions in the domain of security need to be considered carefully, both from the point of view of citizens and from the point of view of Law Enforcement: e.g., their concerns regarding a strong dependence on machines, risks involved, how AI will affect their jobs and their organisation, or how AI will affect their decisions. Many open aspects exist that can be a source both of concern and of opportunity and should be addressed in a comprehensive and thorough manner. Finally, the legal dimension should be tackled as well – e.g., how the use of data to train algorithms is dealt with, what is allowed and under which circumstances, what is forbidden and when.

Scope:
Proposals under this topic should provide an exhaustive analysis of human, social and organisational aspects related to the use of AI tools, including gender related aspects, in support of Law Enforcement, both for cybersecurity and in the fight against crime, including cybercrime, and terrorism. Points of view and concerns of citizens as well as of Law Enforcement should be tackled. Based on this analysis, proposals should suggest approaches that are needed to overcome these concerns and that stimulate the acceptance of AI tools by civil society and by Law Enforcement. Proposals should lead to solutions developed in compliance with European societal values, fundamental rights and applicable legislation, including in the area of privacy, protection of personal data and free movement of persons. The societal dimension should be at the core of the proposed activities. Proposals should be submitted by consortia involving relevant security practitioners, civil society organisations as well as Social Sciences and Humanities experts.
As indicated in the Introduction of this call, proposals should foresee resources for clustering activities with other projects funded under this call to identify synergies and best practices.
The Commission considers that proposals requesting a contribution from the EU of around EUR 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.
Expected impact:
Short term:
Effective contribution to the overall actions of this call.
Medium term:

Improved and consolidated knowledge among EU Law Enforcement Agency (LEA) officers on the issues addressed in this topic;

Exchange of experiences among EU LEAs about human, social and organisational aspects of the use of AI in their work;

Raised awareness of civil society about benefits of AI technologies in the security domain and opportunities it brings.

Longer term:

European common approach for assessing risks/threats involved by using AI in the security domain, and identifying and deploying relevant security measures that take into account legal and ethical rules of operation, fundamental rights such as the rights to privacy, to protection of personal data and free movement of persons;

Advances towards the implementation of the AI tools and technologies in support of Law Enforcement, in the areas of cybersecurity and fight against crime, including cybercrime, and terrorism, by strengthening the civil society perception of the EU as an area of freedom, justice and security.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ai03-2020;freeTextSearchKeyword=SU-AI03-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

34) Human factors, and social, societal, and organisational aspects of border and external security

Types of action: Coordination and support action
Opening: 12 March 2020 /Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 5.000.000   **Acronym:** SU-BES01-2018-2019-2020

Description:
Border and external security may depend on a variety of human factors, and social and societal issues including gender. The adoption of appropriate organisational measures and the deeper understanding of how novel technologies and social media impact border control are required. One main challenge is to manage the flow of travellers and goods arriving at our external borders, while at the same time tackling irregular migration and enhancing our internal security. Any novel technology or organisational measure will need to be accepted by the European citizens. For the purpose of this topic, 'migration' does not refer to persons enjoying the right of free movement under Article 21 TFUE and secondary legislation (i.e. Union citizens and their family members, independently of their nationality).

Scope:
Proposals (which should take into account already existing tools) are invited to address related research and innovation issues, each under only one of the following sub-topics:
Sub-topic 1: [2018] Detecting security threats possibly resulting from certain perceptions abroad, that deviate from the reality of the EU
Research should investigate how to better detect and understand how the EU is perceived in countries abroad by analysing e.g. social media data, how such perception could possibly

lead to threats and security issues on its citizens and territories, and how such perceptions can be avoided or even actively and effectively counteracted through various measures. In line with the objectives of the Union's strategy for international cooperation in research and innovation (COM(2012)497), international cooperation according to the current rules of participation is encouraged.

Sub-topic 2: [2019] Modelling, predicting, and dealing with migration flows to avoid tensions and violence

Better modelling and predicting migration flows, based on a sound analysis and taking into account gender aspects, is required for high-level strategic decision-making, to plan and implement operational activities. For the management of the migratory flow, including relocations within the EU, it is necessary to map public sentiment, including perceptions of migration, by analysing data available from many different governmental or public sources, and by developing socio-economic indicators of integration strategies. Proposals should be solution-oriented and propose convincingly how to better deal with such flows and to reduce risks of tensions and violence among migrants and European citizens.

Participation of Border or Coast Guards Authorities or those working with at-risk groups, for example first responders, municipalities, social workers, educators, civil society actors etc. is welcome.

Sub-topic 3: [2020] Developing indicators of threats at the EU external borders on the basis of sound risk and vulnerability assessment methodologies.

Expected Impact:

Knowledge and evidence-based support to policy developments, with fitness for purpose validated by policy-makers and by practitioners and in cooperation with civil-society organisations in the Member States, the Associated Countries, and abroad where appropriate.

Methods to better manage the complexity (from reducing the incentives for irregular migration, to the analysis and sharing of best practices, and towards an effective application of common rules…) of the issues, with fitness for purpose validated by practitioners and civil-society organisations.

Advances through the cross-fertilisation of concepts resulting from the collision of different ways of thinking and of different approaches developed by various partners in the proposals.

[2020] Contribution to the development of EU joint capabilities for border management and support to the implementation of policy priorities.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-bes01-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

In 2020 predefined sub-topics require the active involvement of at least 3 Border Guards Authorities from at least 3 different EU or Associated countries.

35)Technologies to enhance border and external security

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 21.000.000   **Acronym:** SU-BES02-2018-2019-2020

Description:
Innovation for border and external security may draw, in particular, from novel technologies, provided that they are affordable, accepted by citizens and customized and implemented for the needs of security practitioners.

Scope:
Proposals are invited to address related research and innovation issues, in particular:
Sub-topic 1: [2018] Providing integrated situational awareness and applying augmented reality to border security
Currently, information is made available to border and coast guards in several formats and on different kinds of hardly interoperable displays. However, human cognitive is limited at managing information from several sources simultaneously and at handling too many separate pieces of equipment is a limit to their ability to act. Furthermore, border and coast guards often work in sparsely populated and remote areas where the availability of telecommunication networks may be an issue. Research and innovation should lead towards (cloud-based) integrated systems with simple but complete and highly-standardized interfaces showing real-time information in a user-friendly way that can assist border guards in decision-making, and in remaining in contact with their command and control centre in the actual context of operations. Water, land and air operating resources should be taken into account, to lead to enhanced concept of employment, integration and interoperability standards.
Sub-topic 2: [2018] Detecting fraud, verifying document validity, and alternative technologies to identifying people
The use of counterfeit travel documents at borders is a reality, which entails the risk of not identifying known criminals, including terrorists. It is a cross-cutting priority according to the EU Serious and Organised Crime Threat Assessment 2017[1], since it enables or enhances all types of serious and organized crime and terrorism. New countermeasures are needed to address potential frauds, in particular for the detection of morphed face images. The use of biometrics "on the fly" techniques for identification in a non-intrusive manner and without interrupting the flow of people is an area for further development, testing and validation.
Sub-topic 3: [2019] Security on-board passenger ships
Security on-board passenger ships is challenging, given the larger number of specific constraints that apply. To ensure security all along the "life cycle" of a voyage, new technologies can be implemented (together with methods for their deployment and possibly their integration into ship systems), as well as security novel procedures (including for embarkation and disembarkation, mooring at pier, etc.)
Sub-topic 4: [2019] Detecting threats in the stream of commerce without disrupting business
The flow of goods crossing borders is increasing, whilst ways of concealing methods for dangerous materials and illegally trafficked goods are improving. The detection of such dangerous and illegal goods should be facilitated by novel technologies and sensing strategies characterized by risk-based protection and non-intrusive security checks that can be implemented without disrupting business.
Proposals should target the automation and integration of existing technologies for the purpose of identifying the largest possible amount of threat materials and ensuring the full supervision of the logistic flow of goods. This would require exploiting information obtained through the analysis of cargo flow data available from open source and documentary control, intelligence gathering, risk management, as well as through physical detection or inspection of cargo in means of transport, luggage, or carried by individuals. The fitness for purpose of

novel solutions should be validated at the EU external border, in a context chosen on the basis of a sound and factual risk analysis.

Of particular relevance: the enhancement of detection capabilities of contraband (mainly cigarettes) hidden in high density cargo (coal, iron ore) in particular for rail cargo transport, and well as the fight against illicit trafficking of radioactive and nuclear (NR) materials (including through the establishment of trans-European network of detection facilities with its specific concept of operations.

Sub-topic 5: [2020] Disruptive technologies for non-intrusive identification of hidden goods

Detecting and identifying illegal goods hidden in containers, train cars and truck structures at EU external borders (e.g. ports, wharfs, rail yards, …) is a need shared by border guard, customs and law enforcement authorities. Illegal goods, including drugs, weapons, explosives, radiological and nuclear material, are trafficked into Europe by criminal organisations using a range of methods and tools, which are very diverse (e.g. to minimize the risk of detection during transportation, some drugs may be transformed into a liquid and turned back into a solid at destination) and adaptable to specific border conditions. These may also include taking advantage of new technology to facilitate access to containers.

Expected Impact:

Short term:

Clear, realistic benchmarks against which to assess progress, so as to possibly stop the project if at mid-term review progress is not deemed sufficient.

Plan to provide confidence in the take up of project results after the completion of the project.

Medium term:

Evidence based knowledge, and developments performing beyond the current state of the art and leading quickly to innovation.

Technical and operational guidelines, recommendations and best practices set in the EUROSUR handbook and in the future handbook for coast guards (as per Article 53 of the European Border and Coast Guard regulation.)

Long term:

Implementation of solutions resulting from the legislative initiative in the "Smart Borders" package;

Implementation of actions of civilian nature identified in the EU Maritime Security Strategy action plan;

Implementation of the actions identified by the EU Strategy and Action Plan for customs risk management.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-bes02-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

36) Demonstration of applied solutions to enhance border and external security

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 10.000.000   **Acronym:** SU-BES03-2018-2019-2020

Description:
Solutions at high Technological Readiness Levels (TRL; please see General Annex G) to enhance border and external security do exist, but if they are not to remain unused they need to be demonstrated in the context of actual operations or exercises for validation by practitioners.

Scope:
Consortia are invited to propose demonstration of high (6-8) Technology Readiness Levels (TRL) systems applied in the context of border and external security. (TRL: please see General Annex G.)

Proposals should be submitted under only one of the following sub-topics:

Sub-topic 1: [2018] Remotely piloted aircrafts and underwater autonomous platforms to be used from on-board offshore patrol vessels

Remotely piloted autonomous platforms of all kinds should demonstrate innovative capacities for land border and coast surveillance. Underwater autonomous platforms are also of interest for choke points surveillance (i.e. a port entrance.)

Research on artificial intelligence is likely to facilitate the transition from innovation to operation. Such platforms play an important role in facilitating long range and persistent surveillance in wide maritime areas, complementing operation from offshore patrol vessels. Improving the cost effectiveness, reliability and availability of such platforms, either by increasing the performance of existing technologies or by developing innovative concepts of operation, would notably contribute to better situational awareness at the tactical level beyond coastal waters (up to 200 nautical miles), while reducing risks during search and rescue missions, including launch and recovery phases, even in adverse sea and weather conditions. Proposals should aim at improved cost effectiveness, in particular through the remote operation of sensors mounted on aerial platforms (including optionally and remotely piloted) and by improving the on-board processing of payload data, while minimizing the data transmission to the ground segment.

Sub-topic 2: [2019] New concepts for decision support and information systems

Information systems to support border and external security may combine a broad variety of data from very different sources, including personal data. Innovative solutions are needed to ensure the interoperability of surveillance systems, and the availability of information for maritime border surveillance coming from the area of operations in standardized formats, when and where it is needed, thus at enhancing situation awareness at strategic level (in National Coordination Centres), but also at tactical level (with assets deployed under the frame of surveillance operations). This would allow faster reaction to incidents in the maritime domain, and a reduction in the death toll at sea. Proposals should aim at optimize the exploitation of data for their specific use in surveillance is currently embryonic, and needs to take better account of the specific characteristics of the domain, with a view to provide the needed information reducing redundancies.

Sub-topic 3: [2020] Improved systems for the vessel tracking, behaviour analysis and automatic anomaly detection

Current maritime reporting systems (including ship reporting systems and container reporting systems) produce huge quantities of data which cannot be directly exploited by the human operators in the various maritime control centres. This is expected to be even more so in the near future, as the amount of data available shall increase with the introduction of

VHF Data Exchange System (VDES). At the same time, non-homogenous sources of vessel information are accessible, these offer access to either open or proprietary data that could be used to perform risk analysis on each individual vessel navigating in, or on its way to, European waters.

Sub-topic: [2018-2019-2020] Open

Proposals addressing other issues relevant to this challenge, based on a sound rationale and with the active involvement of a large number of relevant practitioners are invited to apply under this sub-topic (see eligibility and admissibility conditions.)

Proposals submitted under this topic should be coordinated by a competent authority under civilian authority and command, nationally identified as specialised border or coast guard, or border police force.

Expected Impact:

Medium term:

Innovative solutions validated and qualified in the real, operational environment of civilian missions, defined in detail according to specifications set by the practitioners (authorities in charge of border surveillance and coast guard functions) and tailored to effectively meet their requirements within civilian missions.

Plans for the quick take up of qualified systems at EU level.

Plans for transnational procurement strategies.

Long term:

Improved cost-effectiveness and efficiency of systems for the prevention of cross border crime and for border surveillance for civilian purposes.

European standards for interoperable systems.

Substantial and tangible improvement of (maritime) situational awareness and reaction capability, as appropriate in surveillance for civilian purposes, fight against crime, and search and rescue missions by the National and European Border and Coast Guards.

Contribution to the concept of Common Application of Surveillance Tools, as for the European Border Surveillance System (EUROSUR) and to its interoperability with other systems.

[2020] Implementation of actions of civilian nature identified in the EU Maritime Security Strategy Action Plan.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-bes03-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

37) Human factors, and social, societal, and organisational aspects for disaster-resilient societies

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 5.000.000   **Acronym:** SU-DRS01-2018-2019-2020

Description:
The resilience of societies heavily depends on how their citizens behave individually or collectively, and how governments and civil society organisations design and implement policies for mitigating risks, preparing for, reacting to, overcoming, and learning from disasters. The spread of new technologies and media are inducing dramatic changes in how individuals and communities behave, and they are affecting societies in unpredictable ways. Building the resilience of society and citizens requires a better understanding and implementation of these new technologies, media and tools, and their capacity to raise disaster risk awareness, to improve citizen understanding of risks, to build a culture of risks in society, to enable an effective response from affected populations, to improve functional organisation in most fragile and vulnerable environments, and to increase the resilience of health services, social services, education, and governance, in line with target (d) of the Sendai Framework on critical infrastructure and disruption of basic services.

Scope:
Proposals are invited to address related research and innovation issues, in particular:
Recent disasters related either to natural causes (including climate-related hazards) or to terrorist attacks have shown gaps in the level of preparedness of European society for disasters, and therefore highlighted the importance of increasing risk awareness, and hence resilience among people and decision-makers in Europe. There is much that can be learned from certain countries with a high level of risk of natural disasters (e.g. Japan with high-levels of risks of earthquakes, volcanic events, and tsunamis) and where risk awareness is high. Research is required with a view to how cultural changes among individuals, business managers, government officials, and communities can create a resilient society in Europe, in line with the Sendai Framework for Disaster Risk Reduction.
Over the past few years several ways to exploit social media and other crowd-sourced data in emergency situations have been studied, and some put in place, but their impacts are not well known. Research is needed to assess such practices for different disaster scenarios (natural hazards, industrial disasters, terrorist threats) involving different actors, including first responders, city authorities and citizens. Research should analyse both the positive and negative roles of social media and crowd-sourced data in crisis situations. For instance in the wake of a terror attack or natural disaster they offer a quick and easy way to relieve friends and family from worry (where networks are not down), and they generate valuable information about the affected area in the first moments after a disaster; they have been used to spread early warnings and important safety information. However, social media may also be used to spread false statements and to overstate threats, so the validation processes of information should also be addressed. Social media itself is reliant upon the functioning of critical infrastructure such as phone networks and may not always be available. Research should also address solutions for communication between first responders and the victims and citizens in the affected area.
Expected Impact:
As a result of this action, Member States and Regional authorities as well as City and Metropolitan authorities should benefit from recommendations and tools aimed at improving the adaptability and preparedness of societies to different disaster risks, including:
Comparative analysis of the European diversity in terms of risk-perception amongst citizens, and of vulnerabilities;
Comparative analysis of different approaches to adapt to, and be prepared for risks in different countries (both within and outside the European Union), and among communities in precarious socio-economic conditions;
Advances through the cross-fertilisation of concepts resulting from the collision of different ways of thinking and of different approaches developed by various partners in the proposals;
Identification of existing tools and guidelines for an improved prevention (including risk understanding and communication), preparedness (including training involving citizens), alert systems and their recognition by citizens, responses using citizen's competencies and local knowledge, and recovery;

Improved information exchanges among different actors involved, including first responders, local authorities, schools, and citizen representatives.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-drs01-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

38)Technologies for first responders

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 21.000.000   **Acronym:** SU-DRS02-2018-2019-2020

Description:
Resilience is critical to allow authorities to take proper measures in response to severe disasters, both natural (including climate-related extreme events) and man-made. Innovation for disaster-resilient societies may draw from novel technologies, provided that they are affordable, accepted by the citizens, and customized and implemented for the (cross-sectoral) needs of first responders.

Scope:
Proposals are invited to propose novel solutions improving the protection of first responders against multiple and unexpected dangers, or enhancing their capacities by addressing related research and innovation issues, in particular:
Sub-topic 1: [2018] Victim-detection technologies
The quick detection of victims potentially trapped in buildings as a result of all sorts of disasters of natural, accidental, or man-made or of terrorist origins is a major issue for first responders. Novel technologies should enable them to save the time taken to detect victims who are not visible, enabling more efficient and faster rescue operations leading to higher chances of saving lives and reducing injuries.
Sub-topic 2: [2019] Innovation for rapid and accurate pathogens detection
Novel technologies are required by first responders for the rapid and accurate detection of pathogens, as well as tools for joint epidemiological and criminal risk and threat assessment and investigation.
Sub-topic 3: [2020] Methods and guidelines for pre-hospital life support and triage
Development of innovative tools, methodologies and European pre-hospital guidelines for first responders of medical services, fire services and police and hospital trauma teams in order to ensure faster and more effective evaluation and control of numerous seriously injured casualties in disaster and/or emergency situations. This should take account of lessons learned from military mass-casualty techniques such as damage-control surgery. The aim is to ensure more effective pre-hospital triage of victims with appropriate digital traceability of actions and data transfer from the event to the hospital(s), including across administrative and political boundaries.

If appropriate, proposals should demonstrate how they will build on relevant previous and on-going FP7 and/or H2020 projects.

Sub-topic: [2018-2019-2020] Open

Other technologies for use by first responders may be subject of proposals provided that they involve a large number of first responders' organisations (see eligibility and admissibility conditions.) For instance, but not exclusively: communicating and smart wearables for first responders and K9 units including light-weight energy sources; situational awareness and risk mitigation systems for first responders using UAV and robots, connected and swarms of drones; systems based on the Internet of Things; solutions based on augmented or virtual reality; systems communication solutions between first responders and victims; risk anticipation and early warning technologies; mitigation, physical response or counteracting technologies; etc.

Expected Impact:

As a result of this action, first responders should benefit from:

Novel tools, technologies, guidelines and methods aimed at facilitating their operations

New knowledge about field-validation of different tools, technologies and approaches involving first responders in (real-life) scenarios.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-drs02-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

39) Pre-normative research and demonstration for disaster-resilient societies

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 6.000.000   **Acronym:** SU-DRS03-2018-2019-2020

Description:
A reason for the difficult interaction among practitioners, and for the low levels of interoperability of equipment and procedures implemented by first responders, lies in there being insufficient harmonisation and standardisation, which pre-normative research and demonstrations may address effectively.The security market in Europe is an institutional market that is highly fragmented (because of the lack of standardization and harmonised certification), and with a strong societal dimension (it directly affects in many ways the citizens). In this context, the Mandate M/487 to Establish Security Standards coordinated by the European Committee for Standardization has clearly recognized the whole field of "crisis management and civil protection" as one of the three priorities for establishing standards in the security sector. It has identified the need for crisis management and civil protection standardization activities to facilitate response, effectiveness, efficiency and cooperation as top priorities, especially in what regards to natural hazard emergencies.

Scope:
Proposals are invited to address issues related to pre-standardisation, in particular:

Sub-topic 1: [2018] Pre-standardisation for the security of water supply
For several years research actions have led to the development of detection technologies to analyse drinking water. Based on the legacy of FP7-funded actions, clearer strategies to integrate current technologies in the existing water safety network should be designed. Testing facilities should interconnect the safety- and security-related networks of sensors that are deployed among water supply and distribution networks. The focus of action should be on networking testing facilities developed by water utilities to demonstrate the use of current sensor technologies for the purpose of both safety and security of water, including methods to monitor reservoirs, and sea or river levels for early warning.

Sub-topic 2: [2019] Pre-standardisation in crisis management (including natural hazard and CBRN-E emergencies)
Generally speaking, the development of standards for civil protection in the areas of crisis management (including for systems, tools and services related to natural hazard and CBRN-E emergencies) will increase interoperability of equipment and procedures. Innovation actions should bring validated and positively-assessed practices into standards within or outside current standardisation processes. The involvement of well-established standardisation organisations is required. The complementarity of the proposed activities with activities supported by the European Defence Agency (EDA) in the CBRN-E area should be described comprehensively.

Sub-topic 3: [2020] First aids vehicles deployment, training, maintenance, logistic and remote centralized coordination means
Improved standards and common communication data exchange mechanisms are required for an effective deployment of resources during the run-up to a major crisis related to any kind of disaster either natural (including resulting from climate-related extremes) or man-made, and immediately after the event, for example in case of a mass evacuation from an urban area. Proposals should target in particular events where there are strong cross-sector, cross-border, cross-hierarchy coordination activities ongoing, and therefore the issue of interoperability. The aim is to pave the way to improved standards, including voluntary Standard Operating Procedures (SOPs) and/or ISO or EN standards.

The centre of gravity for technology development with actions funded under this topic is expected to be up to TRL 6 to 7 – see General Annex G of the Horizon 2020 Work Programme.

The Commission considers that proposals requesting a contribution from the EU of about EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:
[2020] standards for an effective deployment of resources to respond to major crisis.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-drs03-2018-2019-2020;freeTextSearchKeyword=SU-DRS03-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

40) Chemical, biological, radiological and nuclear (CBRN) cluster

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 7.000.000 **Acronym:** SU-DRS04-2019-2020

Description:
Technologies and innovations in the field of CBRN are developed by companies which often face difficulties in bringing them to markets. At least three reasons may be identified:

They address local, small niche markets;
These companies have neither the capabilities nor the strategic objective to go for foreign markets; the individual technologies that they develop can make it to the market only if integrated and combined with other tools by other companies that have the capabilities and the strategy to market products abroad, and possibly on the global market.

Scope:
In 2019 and 2020 the Commission will select several RIAs aiming at research and development of novel CBRN technologies and innovations identified in the catalogue that is updated by the ENCIRCLE project on a regular basis. Each of these actions will be led by an SME. Each consortium implementing such a RIA must not only establish a consortium agreement among its members, but also an agreement with the participants in the ENCIRCLE project which must settle how the results from the RIA will be exploited and integrated into platforms managed by ENCIRCLE.
Where applicable, the complementarity of the proposed activities with activities supported by the European Defence Agency (EDA) should be described comprehensively.
The centre of gravity for technology development with actions funded under this topic is expected to be up to TRL 4 to 6 – see General Annex G of the Horizon 2020 Work Programme.
Indicative budget: The Commission considers that proposals requesting a contribution from the EU of about EUR 3.5 million per action for this topic to be addressed appropriately. Nonetheless this does not preclude submission and selection of proposals requesting other amounts.
Expected Impact:
Shorter time to market for novel CBRN technologies and innovations
More business deals leading to industrial products of interest to more practitioners in Europe (and world-wide).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-drs04-2019-2020;freeTextSearchKeyword=SU-DRS04-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

41) Intelligent security and privacy management

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 20.000.000   **Acronym:** SU-DS02-2020

Description:
In order to minimise security risks, ICT systems need to integrate state-of-the-art approaches for security and privacy management in a holistic and dynamic way. Organisations must constantly forecast, monitor and update the security of their ICT systems, relying as appropriate on Artificial Intelligence and automation, and reducing the level of human intervention necessary. Security threats to complex ICT infrastructures, which are multi-tier and interconnected, computing architectures, can have multi-faceted and cascading effects. Addressing such threats requires organisations to collaborate and seamlessly share information related to security and privacy management. The increasing prevalence and sophistication of the Internet of Things (IoT) and Artificial Intelligence (AI) broadens the attack surface and the risk of propagation. This calls for tools to automatically monitor and mitigate security risks, including those related to data and algorithms. Moreover, storage and processing of data in different interconnected places may increase the dependency on trusted third parties to coordinate transactions. Advanced security and privacy management approaches include designing, developing and testing: security/privacy management systems based on AI, including highly-automated analysis tools, and deceptive technology and counter-evasion techniques without necessary human involvement.

Scope:
Proposals are invited to address one of the sub-topics below. In addition, it would be an asset for proposals to include solutions for hands-on and state-of-the-art training, such as cybersecurity exercises.
Four pilot projects are launched under Horizon 2020 LEIT ICT, as a result of the call H2020-SU-ICT-2018, topic SU-ICT-03-2018 "Establishing and operating a pilot for a Cybersecurity Competence Network to develop and implement a common Cybersecurity Research & Innovation Roadmap". Proposals should therefore foresee actions to collaborate with these four projects and also with similar ongoing projects funded under H2020, and take account of the results and work done in other relevant H2020 projects on cybersecurity/privacy.
SME participation is strongly encouraged.
Expected Impact:
In the short term, project outcomes should make relevant contributions to the following:
reduced number and impact of cybersecurity incidents;
efficient and low-cost implementation of the NIS Directive and General Data Protection Regulation;
effective and timely co-operation and information sharing between and within organisations as well as self-recovery;
availability of comprehensive, resource-efficient, and flexible security analytics and threat intelligence, keeping pace with new vulnerabilities and threats;
availability of advanced tools and services to the CERTs/CSIRTs and networks of CERTs/CSIRTs;
an EU industry better prepared for the threats to IoT, ICS (Industrial Control Systems), AI and other systems;
self–recovering, interoperable, scalable, dynamic privacy-respecting identity management schemes.
In the medium to long term, project outcomes should make relevant contributions to the following:

Availability of better standardisation and automated assessment frameworks for secure networks and systems, allowing better-informed investment decisions related to security and privacy;

Availability and widespread adoption of distributed, enhanced trust management schemes including people and smart objects;

Availability of user-friendly and trustworthy on-line products, services and business;

better preparedness against attacks on AI-based products and systems;

A stronger, more innovative and more competitive EU cybersecurity industry, thus reducing dependence on technology imports;

A more competitive offering of secure products and services by European providers in the Digital Single Market.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ds02-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

42) Digital Security and privacy for citizens and Small and Medium Enterprises and Micro Enterprises

Types of action: IA (Innovation Actions)

Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 18.000.000   **Acronym:** SU-DS03-2019-2020

Description:
Some members of the digital society in the EU are more vulnerable as they are less prepared to confront with cyber-attacks. The scale, value and sensitivity of personal data in the cyberspace are significantly increasing and citizens are typically uncertain about who monitors, accesses and modifies their personal data. Personal data breach may facilitate abuse by third parties, including cyber-threats such as coercion, extortion and corruption. In order to protect the freedom, security and privacy, and ensure personal data protection of the citizens in Europe, citizens should be enabled to assess the risk involved in their digital activities and configure their own security, privacy and personal data protection settings and controls across these services. Citizens need to be fully aware that their informed consent is necessary in many situations and become capable in providing their permission/consent for allowing accessing their personal data/devices/terminals with an increased level of granularity. Additionally there is a need for increased citizens' capacity to modulate the level and accuracy of the monitoring tools used by services (e.g. via cookies, positioning, tokens).

Scope:
Proposals are invited against one of the following sub-topics:
(a): Protecting citizens' security, privacy and personal data
Proposals should bring innovative solutions to personal data protection, develop new applications and technologies in order to help citizens to better monitor and audit their

security, privacy and personal data protection, enabling them to become more engaged and active in the fight against cyber, privacy and personal data protection risks.

(b): Small and Medium-sized Enterprises and Micro Enterprises (SMEs&MEs): defenders of security, privacy and personal data protection

Proposals should deliver innovative solutions to increase the knowledge sharing in digital security across SMEs&MEs and between SMEs&MEs and larger providers. The user SMEs&MEs should be supported by democratizing access to tools and solutions of varied sophistication level, to allow SMEs&MEs benefitting from innovative targeted solutions addressing their specific needs and available resources (currently reserved to larger organisations, due to their cost and availability of internal expertise).

Expected Impact:

Citizens and SMEs&MEs are better protected and become active players in the Digital Single Market, including implementation of the NIS directive and the application of the General Data Protection Regulation.

Security, privacy and personal data protection are strengthened as shared responsibility along all layers in the digital economy, including citizens and SMEs&MEs.

Reduced economic damage caused by harmful cyber-attacks and privacy incidents and data (including personal data) protection breaches.

Pave the way for a trustworthy EU digital environment benefitting all economic and social actors.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ds03-2019-2020;freeTextSearchKeyword=SU-DS03-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

43) Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and privacy attacks and data breaches

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 20.000.000   **Acronym:** SU-DS04-2018-2020

Description:
The Electrical Power and Energy System (EPES) is of key importance to the economy, as all other domains rely on the availability of electricity, hence a power outage can have direct impact on the availability of other services (e.g. transport, finance, communication, water supply) where backup power is not available or the power restoration time goes beyond the backup autonomy. With the transition to a decentralised energy system, digital technologies are playing an increasingly important role in the EPES: they contribute reducing the energy consumption; they enable the integration of higher shares of renewables and promote a more energy efficient system. At the same time, with the growing use of digital devices and advanced communications and interconnected systems, the EPES is increasingly exposed to external threats, such as worms, viruses, hackers and data privacy breaches. Without appropriate cyber-defence measures, systems access could be violated (e.g. with the

malware spreading over the system) and may cause power outages, damages and cascading effects to interconnected systems, and energy services. Therefore, with increased digitalisation, the EPES will face an increasing range of threats requiring an attentive evaluation of the cyber security risk that allows taking proper countermeasures.

Scope:
The proposals should demonstrate how the actual EPES can be made resilient to growing and more sophisticated cyber and privacy attacks and data breaches (including personal data breaches) taking into account the developments of the grid towards a decentralised architecture and involving all stakeholders. The proposals should demonstrate the resilience of the EPES through the design and implementation of adequate measures able to make assets and systems less vulnerable, reducing its expositions to cyberattacks. Different scenarios of attacks with the expected potential disruptive effects on the EPES should be envisaged and the relative counteracting measures should be designed, described, tested (sandboxing, simulations) on a representative energy demonstrator to verify effectiveness. Depending on the specific application, the proposal should apply measures to new assets or to existing equipment where data flows were not designed to be cyber protected (e.g. SCADA, ICS). The proposals shall implement the following series of activities to make the electric system cyber secure: (i) assessing vulnerabilities and threats of the system in a collaborative manner (involving all stakeholders in the energy components provision supply chain); (ii) on that basis, designing adequate security measures to ensure a cyber-secure system and describing the advantages of the solutions adopted compared to others and which aim to guarantee the level of cybersecurity and resilience vital for EPES in an evolving system; (iii) implementing both organisational and technical measures in representative demonstrator to test the cyber resilience of the system with different types of attacks/severity; and (iv) demonstrating the effectiveness of the measures with a cost-benefit analysis. The activities may include the testing of micro-grid and/or islanding as a means to reduce the vulnerability to cyber-attacks.
Expected Impact:
Built/increased resilience against different levels of cyber and privacy attacks and data breaches (including personal data breaches) in the energy sector.
Ensured continuity of the critical business energy operations and resilience against cyberattacks, including large scale, demonstrating effective solutions to a) the real-time constraints of an electric system, b) barriers to the cascading effect and c) the adaptation of legacy equipment or their coexistence with state of the art technology.
The energy sector is better enabled to easily implement the NIS directive.
A set of standards and rules for certification of cybersecurity components, systems and processes in the energy sector will be made available.
Cyber protection policy design and uptake at all levels from management to operational personnel, in the energy sector.
Manufacturers providing more accountability and transparency, enabling third parties monitoring and auditing the privacy, data protection and security of their energy devices and systems.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-ds04-2018-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

44) Human factors, and social, societal, and organisational aspects to solve issues in fighting against crime and terrorism

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 10.000.000   **Acronym:** SU-FCT01-2018-2019-2020

Description:
The free and democratic EU society, based on the rule of law, mobility across national borders, globalised communication and finance infrastructure, provides many opportunities to its people. However, the benefits come along with risks related to crime and terrorism, a significant number of which have cross-border impacts within the EU. Security is a key factor to ensure a high quality of life and to protect our infrastructure through preventing and tackling common threats. The EU must play its part to help prevent, investigate and/or mitigate the impact of criminal acts, whilst protecting fundamental rights. The consistent efforts made by EU Member States and the EU to that effect are not enough, especially when criminal groups and their activities extend far beyond national borders.

Scope:
The Lisbon Treaty enables the EU to act to develop itself as an area of freedom, security and justice. The EU Security Union is now in the building, and requires an EU-wide approach to security that integrates prevention, investigation and mitigation capabilities in the area of the fight against crime.
Proposed approaches need to rely on existing knowledge and to exclude approaches that have previously failed. The societal dimension of fight against crime and terrorism should be at the core of the proposed activities. Proposals should be submitted by consortia involving relevant security practitioners and civil society organisations, each under only one of the following sub-topics:
Sub-topic 1: [2018, 2020] New methods to prevent, investigate and mitigate trafficking of human beings and child sexual exploitation – and on the protection of victims
Globalisation and technological developments facilitate trafficking in human beings and child sexual exploitation. A variety of preventive measures, as well as measures to ensure adequate victim protection and assistance are needed, that build upon advances in social sciences and humanities.
Proposals in this subtopic should address both phenomena in a balanced way. They should ensure that the research focuses on prevention, investigation and/or assistance related to all victims of trafficking and not only addressing child trafficking. In the same way, the proposals should cover any area concerning prevention, investigation and/or assistance to victims of child sexual exploitation, not only the assistance to victims of child sexual exploitation resulting from trafficking.
Sub-topic 2: [2019] Understanding the drivers of cybercriminality, and new methods to prevent, investigate and mitigate cybercriminal behaviour
The Internet of Things, the ever increasing number of internet-connected devices, may pose substantial threats to (cyber)security since this fully connected world as well as the network itself have become a target for cybercriminals. The key challenge in this respect is to determine what the drivers of new forms of cyber criminality are and how they might be prevented and mitigated. The dissemination of "cybercrime-as-a-service" business models is an important enabler for crime and poses significant challenges to security. The increasing variety of such services, the modalities through which they are offered and the connections

with different criminal activities need to be investigated to understand their trends and thus to allow for prevention and law enforcement.

Sub-topic 3: [2020] Developing evidence-based approaches to evaluate and to further develop initiatives to prevent and counter violent radicalisation

The following issues are of particular interest: factors and pathways into radicalisation; factors influencing resilience to radicalisation, with a focus on groups requiring particular attention (such as children); the nexus between violent extremism and other forms of crime; violent extremism online (e.g., social media) and terrorist propaganda; evaluation and impact of counter-narratives and alternative narratives; how to address returnees, with a focus on children and women; dealing with extremists after their release from prison (and involving penitentiary services and legal authorities);gender and socio-economic aspects of radicalisation; challenges related to the lone actor phenomenon and evaluation of national and local prevent strategies. The objective of this sub-topic is not to support projects which cover all those issues. Proposals should therefore address one or more of the issues mentioned above. They should take into account the importance of a multi-disciplinary, multi-agency and multi-stakeholder approach.

Expected Impact:

Medium term:

Improved and consolidated knowledge among EU Law Enforcement Agencies officers on the issues addressed in this topic;

Exchange of experiences among EU Law Enforcement Agencies about human, social and societal aspects of security problems and their remedies;

Policy-making toolkits for security policy-makers, to support the establishment of a European Security Model;

Toolkits for EU Law Enforcement Agencies and/or civil society organisations, validated against practitioners' needs and requirements to facilitate their daily operations.

Long term:

European common approaches for assessing risks/threats, and identifying and deploying relevant security measures, which take into account legal and ethical rules of operation, cost-benefit considerations, as well as fundamental rights such as the rights to privacy, to protection of personal data and the free movement of persons;

Support towards the implementation of the European Security Union by strengthening the perception by citizens of the EU as an area of freedom, justice and security;

Advances through the cross-fertilisation of concepts resulting from the collision of different ways of thinking and of different approaches developed by various partners in the proposals.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-fct01-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

45)Technologies to enhance the fight against crime and terrorism

Types of action: RIA (Research and Innovation Actions)
Opening: 12 March 2020

Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 27.200.00   **Acronym:** SU-FCT02-2018-2019-2020

Description:
Organized crime and terrorist organisations are often at the forefront of technological innovation in planning, executing and concealing their criminal activities and the revenues stemming from them. Law Enforcement Agencies (LEAs) are often lagging behind when tackling criminal activities supported by advanced technologies.

Scope:
There is a growing need to focus on technology opportunities provided by new and emerging technologies. To this end, it is necessary to identify new knowledge and targeted technologies for fighting old, new and evolving forms of criminal and terrorist behaviour supported by advanced technologies. Challenges are numerous. In conventional investigations, rapid and near real-time forensics is often crucial for preventing subsequent attacks or crimes. A consequence of the increasing digitisation of society and ever increasing adoption levels is that virtually any type of crime has a digital forensics component, which is a challenge in itself. Money-flow tracking represents yet another challenge. The issues of location and jurisdiction need to be addressed, taking into account highly probable cross-border nature of such crimes.
Proposals should be submitted under only one of the following sub-topics:
Sub-topic 1: [2019] Trace qualification
Forensic analysis of trace material can be extremely helpful in the initial phase of investigation, if the answers are rapid (near real-time), at an acceptable cost and compliant with criminal justice. Novel robotized or automated tools for forensic analysis should be developed. There is a need for a better knowledge and interpretation of: trace composition, time when they were left, cause of their origin (crime-related or inoffensive), etc.
Proposers are encouraged to address how they contribute to the European Forensic Science Area.
Sub-topic 2: [2018-2019] Digital forensics in the context of criminal investigations
New forensic tools, techniques and methodologies are needed, based on common practices, standards, protocols and/or interoperability requirements that allow for rapid retrieval, storage, analysis and validation of digital evidence (including the one stored in the cloud) that upholds in court, and enables investigations to identify perpetrators as well as victims, in particular in cases of child sexual abuses. They should focus on data gathering, data exploitation, and speedy exchange of information. All types of crime, terrorist activities and propaganda, and malicious acts by foreign-state perpetrators are concerned. Research in this domain should take into account new and emerging trends (for instance, abuse of encryption for criminal or terrorist purposes), while fully respecting fundamental rights such as the right to privacy and the right to protection of personal data.
In 2019, proposals should focus on data gathering, classification and exploitation, as well as speedy exchange of information in the context of child sexual abuses investigations, taking into account main and emerging trends (for instance, intensive use of Peer to Peer network, anonymous activity on the Dark Web and abuse of encryption).
Sub-topic 3: [2020] Money flows tracking
Organized crime increasingly adopts technology (for example, pseudo-legal sales, shadow economy, internet/Darknet as well as cryptocurrencies) as a facilitator for preparation, organisation and execution of various physical/traditional criminal activities (e.g., child sexual abuse, trafficking of organs or human embryos, trafficking of human beings, trafficking of firearms, drug trafficking, money laundering and terrorism) and/or as a tool for online criminal activities (e.g., ransomware, domain-name piracy, phishing). Furthermore, there is a need for governing and detecting cross-border money flows with the potential to support terrorism, for reinforcing effective and legitimate public-private cooperation for the sharing of financial data, and for strengthening the effectiveness of current methods of

countering terrorism financing and of modelling abnormal transactions in the fight against terrorism.

Sub-topic 4: [2020] Development and deployment of technologies, tools and relevant infrastructure to identify speedily terrorist content online, and prevent its re-upload

To address the threat of terrorist content online, the Commission has adopted a proposal for a Regulation on 12 September 2018. Under the proposal a number of measures would be required to be taken by Member States (in particular law enforcement authorities)/Europol and hosting service providers. Hosting service providers from around the world (covering social media, cloud services, file sharing, etc.) offering their services to EU citizens would be required to put in place a certain number of measures, ranging from speedy reactive ones e.g. one hour deadline to remove or disable terrorist contents following a removal order from a Member State authority (considering that terrorist content is most harmful in the first hours of its appearance online) to proactive measures, including automated detection, in order effectively and swiftly to remove or to disable terrorist content and to stop it from reappearing and being disseminated once it has been removed.

Expected Impact:

Medium term:
Novel, user-friendly technologies, tools and/or systems, addressing traditional or emerging forms of crime and terrorism at acceptable costs;
Improved investigation capabilities, especially regarding quality and speed;
Increased efficiency and effectiveness of the information sharing among EU LEAs.
Long term:
Prevention/reduction of criminal and terrorist threats;
Hharmonisation of information formats at international level, improved cross-border acceptance and exchange of court-proof evidence, standardised evidence collection and harmonised procedures in the investigation of trans-border crimes in full compliance with applicable legislation on protection of personal data.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-fct02-2018-2019-2020;freeTextSearchKeyword=SU-FCT02-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

46) Information and data stream management to fight against (cyber)crime and terrorism

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 8.000.000   **Acronym:** SU-FCT03-2018-2019-2020

Description:
Large amounts of data and information from a variety of origins have become available to practitioners involved in fighting crime and terrorism. Full advantage is not currently taken of the most advanced techniques for Big Data analysis, and artificial intelligence.

Scope:

The amount of data generated and gathered in the frame of (cyber)crime investigations increases exponentially, thereby creating a considerable challenge for law enforcement. The effectiveness of law enforcement action depends on capabilities to improve the quality of data, and to convert voluminous and heterogeneous data sets (images, videos, geospatial intelligence, communication data, traffic data, financial transactions related date, etc.) into actionable intelligence. These capabilities could be significantly enhanced by the use of domain-specific tools, i.e. Big Data analysis applications designed for the needs of crime investigators (pre-processing, processing and analysis, visualisation, etc.). Furthermore, predictive analytics would greatly benefit from open source intelligence gathering, social network and darknet data analysis, and allow for resource-efficient, effective and proactive law enforcement.

Expected Impact:

Medium term:

Improved support for the work of Law Enforcement Agencies in managing Big Data, i.e. in extracting, combining, analysing and visualising large amounts of structured and unstructured data in the context of criminal investigations;

Increased awareness regarding the state of the art and trends in cybercriminal activities (short-, mid- and long-term);

In-depth knowledge of means of preventing and countering emerging and future cybercriminal activities;

Improved capabilities to combine and analyse in near-real-time large volumes of heterogeneous data to anticipate criminal events;

Shorter delays between the emergence of new cybercrime activities and the deployment of countermeasures.

Long term:

A European, common strategic approach for preventing and countering an emerging cybercrime activity in its early stage of development;

A European, common strategic approach for processing and combining huge amounts of data in the context of crowd protection in full compliance with applicable legislation on protection of personal data.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-fct03-2018-2019-2020;freeTextSearchKeyword=SU-FCT03-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

47)Chemicals: intelligence, detection, forensics

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 10.000.000   **Acronym:** SU-FCT04-2020

Description:
Criminals, including terrorists are constantly seeking new ways to develop, deploy and activate dangerous chemicals (explosives, neurotoxins, new drugs, etc.). The way in which such chemicals can be manufactured and combined evolve continuously, which makes the specialized work of law enforcement agencies (LEAs) and reference laboratories in this area a continuous challenge.

Scope:
Research needs to anticipate and match this challenge by increasing the knowledge about these threats; developing technologies to counter and respond to incidents with them, improving knowledge on these dangerous chemicals and increasing deterrence messaging whilst also recognising the need to minimise the inconvenience that security measures place on operators and users of public spaces.

Proposals have to demonstrate how they will effectively build on relevant previous H2020 projects and build synergies with on-going H2020 projects.
Expected Impact:

Short term:
Improved knowledge of dangerous chemicals and of their combinations;
Improved effectiveness of the supporting methods and techniques as well as of combinations of technologies used to prevent their use and to detect them before they are used;
Improved mitigation methods, including designing strategies and forensic tools.
Medium/Long term:
Contribution to improving public security;
Factual scientific contribution to policy-makers in order to allow them to make an informed decision;
Stronger involvement of practitioners in the field of counter-terrorist activities in making, assessing and selecting new tools and technologies through reliable management plans.
Improving the training of law enforcement officers in this field and the cooperation at local, national and international level.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-fct04-2020;freeTextSearchKeyword=SU-FCT04-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

This topic requires the active involvement of at least 3 Law Enforcement Agencies (LEAs) from at least 3 different EU or Associated countries. The duration of the proposed activities must not exceed 36 months.

48) Pan-European networks of practitioners and other actors in the field of security

Types of action: CSA (Coordination and Support Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 7.000.000   **Acronym**: SU-GM01-2018-2019-2020

Description:
In Europe, practitioners interested in the uptake of security research and innovation are dedicated to performing their duty and are focused on their tasks. In general, however, practitioner organisations have little scope to free workforces from daily operations in order to allocate time and resources to monitor innovation and research that could be useful to them. They have few opportunities to interact with academia or with industry on such issues. All stakeholders – public services, industry, academia – including those who participate in the Security Advisory Group, recognize this as an issue.

Scope:
Practitioners are invited to associate in 3 different categories of networks in the field security:
a. [2019-2020] Practitioners (end-users) in the same discipline and from across Europe are invited to get together: 1) to monitor research and innovation projects with a view to recommending the uptake or the industrialisation of results, 2) to express common requirements as regards innovations that could fill capability and other gaps and improve their future performance, and 3) to indicate priorities as regards areas requiring more standardisation. Opinions expressed and reported by the networks of practitioners should be checked against what can be reasonably expected, and according to which timetable, from providers of innovative solutions. In 2019, proposals are invited to address the specific area of handling of hybrid threats in line with the existing EU policy framework.
In 2020 proposals are invited to cover one of the two following options:
Option 1: security and intelligence services
The persistent terrorist threat is becoming increasingly diverse and complex. Emerging technologies add to the threat, but also provide opportunities. Security and intelligence services of EU Member States and Schengen partners are playing an important role to keep European citizens safe. European technological autonomy is particularly important in the field of intelligence. Intelligence and security services may have research needs that are different from law enforcement. Using tools based on cutting edge technology will be key to the performance of the services in the 21st century. Therefore, a network of practitioners from security and intelligence services of EU Member States, Associated Countries and, possibly, Schengen partners would be important to add this specific perspective to the identification of future research needs.
Option 2: fighting cybercrime
Several initiatives have been launched to identify existing gaps, and law enforcement authorities' needs in the area of cybercrime, to assess new threats and to develop roadmaps. This work has led to targeted research and development projects. However, in the area of cybercrime, technology and the threats scenarios evolve at such a pace that this work needs continuous updating. An accurate mapping of specific capacities in Member State authorities is still missing. Moreover, as cybercrime and crimes committed online happen without regard to borders it is necessary to identify as far as possible common challenges and solutions, so as to maximise the impact of available resources. As cybercrime investigations and digital forensics require specific expertise and tools (which are also needed for investigating crimes committed online in general), a dedicated network of practitioners, led by law enforcement experts, with a specific focus on cybercrime and more generally on the handling of digital evidence could therefore have a clear added value for assessing needs and gaps that can be tackled by capacity building including through research. In this context, the network could contribute to better prioritising and planning future EU funded research by: 1. Liaising with the relevant stakeholders in order to anticipate future capability needs and gaps in the field of fighting cybercrime; 2. Cataloguing, aggregating, processing and exploiting knowledge about current and future state of the art

of technologies which can contribute to filling the capability gaps; 3. Communicating relevant findings to the relevant communities thus providing the required feedback to the research cycle, as well as to other technological capacity building initiatives launched at EU or national level.
Expected Impact:

Medium term:
Common understanding of innovation potential, more widely accepted understanding, expression of common innovation and standardization needs among practitioners in the same discipline.
Greater involvement from public procurement bodies upstream in the innovation cycle.
More efficient use of investments made across Europe in demonstration, testing, and training facilities.
Long term:
Synergies with already established European, national and sub-national networks of practitioners, even if these networks are for the time being only dedicated to aspects of practitioners' work unrelated to research and innovation (in general, to the coordination of their operations).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-gm01-2018-2019-2020;freeTextSearchKeyword=SU-GM01-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

49)Strategic pre-commercial procurements of innovative, advanced systems to support security

Types of action: CSA (Coordination and Support Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: € 24.000.000   **Acronym:** SU-GM02-2018-2020

Description:
Innovative solutions are needed when resources from different countries are required to work more closely together. Such solutions should support the development of the EU's Security Union.

Scope:
Sub-topic 1: [2018] Common requirements specifications for innovative, advanced systems to support security (CSA)
Practitioners from several countries are invited to work on common requirements of any kind of system that they may need in the future to enhance border and external security, to fight against crime and terrorism, to protect infrastructure, or to make societies more resilient, and to involve their respective procurement bodies in preparing for future acquisitions. Practitioner organisations may be private or public entities.

To ensure that the outcome of this action becomes also available to EU Member State national authorities as well as EU agencies not participating for further procurement purposes, proposals must necessarily state:

(1). Agreement from participating procurement authorities to negotiate, in good faith and on a case-by-case basis, with non-participating procurement authorities that wish to procure a capability or a product fully or partly derived from this action, the use of the information required to run such a procurement process, and solely for that purpose.

(2). Commitment from participating procurement authorities to consult with any legal entity generating information to be released for the purpose set out in paragraph (1), unless contrary to applicable legislation.

(3). Commitment from participating procurement authorities to negotiate the use granted under paragraph (1) on Fair Reasonable and Non-Discriminatory (FRAND) terms.

Sub-topic 2: [2020] Procurement of prototype systems among those specified as a result of Sub-topic 1 (PCP)

The Commission invites practitioners involved in projects funded under Sub-topic 1 to submit proposals for this PCP stage based on requirements resulting from those projects.

Phase 1: To finalise the tendering documents package for a call for tenders to build security-relevant prototypes based on the technical input resulting from Sub-topic 1 of this Topic. To define clear verification and validation procedures, methods and tools for the evaluation of the prototypes to be developed throughout the PCP stages;

Phase 2: To implement the call for tenders for research and development services. The call for tenders should envisage a competitive development composed of different stages that would lead to at least 2 prototypes from 2 different providers to be validated in real operational environment at the end of the PCP cycle;

Phase 3: To conduct the competitive development of the prototypes following the PCP principles including, at least, a design stage, an integration and technical verification stage and a validation in real environment stage. This process should be assessed following the procedures for verification and validation defined in the Phase 1;

Phase 4: To consolidate the results of the evaluation of the developed prototypes, extract conclusions and recommendations from the validation process, and to define a clear strategy for the further uptake of solutions. This strategy should consider joint-cross border procurement schemes and exploit synergies with other EU funds.

Expected Impact:

Short term:

Common requirements for innovative prototypes agreed among the practitioner organisations involved in the action;

Technical tender documents ready for use by subsequent pre-commercial procurement actions, as well as by non-participating procurement authorities;

Common solutions to address urgent security challenges jointly developed, integrated and valuated;

Potential demand for security solutions, inspired by those developed, is aggrevated.

Medium term:

To develop common technical specifications and reference performance levels for joint EU security solutions;

To pave the road to market for technically mature and operationally relevant solutions and to accelerate their wide deployment in the EU.

Long Term:

To contribute to narrowing down the gap between research and the market for the next generation of security solutions;

To contribute to a single EU security market, by reducing market fragmentation and allowing exploitation of economies of scale;

To facilitate access of new innovative players to the public procurement market;

To contribute to reinforcing the competitiveness of the EU technology and industrial base.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-gm02-2018-2020;freeTextSearchKeyword=SU-GM02-2018-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

50) Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe

Types of action: IA (Innovation Actions)
Opening: 12 March 2020
Deadline: 27 August 2020 17:00:00 Brussels Time
Budget: €24.000.000   **Acronym:** SU-INFRA01-2018-2019-2020

Description:
Disruptions in the operation of our countries' critical infrastructure may result from many kinds of hazards and physical and/or cyber-attacks on installations and their interconnected systems. Recent events demonstrate the increase of combined physical and cyber-attacks due to their interdependencies. A comprehensive, yet installation-specific, approach is needed to secure existing or future, public or private, connected and interdependent installations, plants and systems. Budgetary constraints on both the public and private sectors mean that new security solutions must be more accurate, efficient and cost-effective, and possibly more automated than the ones currently available.

Scope:
Proposals should cover: forecast, assessment of physical and cyber risks, prevention, detection, response, and in case of failure, mitigation of consequences (including novel installation designs), and fast recovery after incidents, over the life span of the infrastructure, with a view to achieving the security and resilience of all functions performed by the installations, and of neighbouring populations and the environment.

They should:
(a) assess in detail all aspects of interdependent physical (e.g. bombing, sabotage and attacks with a variety of weapons against installations, buildings and ships; plane or drone overflights and crashes; spreading of fires, floods, landslides, disastrous consequences of global warming, seismic activity, space weather, combined threats, etc.) and cyber threats and incidents (e.g. malfunction of SCADA system, non-authorised access of server, electronic interference, distributed attacks), and the cascading risks resulting from such complex threats,
(b) demonstrate the accuracy of their risk assessment approach using specific examples and scenarios of real life and by comparing the results with other risk assessment methodologies,
(c) develop improved real-time, evidence-based security management of physical and cyber threats, taking account of the ageing of existing infrastructure, and

(d) provide scenarios and recommendations for policy planning, engagement of the civil society, and investment measures encompassing all aspects of prevention-detection-response-mitigation

Expected Impact:

Short term:

State-of-the-art analysis of physical/cyber detection technologies and risk scenarios, in the context of a specific critical infrastructure.

Analysis of both physical and cyber vulnerabilities of a specific critical infrastructure, including the combination of both real situation awareness and cyber situation awareness within the environment of the infrastructure.

In situ demonstrations of efficient and cost-effective solutions to the largest audience, beyond the project participants.

Medium term:

Innovative (novel or improved), integrated, and incremental solutions to prevent, detect, respond and mitigate physical and cyber threats to a specific Critical Infrastructure.

Innovative approaches to monitoring the environment, to protecting and communicating with the inhabitants in the vicinity of the critical infrastructure.

Security risk management plans integrating systemic and both physical and cyber aspects. Tools, concepts, and technologies for combatting both physical and cyber threats to a specific critical infrastructure.

Where relevant, test beds for industrial automation and control system for critical infrastructure in Europe, to measure the performance of critical infrastructure systems, when equipped with cyber and physical security protective measures, against prevailing standards and guidelines.

Long term:

Convergence of safety and security standards, and the pre-establishment of certification mechanisms.

Secure, interoperable interfaces among different critical infrastructures to prevent from cascading effects.

Contributions to relevant sectorial frameworks or regulatory initiatives.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/su-infra01-2018-2019-2020;freeTextSearchKeyword=SU-INFRA01-2018-2019-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

INDUSTRIAL LEADERSHIP:

51) Upscale the production of bio-based platform molecules for larger market applications

Types of action: Bio-based Industries Innovation action – Demonstration
Opening Date: 14 April 2020
Deadline Date: 03 September 2020 17:00:00 Brussels Time.
Budget: € 104.682.972, 32   **Acronym**: BBI-2020-SO2-D3

Description:
The specific challenge is to upscale the production of bio-based platform molecules in sufficient quantities and at sufficient quality to promote their larger application in new and existing markets.

Scope:
Demonstrate the sustainable production of specific bio-based platform molecules at quantities exceeding pilot-plant limits, so these molecules can be further processed for identified or newly emerging market applications.
The scope of this topic includes feedstock from any source: agricultural, food processing, forestry, marine, aquatic, fish processing, bio-waste, or any combination of these.
The scope of this topic excludes bio-based platform molecules that are currently already produced in Europe competitively, at commercial levels and in sufficient quantities, or that are the object of other BBI JU projects.
Proposals must focus on applications with added value that is greater than the added value the feedstock would have if used for energy or heating.
Environmental Impacts:
Reduce greenhouse gas (including CO_2) emissions (expressed in CO_2 equivalents) linked to the production process of the targeted platform molecules compared with existing alternatives;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.
Economic Impacts:
Increase revenues and business opportunities for the stakeholders in the involved primary sector(s).
Social Impacts:
Create new job opportunities in the bio-based sector in rural, coastal and/or urban areas and contribute to their development;
Increase the competitiveness of European biomass producers and the bio-based industry by supporting new jobs, growth, and investment, while ensuring environmental sustainability and an increase in local biodiversity.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so2-d3

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

52) Use enabling technologies to improve feedstock availability and sustainability for the bio-based industry

Types of action: Bio-based Industries Innovation action – Demonstration
Opening Date: 14 April 2020
Deadline Date: 03 September 2020 17:00:00 Brussels Time.
Budget: € 104.682.972, 32   **Acronym:** BBI-2020-SO2-R1

Description:
Bio-based operations often deal with variable or even unpredictable conditions (e.g. weather, geographical differences, pathogens) affecting the overall resource efficiency of the targeted value chains. Proper planning of bio-based operations must take into account multiple inputs on soil conditions, biodiversity, logistics, resources management, etc. There are many enabling technologies that promote smarter, safer, more efficient and more environmentally friendly bio-based value chains. These technologies include: 'big data', geographic information systems, sensors, artificial intelligence, the internet of things, and prediction algorithms. The technologies can also assist the bio-based industry to better evaluate quality and availability of (residual) biomass as feedstock for bio-based operations. Consequently, the bio-based industry can better plan its feedstock supply and align its operational steps accordingly.The technologies mentioned above will also help bio-based operators to adapt and fine-tune the technological steps in pre-treatment, conversion and downstream processing.The specific challenge is to increase biomass availability, resource efficiency and sustainability for the bio-based industry through enabling (advanced and innovative) technologies.

Scope:
Efficiently integrate enabling technologies into bio-based operations to optimise value chains from a technical, economic, social and environmental point of view.

Proposals must deliver a logistical and technological scheme that will increase the supply of suitablequality feedstock to optimise bio-processing operations throughout the year. The scheme will also lower biomass losses from feedstock supply through the processing stages of the value chain; and allow a longer storage time before processing through more efficient pre-treatment steps and storage methods to better preserve the valuable components.
Environmental Impacts:
Reduce greenhouse gas (including CO_2) emissions (expressed in CO_2 equivalents) in transport by at least 30% as a result of improved logistics and processing;
Reduce raw-material loss by at least 20% as a result of more efficient logistics and processing;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.
Economic Impacts:
How the potential of enabling technologies for reducing raw-material transportation costs by at least 20% when applied at large scale;
Increase resource- and operational efficiency;
Show the potential of enabling technologies for increasing income opportunities for biomass producers and other stakeholders involved in the supply chain when these technologies are applied in value chains operating at commercial level.
Social Impacts:
Show the potential for creating new job opportunities in the bio-based sector in rural, coastal and/or urban areas with successful project results;

Show that adequate enabling technologies can improve the integration of digital applications and human activities;

Show that adequate enabling technologies can increase the safety and efficiency of field operations.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so2-r1

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

53) Develop integral fractionation of lignocellulose to produce components for high-value applications

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 15 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO2-R2

Description:
Lignin and hemicellulose are mostly treated as low-quality, low-value side streams of lignocellulose fractionation. However, both lignin and hemicellulose are some of the most abundant raw materials — and a potential feedstock — for the bio-based industry. They could play a crucial role in promoting the regional supply and refinement of sustainable biomass feedstock for both existing and new value chains. Several high-value and moderate-value applications of lignin and hemicellulose have already been demonstrated. And both lignin and hemicellulose are potentially already available in large quantities from existing operations. However, it remains a challenge to raise their quality to suitable levels for further processing in an affordable resource-efficient way. To do so, it will be necessary to identify specific, sustainable and economically attractive applications. It will also be necessary to specify the required quality aspects of lignin and hemicellulose to help promote commercialisation.For example, lignin has enormous potential as a feedstock for aromatics. However, turning it into a feedstock for bio-aromatic value chains requires chemical reactivity for further processing. Technologies to convert hemicellulose are advancing. Some of these technologies use conversion methods such as fermentation. However, the feedstock must be of adequate quality, and further developments in yeast strains able to transform hemicellulosic sugars are needed. Moreover, new high-volume applications are essential to create a large enough outlet for the large stream of hemicellulose becoming available. Industry is interested in using both lignin and hemicellulose as feedstock for new bio-based value chains.The specific challenge is to break up lignocellulose into its components to create value for most of all fractions (not only cellulose) in identified applications.

Scope:
Develop integral processing technologies to fractionate lignocellulose and deliver

components of sufficient quality to be transformed into established or newly emerging high-value applications.

The scope of this topic focuses on the development of an integral fractionation process to produce good-quality cellulose (the main product) and lignin and hemicellulose (the by-products) for established or newly emerging market applications. The scope excludes processes that create ethanol as an end-product.

In addition to the separation of high-quality cellulose, proposals must also include the separation and purification of lignin and hemicellulose to a sufficiently high quality so they can be turned into intermediates or end-products. The developed processes must be designed so that they can be readily scaled up.

Environmental Impacts:

Reduce greenhouse gas (including CO_2) emissions (expressed in CO_2 equivalents) in the envisaged value chain by at least 20%;

Achieve an increase in energy efficiency of at least 20% by the new separation techniques compared with traditional separation techniques;

Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.

Economic Impacts:

Increase the total economic value of the end products from lignocellulose processing by at least 20%;

Reduce separation costs by at least 20% compared with the state of the art.

Social Impacts:

Show the potential for creating new job opportunities in the bio-based sector in rural, coastal and/or urban areas and in the forestry sector with successful project results.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so2-r2

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

54) Extract bioactive compounds from new, under-exploited and/or recalcitrant residual bio-based streams for high-value applications

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 15 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO2-R4

Description:
There is a strong continuing interest in obtaining high-value, sustainable, bio-based ingredients from new and alternative sources. These sources include under-exploited, 'recalcitrant' (i.e. requiring innovative processes/technologies to handle) side streams containing bioactive compounds with high market potential. Currently, there is great demand for bio-based bioactive compounds in market sectors such as food, feed, performance chemicals, cosmetics, nutraceuticals, pesticides and pharmaceuticals. This trend is driven

by consumer demand for functional products with ever-better performance, and for 'natural' and sustainable products.Extracting bioactives from diverse sources brings challenges. These challenges include finding appropriate methods for the pre-treatment, handling and processing of raw materials and for properly characterising their diverse bioactive contents. In addition, the extraction processes themselves should be environmentally sustainable and economically viable while simultaneously preserving the functions and qualities of the targeted compounds.The specific challenge is to develop appropriate processing schemes to extract bioactives from new, under-exploited and/or recalcitrant residual streams so they can be used in high-value-added applications.

Scope:
Develop suitable processing schemes to extract and process bioactive compounds from new, underexploited and/or recalcitrant side streams.
The scope of this topic includes new, under-exploited and/or recalcitrant side streams from various sources. These sources can be agricultural, food-related, forest-based, marine, aquatic, fish-based, biowaste-based, or any combination of these.
Environmental Impacts:
Widen the feedstock portfolio for the selected application(s);
Improve resource efficiency through the smart use of residual bio-based streams;
Reduce the amount of bio-based residual streams routed to incineration, landfill or aquatic/other discards;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossil-based material with bio-based, renewable material.
Economic Impacts:
Make use of low-cost raw materials;
Reduce reliance on high-cost and scarce protein-rich resources, such as fish oil and meal.
Social Impacts:
Set the foundation for creating new job profiles and additional green jobs when project successful results are scaled up into new value chains operating at commercial level;
Set the basis for new business opportunities for primary sector actors, thus contribute to rural/coastal development.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so2-r4

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

55) Demonstrate superior bio-based packaging solutions with minimal environmental damage

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym**: BBI-2020-SO3-D4

Description:
Packaging is key to sustaining the quality and durability of consumer and industrial products through their lifespan. Today, most packaging materials are fossil-based and may cause environmental problems at the end of their life cycle if not properly managed.For example, oxo-plastics (also called oxo-degradable plastics) are used in agricultural films, rubbish bags, carrier bags, food packaging and landfill covers.However, they break down into very small particles, potentially contributing to environmental (soil, marine, air) contamination by microplastics.And not all biodegradable packaging materials disintegrate quickly enough to avoid becoming marine litter or contaminating the soil.With its 2018 plastics strategy, the European Commission has laid out plans to: make all plastic packaging on the EU market recyclable by 2030; reduce single-use plastics; and restrict the intentional use of microplastics. Products made from oxo-degradable plastics will be banned from the EU market from July 2021.Industry can develop and produce bio-based packaging materials that enable better functional performance than their fossil-based counterparts. This improved performance can be improved gas barrier functionality; longer shelf lives for food-packaging applications; and better consumer safety features. In addition, bio-based packaging materials can be made reusable or recyclable in applications that demand recyclability for a sustainable end-of-life.

Scope:
Produce innovative, high-performance bio-based packaging material with sustainable end-of-life properties at demonstration level, the performance of which is superior to fossil-based alternatives and to existing bio-based material such as paper
They must produce superior, reusable or recyclable, bio-based plastic solutions for a specific application that demands reusability or recyclability as the best end-of-life option to prevent environmental damage. The targeted bio-based plastic solutions must be integrated in a circular value chain operating at demonstration level.
Environmental Impacts:
Minimise landfill or incineration of the packaging material after use;
Reduce greenhouse gas (including CO_2) emissions (expressed in CO_2 equivalents) in the overall value chain compared with the state of the art;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.
Economic Impacts:
Lay the basis for market-acceptable production costs of the targeted bio-based products;
Increase business opportunities for new, innovative and sustainable packaging solutions that have no negative impact on the environment.
Social Impacts:
Create new job opportunities in the bio-based sector in rural, coastal and/or urban areas;
Increase the competitiveness of European biomass producers and the bio-based industry by supporting new jobs, growth, and investment, while ensuring environmental sustainability and an increase in local biodiversity.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so3-d4

How to apply:
Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

56) Improve the sustainability of coatings

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO3-R5

Description:
Coatings are widely used in many applications, such as in glass, concrete, metal and furniture. Depending on the specific performance required by the intended applications, coatings must serve different purposes. These purposes include preventing reflectivity, self-cleaning, protection, waterproofing, fire resistance, anti-corrosion, insulation and anti-fouling.Because of this diverse and expanding range of requirements, people increasingly demand sustainable coatings. As part of this development, producers are introducing bio-based alternatives in coating formulations, replacing fossil-based compounds. Some of these fossil-based compounds (e.g. some solvents) present potential health risks to humans.The **specific challenge** is to substitute fossil-based compounds in coatings with bio-based alternatives, while ensuring that the performance of the coating is at least identical to the traditional coating.

See e.g. https://www.uscoatings.com/blog/water-based-coating-vs-solvent-based-coating/

Scope:
Develop fully or partly bio-based coatings that guarantee at least all required performances of the intended applications.

Proposals should develop at least one coating that can be: (i) tested in specific applications; and (ii) perform better than the baseline of existing coating formulations. Proposals should also address possible end-of-life scenarios for products in these application fields, including potential for recycling.
The scope of this topic includes the possibility of substituting traditional additives with enzyme-based additives.
Proposals should include test results of the developed coating formulations to prove their benefits.
The scope of this topic includes: (i) physical changes for the targeted coatings; and (ii) microorganisms and bio-based molecules as bio-based components for the targeted coatings.
Proposals must include proof of the biological, chemical and mechanical stability of the coatings. For proposals that use microorganisms, this proof must pay particular attention to the control of microbial growing conditions, for example in humid environments.
Proposals should also include considerations about the safety of consumers and end-users of the targeted final application for the developed coatings. Any potential hazards associated with the developed processes and products should be analysed to check that the products will comply with EU legislation on chemicals risk management, toxicity and safety requirements.
Environmental Impacts:
Reduce greenhouse gas (including CO_2) emissions (expressed in CO_2 equivalents) linked to the production of coatings for the intended applications, compared with fossil-based alternatives used for the same targeted applications;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.
Economic Impacts:

Pave the way to the marketability of new coating formulations with at least 25% bio-based content;
Show with documented experimental validation that the performance of the new, sustainable coatings is at least comparable with fossil-based counterparts in the target application(s).
Social Impacts:
Show the potential for creating new job opportunities in the bio-based sector in rural, coastal and/or urban areas with successful project results.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so3-r5

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

57) Help start-ups and spin-offs to gain access to finance

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO4-S1

Description:
Start-ups and spin-offs, both young, innovative and entrepreneurial, often face big hurdles in attracting investors, or using financial instruments to help finance their business plans. They find it especially challenging in bio-based industries, as the hurdles to success are high, and investors find it more difficult to judge the associated risks. These risks are different compared with more familiar sectors like e.g. the digital sector. Entrepreneurs in the bio-based industry must cross extra hurdles to attract investors and become independent as soon as possible.One of the ways to overcome these hurdles is by seeking out networking opportunities through suitable organisations, clusters [1] and platforms. These opportunities can bring start-ups and spin-offs into contact with large enterprises, regional clusters, open-innovation scale-up facilities, reference customers and other market actors. This will make start-ups and spin-offs more visible, allowing them to secure financing from the contacts them made.The **specific challenge** is to help start-ups and spin-offs to improve their networking activities with relevant stakeholders and help to improve their business case and to gain access to funding opportunities in the bio-based sector.

Scope:
Explore and quantify the needs of start-ups and spin-offs in the bio-based sector for specific

financial and business advice. Explore also the feasibility of meeting these needs by an interactive platform or any other adequate system.

Proposals must develop and validate a methodology to qualify and quantify the needs of start-ups and spin-offs. On this basis, proposals must evaluate the interest of the spin-offs and start-ups to interact with potential partners and investors. And similarly, proposals must evaluate the interest of expert companies, organisations and investors to interact with start-ups and spin-offs.
Proposals must show that the envisaged platform or system will bring start-ups and spin-offs in contact with potential partners across networks and with a large geographical reach.
Proposals should build on completed and running projects, such as networks of pilot plants [2] or other projects designed to facilitate access to financing.
Proposals must connect with all available financing instruments on a European level, including relevant regional instruments. Proposals must also describe how they plan to complement the ongoing activities of bodies such as the European Innovation Council, the Circular Bioeconomy Investment Platform, and the Enterprise Europe Network.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so4-s1

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

58) Provide insight on emerging technologies for bio-based value chains

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO4-S2

Description:
Not all actors in the bio-based sector may be aware of or familiar with the existing and emerging technologies that could be used in bio-based value chains. Moreover, technologies are continuously evolving, and new technologies emerge so frequently that industry can hardly keep up. Without a clear overview of relevant technologies for specific applications, selecting the right one(s) for a particular value chain becomes difficult. Mapping these technologies in a user-friendly database could resolve this situation and provide toolboxes for various cases. Such a database should categorise each technology by its characteristics: application fields, feedstock (e.g. source, size, and composition), working principle (e.g. chemical, biotechnological, mechanical), maturity (TRL), energy consumption,

maximum capacity (tonne/hr), application conditions (e.g. temperature, pH), combined use with other technologies, relevant engineering studies, etc.It would also be relevant to include information on: organisations that are active in the development and licensing of the technology; where laboratory/pilot facilities are available; capital and operational costs; competing technologies; etc.The specific challenge is to provide a complete overview of relevant technologies for the bio-based industry, both existing and emerging.

Scope:
Explore and quantify the expressed needs of actors in the bio-based sector for a user-friendly database of relevant technologies categorised by area of application and meet these needs with a well-maintained database that is accessible to everybody.

The results of a first study on demand and feasibility will determine possible next steps. One possible next step could be the implementation of such a database if there is enough interest in it and if there is commitment to maintain the database. Another next step could be to carry out a feasibility study for other application areas (value chains), and possibly also for bio-based products.

Proposals must therefore determine the feasibility of such a database. They must also estimate costs and the time it will take to set up, launch and — in particular — maintain it once the project has ended for a period of at least 10 years. Proposals must include a governance structure to maintain the database and keep it up to date by adding new information and correcting the database as new developments of technologies proceed.

Expected Impacts:

Increase the efficiency of actors in the bio-based sector in finding and selecting the best technologies to improve and scale up their bio-based concepts;
Increase business opportunities for actors in the bio-based sector through interaction with others when using the database;
Improve bio-based processes and services by finding and applying the best technologies.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so4-s2

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

59) Create and interlink bio-based education centres to meet industry's needs of skills and competences

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO4-S3

Description:
Due to its cross-sectoral nature and (relative) novelty, the bio-based industry requires a set of skills and competencies that are not available in some regions, but that are available — and taught — in certain academic and vocational schools.Part of the process of closing the skills gap is increased cooperation between industry and the academic world. In some countries and regions, there is already interaction between the bio-based industry, academia and government. This cooperation occurs in training or innovation centres that mostly focus on joint projects or initiatives. In some regions, these centres also have education projects to meet industry's future needs for skills, and to meet the training needs of the existing workforce. The existing centres typically focus on their regional situation and needs, benefiting local SMEs in particular. There is very little coordination between existing centres.Industry would like bio-based 'education centres' to interact with education institutions on the skills that will be needed in the future, and on the skills that are needed by the existing workforce. Also, although regional centres focus on local needs, connecting these centres to each other will help them to draw up a common framework of standards and skills that could be tailored for local application. Increasing interaction in this way will also benefit the society at large and the bioeconomy in general.The **specific challenge** to increase cooperation between the bio-based industry and the education system to avoid skills and competences gaps.

Scope:
Determine the criteria and conditions for bio-based education centres to create dynamic ecosystems that include industry, education institutions, governments, and society. These ecosystems should operate at local, regional and/or national levels.

The scope of this topic includes specifying the need for these centres and testing their feasibility as regards their design, setting-up, running and maintaining, always together with the envisaged partners.
The scope does not include the actual setting up of such an education centre and running it.
Expected Impact:
Regularly align the needs for skills and availability of skills through consistent interactions between the bio-based industry and educational institutions at local, regional, national and European levels;
Prevent skills gaps in the bio-based industry;
Maintain industrial activities and provide jobs and income for local communities;
Provide education and learning opportunities for community members and increase their employability;
Provide early insight into career opportunities for graduates at vocational and university levels;
Provide opportunities to educate citizens (consumers, politicians, researchers, industry, etc.) on bio-based activities and sustainability.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so4-s3

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

60) Expand circular economy to include the underexploited circular bioeconomy

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO4-S4

Description:
The circular economy aims to maintain the value of products, materials and resources for as long as possible by returning them into the product cycle at the end of their use, while minimising the generation of waste. The bioeconomy covers all sectors and systems that rely on biological resources (animals, plants, microorganisms and derived biomass, including organic waste), their functions and principles. The circular economy is a concept that has been promoted for more than 20 years. It brings together many interest groups, including stakeholders from the processing industry, waste management industry, recycling industry and others. In the early 1990s, several European countries began passing waste-related laws and regulations, which prompted the European Waste Framework Directive in 2008. New EU waste rules approved in May 2018 require more rigorous enforcement of the waste hierarchy and introduce new requirements for waste management in the European Union. With the bioeconomy becoming a reality, new interests have come into play, such as those focused on making use of waste streams or residual streams that so far have not been used, or that have only been used for burning as fuel. This emergence of new interests can lead to potential conflicts of interests or at least to divergences of views as regards strategies to adopt.

Scope:
Gain insight into EU, national and regional regulations on waste management; map the interests of different stakeholders in this field; and bring these stakeholders together to recommend steps to support the circular bioeconomy.

The scope of this topic includes 'bio-based waste': residual streams that could serve as feedstock for the bio-based industry. Waste-water sludges are excluded from this topic. Proposals must analyse whether and how EU waste directives and regulations/policies on the circular economy are implemented on a Member State level [7]. They need to take into account that national and regional regulations differ. They may use successful national/regional regulations as best practices. Proposals must analyse whether industry is already adapting to these regulations, and if so how and where they are adapting. Proposals must analyse where bio-based products or processes can benefit from these regulations. Proposals should identify regulatory hurdles for circular use of bio-resources.
Expected Impacts:

Align the bio-based industry's R&I with relevant regulation, enabling especially SMEs without large in-house strategic departments to achieve pan-European value chain integration and market reach;

Help bio-based industry to align R&D&I with relevant regulations, and especially help SMEs without large in-house strategic departments to achieve pan-European value chain integration and market reach;

Inform policy makers and stakeholders from different areas about non-technological hurdles;

Provide advice to policy makers on key hurdles presented by new regulation and on opportunities for supporting EU goals;

Prevent knowledge gaps on regulation hindering the market entry of bio-based processes and products;

Provide opportunities for early-stage projects to evaluate their business case against current and upcoming regulations;

Help bio-based alternatives to take advantage of the regulatory framework to prove their superiority to fossil-based solutions.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so4-s4

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

61) Resolve supply-chain hurdles for turning residual waste streams into functional molecules for food and/or non-food market applications

Types of action: Based Industries Innovation action – Demonstration
Opening: 16 April 2020
Deadline: 28 July 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO1-D1

Description:
Residual streams from various industries contain functional molecules that could be used for food and non-food market applications. The functions of interest depend on the intended use of the final products that operators intend to make with the targeted molecules. Residual streams are any streams that are not main products of an industrial operation and are disposed of at low or no value. They include residues from the agricultural, livestock, marine, aquatic, fisheries, food processing, forestry and forest-based industry sectors.Today, most of these residual streams either find low-value applications that are mainly based on their calorific content (i.e. they are used as fuel), or they are not used at all, often because of supply-chain constraints. The supply-chain constraints could be due to a variety of reasons,

including: (i) the relatively long distances between where the residues are generated and where they can be processed; (ii) the low density and/or high water content of the residues; (iii) the capacity of available processing units exceeding available local feedstock. It is crucial that the functional molecules from these residual streams be separated in a way that is cost-efficient, energy-efficient and eco-efficient. This will mean that these molecules can be made available for subsequent use in higher-value applications, which will provide significant employment and income opportunities for the primary sectors and may improve the commercial sustainability of existing processes. Fully enjoying the opportunities of these functional molecules will only be possible if the availability of the residual streams can be maximised by resolving any supply-chain constraints. Various technologies exist to separate and convert the functional molecules from residual streams into high added-value intermediates and products.

Scope:
Create and integrate a sustainable supply-chain system into a value chain that is capable of using available or new technologies to use functional molecules in residual streams in high-value food and/or non-food applications.

The scope of this topic includes all necessary steps to collect, transport and store the residual streams being targeted at the processing site. These steps could include pre-treatment actions if they are necessary to transport and/or store any of the targeted residual streams. The quantities, qualities and physical original physical locations of these streams determine the optimal location and size of the operational site that they integrate into. The operational sites can be either centralised large-scale biorefineries, or small/medium-scale processing units, or a combination thereof.

Proposals must be suitable for direct acceptance and implementation by farmers, foresters or fishers, depending on the supply chain addressed. Proposals therefore need to include these actors in the related primary sector as strategic partner(s) leading the value chain. The involved primary producers should participate in the design of the value chain and benefit from its results. In order to increase the participation of primary producers, it is recommended to promote the participation of relevant cooperatives as members of the consortium, as well as to foster the role of advisors or innovation brokers to support ('speak on behalf of') primary producers during the project implementation. Proposals should consider establishing an advisory board of primary producers that collaborates with the consortium by advising on and measuring the impact of the project.

Environmental Impacts:
Reduce overall CO_2 emissions in the value chain by 20%, including from road transport where applicable;
Reduce landfill in the region of the selected processing location;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossil-based material with bio-based, renewable material.

Economic Impacts:
Extract at least 50% more value from the residual streams compared with the state of the art;
Produce at least one B2B or B2C product in sufficient quantities to allow validating the value chain.

Social Impacts:
Create new job opportunities in the bio-based sector in rural, coastal and/or urban areas;
Contribute to social development in the related primary sector(s) (e.g. rural, forest or coastal development) by adding new value-chains and by creating sustainable, high-tech jobs supported by educational and training steps as needed.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so1-d1

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

62)Valorise the organic fraction of municipal solid waste through an integrated biorefinery at commercial level

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 14 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32 **Acronym:** BBI-2020-SO1-F1

Description:
The organic fraction of municipal solid waste (OFMSW) presents an important feedstock for biorefining to convert it into valuable compounds for applications in a variety of market segments. However, this precious feedstock is often perceived as a challenge for urban agendas, due to its potential pressure on the environment and human health. Together with other waste streams, the OFMSW is often used for energy recovery or sent to landfill. This pre-empts exploiting its potential for valuable products achievable in cascading operations. Aerobic (composting), anaerobic digestion and energy recovery processes on the OFMSW have been able to reduce this fraction going to landfill. However, these processes mainly result in low-value products such as compost, biogas and digestate, and incineration of valuable resources.Building on earlier projects on OFMSW, industry is ready to scale up the total value chain to a first-ofa-kind biorefinery at commercial level. Successful operation at this level will start to realise a better exploitation of the potential of the OFMSW in Europe.The **specific challenge** is to sustainably scale up the conversion of OFMSW into added-value products to commercial levels.

Scope:
Produce large-scale added-value end products from the OFMSW for identified market applications in a successfully operating, first-of-its-kind biorefinery.

This topic excludes proposals having compost, digestate, biogas, methane or biofuels as the main products. It also excludes proposals having OFMSW sub-streams (such as food-processing waste, food waste from hotels, restaurants and the catering industry) as the main part of the feedstock for biorefining.
If applicable, the OFMSW may be mixed with municipal wastewater sludge, but keeping the OFMSW as the main fraction. Complex and heterogeneous municipal solid waste must be the main feedstock addressed by proposals.
The activities of this biorefinery must be included in a strategy for the valorisation of the OFMSW resources of the area where the biorefinery is operating. In particular, projects should realise a biorefinery that is integrated in the existing territorial waste management schemes and policies, involving all relevant stakeholders from the public and private sectors, and seek to improve and optimise current waste management schemes and practices in the subject territory.
Environmental Impacts:
Increase the overall resource efficiency;

Reduce quantities of OFMSW routed to landfill and incineration as compared with relevant business cases identified as benchmarks;
Reduce greenhouse gas emissions.
Economic Impacts:
Increased added-value to bio-based products resulting from underutilised feedstocks;
Increase income and business opportunities for stakeholders and actors in the bio-based sectors, in particular in the collecting, management and treatment of OFMSW.
Social impacts:
Create new job opportunities in the bio-based sector, particularly the rural and/or urban areas;
Retain and/or develop new skills.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so1-f1

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

63) Develop bio-based solutions to recycle composites

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 15 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO2-R3

Description:
The full recyclability of composites through the effective separation and recovery of their components is still an issue. This is mainly due to the adhesives used to bind the different layers and materials together. The fossil-based bonding components that are currently used cannot easily be separated from the other components, nor can they be recycled together with the matrix material.Industry can improve the recyclability of composites by designing bio-based bonding materials that will decompose under specific conditions (e.g. pH, temperature, microorganisms). These new bonding materials will replace fossil-based counterparts in composites and allow multilayer plastics and composites to be recycled more easily.A useful concept when considering recyclability is 'extended producer responsibility' (EPR). EPR makes manufacturers of composites – or any product – responsible for the entire life cycle of the product, especially for the take-back, recycling and final disposal. EPR is crucial for creating a sustainable and circular bioeconomy. EPR will be an important input to some quickly expanding application areas, such as 3D printing of cellulose-based materials, which offers new opportunities for regional industries.The **specific challenge** is to increase the recyclability of composites.

Scope:
Develop bio-based bonding materials for composites to promote the separation of these composites into their components and thus make them more recyclable.

The scope of this topic is to develop degradable bonding materials for composites, and to design and develop adequate materials for composites themselves to maximise their recyclability.

The scope of this topic includes attempting to recycle multilayer fibrous materials that are used in many market applications, including the construction industry. Proposals should include EPR considerations for a sustainable end of life of these materials.

The scope also includes: (i) novel research into the origin of fibre materials used in composites; and (ii) searching for the optimum combination of bonding materials to maximise the recyclability of composites.

Since the recyclability of materials can only benefit from the availability of suitable recycling facilities and capabilities, proposals must include a description of a system/method to process the recyclable material.

Environmental Impacts:

Improved end of life of composites, by reducing the amount of such materials diverted to landfilling or incinerating;

Reduce the amount of resources (materials, energy) and time required to separate composite materials into their constituting elements (before recycling);

Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossil-based material with bio-based, renewable material.

Economic Impacts:

Reduce the amount of resources (materials, energy) and time required to separate composite materials into their constituent components (before recycling);

Show with documented experimental validation that the performance of the new bio-based bonding agents is at least comparable with fossil-based counterparts in the target application(s).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so2-r3

How to apply: Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

See also the derogation described in part 2.2.3 in the link down below:

https://www.bbi-europe.eu/sites/default/files/documents/annex_bbi_gb_Amended_AWP_Budget_2020.pdf#page=91

64) Turn lignin into materials and chemicals for high-end applications

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 15 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO1-F2

Description:
Lignin occurs in wood and non-wood cellulosic biomass. It is available in very large

quantities as a byproduct of lignocellulosic biorefineries and chemical pulping operations. Although it is a valuable biopolymer, it is currently mainly burnt as low-value fuel.Several projects are running or have been completed at demonstration levels (TRL 6-7) to turn the byproduct lignin from industrial operations into added-value products, often replacing fossil-based counterparts in the process. Industry now sees enough opportunities to scale up these value chains to commercial levels. Large-scale transformation of lignin into high-end applications will significantly improve the economics of lignocellulose biorefineries. And replacing fossil-based products with ligninbased high-end products will make a significant contribution towards a climate-neutral Europe by 2050.Lignin can be used 'as is' in various added-value applications, among others in the construction industry. In the latter case, lignin is able to sequester biogenic carbon for decades, and can substantially contribute to climate change mitigation. Lignin can also be treated to increase its usability in chemical and biotechnological processing. This processing allows it to be used in fibre applications, platform chemicals, and building blocks. The high polymeric character of lignin means it contains many functionalised molecules. Smart processing steps can therefore retain the desired polymerisation and functionality. Functionalised building blocks can lead to high-end applications in a variety of market sectors.The **specific challenge** is to sustainably commercialise the transformation of lignin into chemicals and materials for high added-value applications.

Scope:
Produce on a large scale, in a first-of-its-kind operational setting, components from by-product lignin for use in established or newly emerging high-value applications [1].

The scope of this topic is to make use of lignin-containing by-products from existing operations that today are 'wasted' or burnt, provided they will be sustainable feedstock for large- or medium-scale operations. This topic's objective is to resolve an existing situation of under-use of the by-product lignin from lignocellulosic biorefineries, not to use crops that are cultivated specifically for lignin.
The scope of this topic includes both greenfield biorefineries and refurbished industrial facilities.
Environmental Impacts:
Reduce greenhouse gas (including CO_2) emissions (expressed in CO_2 equivalents) by replacing fossilbased chemicals or materials;
Reduce lignin-rich streams going to lower-value uses by at least 30% compared with the state of the art;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.
Economic Impacts:
Increase the value of lignin by at least 50% compared with the current value (compensated for process costs);
Demonstrate an effective and efficient business model for lignin transformation that could be applied elsewhere in Europe.
Social Impacts:
Create new job opportunities in the bio-based sector in rural, coastal and/or urban areas;
Increase the competitiveness of European biomass producers and the bio-based industry by: (i) making use of residual streams; (ii) business growth; and (iii) investment, all while ensuring environmental sustainability and an increase in local biodiversity.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so1-f2

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

65) Produce food ingredients with high nutritional value from aquatic sources

Types of action: Bio-based Industries Innovation action – Demonstration
Opening: 15 April 2020
Deadline: 03 September 2020 17:00:00 Brussels Time
Budget: € 104.682.972,32   **Acronym:** BBI-2020-SO1-F3

Description:
Among the UN Sustainable Development Goals, 'feeding the planet' features prominently. The growing world population will need additional sources of protein and ingredients with high nutritional value that do not deplete finite natural resources. The food industry can make a substantial contribution by increasing its resource efficiency. However, there will also be a need to tap new sources of protein. The aquatic and marine worlds and the fisheries and aquaculture industries contribute to the UN's goal while maintaining healthy marine and aquatic ecosystems. Scientific evidence unambiguously points to sustainable culture and capture at low trophic levels as a way to bring about an increase of food production from aquatic resources. These include, for example, microalgae, seaweed, marine invertebrates, side streams from the fish processing industry, and herbivore filter feeders (e.g. molluscs). Moreover, the recent implementation of the landing obligation for fish bycatch under the common fisheries policy opens up opportunities for the efficient and sustainable transformation of such under-used streams into valuable ingredients. A number of projects have demonstrated the successful conversion of aquatic biomass, mainly algae, into high-value ingredients for food applications. Actors in the aquatic and marine worlds are confident that by combining forces they can start converting the many aquatic and marine species and fisheries/aquaculture-industries side streams into food applications at commercial level. Europe can take the lead in this direction by enabling such a first-of-its-kind operation. The **specific challenge** is to sustainably scale up the conversion of new and sustainable aquatic and marine sources for human food and contribute to food and nutrition security.

Scope:
Sustainably produce on a large scale in a first-of-its-kind industrial setting, ingredients with high nutritional value for food for human consumption from under-used species and/or side streams from: (i) marine and aquatic sources; or (ii) the fisheries industry.

Environmental Impacts:
Increase the number of different feedstocks to enable raw-material independency;
Reduce greenhouse gas (including CO_2) emissions (expressed as CO_2 equivalents) of the considered bio-based operation (either biomass cultivation, or harvesting from ecosystems, or using side streams from the fisheries industry, or using bycatch through to the core processing) by at least 20% compared with the state of the art (shown by an LCA taken up in one of the work packages);
Protect and (if possible) increase aquatic and marine biodiversity, when cultivating aquatic and marine biomass, and especially when harvesting from the ecosystems;
Contribute to the EU's 2050 long-term strategy for a climate-neutral Europe by replacing fossilbased material with bio-based, renewable material.
Economic Impacts:

Reduce reliance on high-cost or unsustainable raw materials;
Increase raw-material flexibility;
Increase employment, incomes, and the strength of the local or regional economy with any of the considered operation (cultivation, harvesting from ecosystems, using side streams from the fisheries industry or using bycatch);
When using side streams from the fisheries industry, valorise at least 50% by weight of them;
When using bycatch as feedstock, valorise at least 70% by weight of it.

Social Impacts:
Increase the competitiveness of European biomass producers and the bio-based industry by supporting new jobs, growth, and investment, while ensuring environmental sustainability and an increase in local biodiversity;
Promote the inclusion of coastal or rural areas in a bio-based industry setting, raising awareness of: (i) social and economic opportunities in marine regions; and (ii) actors in value chains based on aquatic biomass.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/bbi-2020-so1-f3

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

66) Mutual learning and common tools and resources for national/regional schemes supporting innovation projects of start-ups and SMEs

Types of action: Coordination and support action (CSA)
Opening Date: 08 June 2020
Deadline Date: 22 September 2020 17:00:00 Brussels Time
Budget: € 500.000   **Acronym:** EIC-mutuallearning-2020

Description:
Start-ups and Small and Medium-sized Enterprises (SMEs) are the primary source of innovation in Europe and globally. However, the fragmentation of innovation ecosystems and the lack of connectedness among public national and regional agencies appear to be one of the main bottlenecks towards ensuring the support of the most promising start-up and scale-up companies in the EU.The start-ups and the SMEs very often lack tools and resources (human and financial) that will enable them to promote the deployment and uptake of innovative solutions, and thus grow and compete at global level. Moreover, they are at a disadvantage to recruit external experts to help them in their innovation and business development, including at transnational level to exploit the potential of the Single Market and global trade opportunities. Both are essential for start-ups and SMEs to ensure product/market fit, successful launch and later scaling of their innovations.A key stage of this process is to elaborate a feasibility study of their innovative products/services, which would clearly demonstrate the ways forward and concrete steps to follow. The feasibility

study (proof-of-concept) explore the scientific or technical feasibility and commercial potential of a new idea in order to develop an innovation project. A number of national/regional innovation agencies have schemes that tackle this specific key stage and need or consider setting one. However, up to now national and regional innovation agencies operate rather in isolation across EU in relation to the implementation of their programmes.

Scope:
This aims to enhance cooperation among innovation agencies of the European innovation ecosystem by establishing a mutual learning process at national and regional level, as well as by developing joint tools and resources to assist start-ups and SMEs to innovate.

Expected Impact:
This will enhance the quality of support provided at national and regional levels to the most promising innovative start-ups and SMEs, by enabling:
Exchange of information and best practice and closer dialogue between the innovation agencies involved
The national/regional agencies to establish or improve supporting schemes from their respective national/regional budgets that will cover the feasibility study stage of innovative products/services from start-ups and SMEs
Transnational cooperation in evaluation processes to select the most promising innovation projects with high growth and international potential
Cooperation between national/regional/EU levels in ensuring "world-class" coaching/mentoring services.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eic-mutuallearning-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

67) Peer learning of innovation agencies

Types of action: Coordination and support action Lump sum
Opening Date: 06 November 2017
Deadline Date: 14 October 2020 17:00:00 Brussels Time.
Budget: € 500.000   **Acronym:** INNOSUP-05-2018-2020

Description:
Innovation support agencies, i.e. the regional and national agencies that design and/or implement innovation support programmes for SMEs are important intermediaries for SME innovation. Focus, design and delivery mechanism of innovation support programmes determine to a large extent the economic impact from the supported actions and the satisfaction of the beneficiaries with the support provided. The European Union has supported mutual policy learning and exchange of 'good practices' in different programmes, including for example the Seventh Framework Programme (FP7), the Competiveness and Innovation Framework Programme and INTERREG. However, the transfer of good practices

in SME innovation support, the enhancement of existing and the establishment of new innovation support programmes for SME remains slow; and SMEs benefitting from support programmes still often remain dissatisfied with the services received.The PRO-INNO Europe 'INNO-Partnering Forum' (IPF, 2009-2012) has made some significant contributions to formulating the requirements for a permanent learning mechanism for SME innovation support agencies: learning activities have to be based on clear methodologies and they have to be demand driven, launched at the moment agencies themselves recognise the need to revise programme formats. Furthermore peer learning activities need to benefit from a secretariat or an animation structure that assures horizontal flow of information among interested agencies. In a collaborative exercise the IPF has developed two methodologies in this respect: a quality management system implemented through a peer review system based on the EFQM methodology and a 'twinning+' methodology that combines elements of traditional peer reviews and twinning in small learning groups of interested agencies.It is the objective of this action to make available to national and regional innovation agencies these two methodologies as elements of a permanent peer learning environment and to give incentives to the agencies to engage more frequently in peer learning activities.

Scope:
The proposed activities will provide incentives in the form of small lump sum grants to national and regional innovation agencies for engaging in peer learning on all topics relevant for design and delivery of innovation support programmes for SMEs. This should be challenge-driven, based on an agency's intention to revise its programme formats or introduce a new scheme, and lead to the development of common understanding of a given support service. The support to joint learning activities shall be available at any time when need and opportunity for policy learning in agencies arises. Peer learning is open for all topics for a better innovation support to SMEs. In the context of this action however, only the 'Twinning+' methodology as well as the quality management scheme for innovation agencies based on EFQM are recognised as learning methods. Funding for grants awarded under this topic will take the form of a fixed lump sum of EUR 15.000 / 50.000.

Applicants should be aware that this is not purely an action to promote the exchange of good practices. The aim is to investigate and develop by means of peer learning new topics and approaches in innovation support to SMEs with an intention to put newly developed skills into practice.
Expected Impact:

The number of innovation agencies engaged in peer learning activities significantly increases.
The results of the peer learning are taken up by national and regional innovation support programmes, including those co-financed by European Structural and Investment Funds.
A broad range of new topics and approaches in innovation support to SMEs is investigated and developed by peer learning activities of national and regional innovation agencies. Pilot agencies design and implement programmes based on these new approaches
The wider use of quality management in innovation agencies enhances efficiency of service delivery and customer satisfaction and accelerates the learning process.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/innosup-05-2018-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

EXCELLENT SCIENCE:

68)EIC Scalator Pilot

Types of action: Coordination and support action (CSA)
Opening: 25May 2020
Deadline: 02 September 2020 17:00:00 Brussels Time
Budget: € 1.500.000   **Acronym:** EIC-EICScalatorPilot-2020

Description:
Only 5% of European start-ups scale-up and pursue the position of world tech leaders. As high growth companies are the ones largely responsible for job creation and economic benefit, this is a missed opportunity. These growth barriers are even higher for truly high-risk deep tech innovators, the main target of EIC instruments. Considering the high-tech characteristics of the EIC beneficiaries, which have a longer time to market than digital start-ups, access to a broader pan-European enterprise market is a key factor to succeed. Following their initial funding rounds provided by the Pathfinder and the Accelerator instrument (seed- and series A funding rounds), the EIC Scalator will focus on beneficiaries which are ready for funding rounds above EUR 50 million (series C).This EIC Scalator Pilot aims at accelerating investments and partnerships among the most mature EIC beneficiaries and create European deep-tech success stories (sustainable global deep-tech leaders) by connecting relevant EIC beneficiaries to corporates (private buyers, Mergers and Acquisition, Corporate Venture Capital), to investors that provide strong networks and late stage investment (equity or venture debt), to international markets, and to stock exchanges.The EIC Scalator Pilot will provide support to up to 30 EIC beneficiaries that comply with the relevant selection criteria, such as: annual growth potential circa 50 - 100%; validated, repeatable, scalable business model; significant revenue traction; driven by deep-tech innovation that disrupts existing market(s).

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eic-eicscalatorpilot-2020

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdfhttps://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

69)Advanced pilots towards the European supercomputers

Types of action: EuroHPC-RIA
Opening: 15 April 2020

Deadline: 15 September 2020 17:00:00 Brussels Time
Budget: € 37.000.000   **Acronym:** EuroHPC-2020-01-a

Description:
To demonstrate in pre-operational environments the successful integration of European technology building blocks developed for example in the European Processor Initiative (EPI) and in previously funded EU R&I actions into fully integrated pilot supercomputing systems commensurate with exascale performance objectives along with other European IP such as software tools and application libraries, interconnects, rack design, cooling systems, advanced fabric management, etc... The goal of these pilot supercomputing systems will be to produce a prototype system which can be used in a pre-operational environment, able to execute jobs and run software components designed as part of the pilot programme. Two such pilot supercomputing systems will be supported whose work will be closely inter-coordinated. They will have to demonstrate how the challenges of power efficiency, usability, resiliency and scalability can be met, by considering in particular a strong co-design approach driven by ambitious application requirements. The involved stakeholders should include technology component suppliers, system integrators, supercomputing infrastructure providers and user communities.

Scope:
Proposals are expected to address the European research, technology building blocks integration, system co-design, validation and experimentation of advanced supercomputing pilot systems aiming at exascale performance, driven by a set of ambitious extreme data and HPC application and power-efficiency requirements.

The approaches should ensure that they contribute to the realisation of future exascale system architectures based on European low-power processing technologies, such as those developed for example in the EPI initiative. Each proposal should aim at realising one supercomputing pilot system. Pilot systems should maximise the integration of European hardware and software technologies, and foster, to the extent possible, the development of solutions based on European open hardware and open-source software.
Two complementary pilot supercomputing systems are expected to be supported, based on the European Processor Initiative (EPI) and/or other previously funded EU R&I actions:
One leveraging the efforts on European low power general purpose processing technologies
A complementary one leveraging the efforts on European open hardware solutions (e.g. an agnostic HPC system able to embed, cool and manage existing components and future ones, such as accelerator technologies based on RISC-V or other components that can simulate the behaviour of future European components)
Expected Impact:
Proposals should describe how the proposed work will contribute to the impacts listed below and include a baseline, targets and metrics to measure impact:
Contribution to the realisation of the EuroHPC JU's overall and specific objectives[2]
Strengthening scientific leadership as well as the competitiveness and innovation potential of the European industry through the further development and use of European technologies
Contributing to a sustainable exascale HPC supply ecosystem in Europe and ensuring European technological autonomy in this field
Leveraging the efforts on the European low power processing (in particular the European Processor Initiative) or in open hardware technologies and contributing to the realisation of future exascale system architectures based on such technologies
Maximising the use of European technologies in users and developers of relevant applications for European scientific and industrial leadership
Creation, promotion and exploitation potential of European IP
Maturity of solutions and potential for exploitation in future European exascale HPC components and systems.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eurohpc-2020-01-a

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

70) IMI-ECSEL Joint Activity Trials@Home

Type of action: RIA (Research and Innovation Action)
Opening: 26May 2020
Deadline: 30 September 2020 17:00:00 Brussels Time
Budget: € 5.000.000   **Acronym:** ECSEL-2020-3-IMI-ECSEL

Description:
ECSEL JU will organize an on-line information session about the ECSEL-2020-3-RIA-IMI-ECSEL-joint-activity Call, The session will take place on 18th June from 10:00 until roughly 12:00 via an on-line conferencing connection. The event is free of charge but registration is required via the event's web page.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/ecsel-2020-3-imi-ecsel

How to apply
Eligibility conditions:
1. its content corresponds, wholly or in part, to the topic description for which it is submitted
2. minimum mumber of legal entities: at least 3 legal entities; each of the three must be established in a different Member State or associated country; all three legal entities must be independent of each other.
3. duration of the project (limited to 3 years),
4. size of the consortia (maximum 50 participants)
5. budget capping per project (the maximum EU contribution that can be requested is 5 M€) and per partner (the maximum EU contribution a beneficiary can request in a project is limited to 40% of the total EU funding of the project).

Non-compliance with conditions 1-5 leads to exclusion (proposal declared not eligible and not evaluated).Proposals must include a draft plan for the exploitation and dissemination of the results! This is an admisibility condition. Proposals that do not include such a draft plan will be declared not admisible and will be not evaluated

71) FET Innovation Launchpad

Types of action: CSA-LSP (Coordination and Support Action Lump sum)
Opening: 09 October 2019

Deadline: 14 October 2020 17:00:00 Brussels Time
Budget: € 2.500.000　　　　**Acronym:** FETOPEN-03-2018-2019-2020

Description:
This topic aims at turning results from FET-funded projects into genuine societal or economic innovations.

Scope:
Short individual or collaborative actions focused on the non-scientific aspects and the early stages of turning a result of an ongoing or recently finished project funded through FET under FP7 or Horizon 2020 into a genuine innovation with socio-economic impacts. The precise link with the relevant FET project and the specific result for which a FET Innovation Launchpad proposal is intended, are to be explicitly described in the proposal. This topic does not fund research or activities that are/were already foreseen in the original FET project. Activities proposed should reflect the level of maturity of the result to be taken up. They can include the definition of a commercialisation process, market and competitiveness analysis, technology assessment, verification of innovation potential, consolidation of intellectual property rights, business case development. Proposals can include activities with, for instance, partners for technology transfer, licence-takers, investors and other sources of financing, societal organisations or potential end-users. Limited low-risk technology development (for instance for demonstration, testing or minor adjustment to specific requirements) can be supported as long as it has a clear and necessary role in the broader proposed innovation strategy and plan.

The Commission considers that proposals for actions no longer than 18 months and requesting a contribution from the EU of up to EUR 0.1 million would allow this specific challenge to be addressed appropriately. For grants awarded under this topic as a result of proposals submitted as of 9 October 2019, the costs will be declared based on lump sums of a fixed total amount of EUR 0.1 million for each grant, as authorised by decision of the authorizing officer responsible. Details of the lump sum funding pilot scheme are published on the Funding & Tenders Portal together with the specific Model Grant Agreement for Lump Sums applicable.
Expected Impact:
Increased value creation from FET projects by picking up innovation opportunities.
Improved societal and market acceptance of concrete high-potential innovations from FET projects.
Stimulating, supporting and rewarding an open and proactive mind-set towards exploitation beyond the research world.
Contributing to the competitiveness of European industry/economy by seeding future growth and the creation of jobs from FET research.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/fetopen-03-2018-2019-2020

Eligibility and admissibility conditions are described in the following links:
https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-b-adm_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/other/wp/2018-2020/annexes/h2020-wp1820-annex-c-elig_en.pdf

72) Fast Track to Innovation (FTI)

Types of action: IA (Innovation Actions)
Opening: 06 November 2017
Deadline: 27 October 2020 17:00:00 Brussels Time
Budget: € 100.000.000   **Acronym:** EIC-FTI-2018-2020

Description:
Innovation is fostered when new ideas can emerge and easily translate into socio-economic value, shaping new markets and laying the foundations of a stronger, high-tech industrial base for Europe.

Working together, partners with complementary backgrounds, knowledge and skills, in both new and established value-chains, can turn ideas into world-beating products, processes and services that tackle societal challenges
Participation by industry — defined as private-for-profit organisations — is mandatory; industry is best-placed to ensure the due commercial exploitation of the innovation developed; in addition, company growth and development in order to strengthen Europe's industrial leadership are explicitly pursued with FTI support.

Scope:
FTI supports actions undertaking innovation from the demonstration stage through to market uptake, including activities such as piloting, test-beds, systems validation in real-world working conditions, validation of business models, pre-normative research, and standard-setting.
FTI actions are encouraged to be interdisciplinary, cutting across different sector and technologies. Actions supporting innovative concepts that have the potential to disrupt or to create new markets are particularly welcome.
In your proposal, you should:
Specify the intended outcome and describe key performance indicators and success criteria.
Make reference to and incorporate a business plan clearly describing the market potential, business opportunities for participants, measures to enhance the probability of eventual commercial take-up, and a credible commercialisation strategy that identifies next steps and specifies other actors to be involved.
Pay particular attention to IP protection and ownership and to the possibility of commercial exploitation (often known as 'freedom to operate').
Specify the expected impact in terms of competitiveness and growth of the business partners in the consortium, measured in terms of turnover and job creation.
Clearly describe the expected impact in both qualitative and quantitative terms, with factors such as time sensitivity and international competitiveness considered in the light of the technology field, innovation area and industry sectors concerned.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eic-fti-2018-2020

How to apply:
Please find below the following link:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-eic_en.pdf

73) Co-funding of regional, national and international programmes

Doctoral programmes, Fellowship programmes

Opening: 08 April 2020
Deadline: 29 September 2020 17:00:00 Brussels Time
Budget: € 100.000.000   **Acronym**: MSCA-COFUND-2020

Description:
The COFUND scheme aims to stimulate regional, national or international programmes to foster excellence in researchers' training, mobility and career development, spreading the best practices of the Marie Skłodowska-Curie actions. This will be achieved by co-funding new or existing regional, national, and international programmes to open up to, and provide for, international, intersectoral and interdisciplinary research training, as well as transnational and cross-sectoral mobility of researchers at all stages of their career.

Scope:
Each proposal funded under the COFUND scheme must have a sole beneficiary that will be responsible for the availability of the necessary complementary funds to execute the proposal.

Applicants submit multi-annual proposals for new or existing doctoral programmes or fellowship programmes which are expected to have an impact on enhancing research- and innovation related human resources on regional, national or international level.

Applicants having benefited from COFUND under previous calls (under the Seventh Framework Programme or under Horizon 2020) must explain how their proposal adds value in relation to the excellence and/or the impact award criteria, compared to their previous grant(s). As an example, added value could take the form of increased networking with organisations in less represented countries or capacity building measures there to further structure the European Research Area.

Researchers supported under this scheme shall comply with the mobility rules of the Marie Skłodowska-Curie actions.

Limitations regarding the researchers' origin and destination should be avoided. Support cannot be awarded to researchers who are already permanently employed by the organisation hosting them.

Proposed programmes are encouraged to cover all research disciplines ("bottom-up"), but can also focus on specific disciplines. In this case the range of covered disciplines should allow reasonable flexibility for the researchers.

Programmes that prioritise specific research disciplines based on national or regional Research and Innovation Strategies for Smart Specialisation (RIS3 strategies) can also be supported. Synergies with the European Structural & Investment Funds (ESIF) are encouraged.

COFUND takes the form of:

A) Doctoral programmes

Doctoral programmes address the development and broadening of the research competencies of early-stage researchers. The training follows the EU Principles on Innovative Doctoral Training. Substantial training modules, including digital ones, addressing key transferable skills common to all fields and fostering the culture of Open Science, innovation and entrepreneurship will be supported. Collaboration with a wider set of partner organisations, including from the non-academic sector, which may provide hosting or secondment opportunities or training in research or transferable skills, as well as innovative and interdisciplinary elements of the proposed programme, will be positively taken into account during the evaluation.

Each researcher must be enrolled in a doctoral programme. Attention is paid to the quality of supervision and mentoring arrangements as well as career guidance. The selection procedure for doctoral candidates must be open, transparent and merit-based. The vacancy

notice must include the minimum gross salary offered to the researcher, as set out in the proposal.

B) Fellowship programmes

Fellowship programmes fund individual research training and career development fellowships for experienced researchers. The programmes supported should have regular selection rounds following fixed deadlines or regular cut-off dates, allowing fair competition between the researchers applying. The selections should be based on open, widely advertised competition (the vacancy notice must include the minimum gross salary offered to the researcher, as set out in the proposal), with transparent international peer review and the selection of candidates on merit. Mobility types supported by fellowship programmes may be similar to the ones supported under Marie Skłodowska-Curie Individual Fellowships. On top of transnational mobility, applicants are encouraged to include elements of cross-sectoral mobility and interdisciplinarity into their programmes. Fellowship programmes should be based on individual-driven mobility, i.e. researchers should be able to freely choose a research topic and the appropriate organisation to host them, fitting their individual needs.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/msca-cofund-2020;freeTextSearchKeyword=MSCA-COFUND-2020

How to apply:

Read carefully the MSCA-COFUND programme in the link down below:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-msca_en.pdf

74) Individual Fellowships

Types of action: **Career Restart panel, Reintegration panel, Global Fellowships, Standard European Fellowships, Society and Enterprise panel**
Opening: 08 April 2020
Deadline: 09 September 2020 17:00:00 Brussels Time
Budget: € 263.000.000   **Acronym:** MSCA-IF-2020

Description:

The goal of the Individual Fellowships is to enhance the creative and innovative potential of experienced researchers, wishing to diversify their individual competence in terms of skill acquisition through advanced training, international and intersectoral mobility.Individual Fellowships provide opportunities to researchers of any nationality to acquire and transfer new knowledge and to work on research and innovation in Europe (EU Member States and Horizon 2020 Associated Countries) and beyond. The scheme particularly supports the return and (re)integration of European researchers from outside Europe and those who have previously worked here, as well as researchers displaced by conflict outside the EU and Horizon 2020 Associated Countries. It also promotes the career restart of individual researchers who show great potential.

Scope:

Support is foreseen for individual, trans-national fellowships awarded to the best or most promising researchers of any nationality, for employment in EU Member States or Horizon 2020 Associated Countries. It is based on an application made jointly by the researcher and the beneficiary in the academic or non-academic sectors.

Only one proposal per individual researcher per call will be evaluated.

Fellowships take the form of European Fellowships or Global Fellowships. European Fellowships are held in EU Member States or Horizon 2020 Associated Countries and are open to researchers either coming to Europe from any country in the world or moving within Europe. The researcher must comply with the rules of mobility in the country where the European Fellowship is held.

Direct return to and long-term reintegration of researchers in Europe, including in their country of origin, is supported via a separate multi-disciplinary reintegration panel of the European Fellowships. For the reintegration panel, there must be direct mobility to the country of the beneficiary in Europe from a third country (compulsory national service and/or short stays such as holidays are not taken into account).

Support to individuals to resume research in Europe after a career break, e.g. after parental leave or due to recent migration, is ensured via a separate multi-disciplinary career restart panel of the European Fellowships. To qualify for the career restart panel, researchers must not have been active in research for a continuous period of at least 12 months within the 18 months immediately prior to the deadline for submission.

Researchers seeking to work on research and innovation projects in an organisation from the non-academic sector will be supported via a separate multi-disciplinary society and enterprise panel of the European Fellowships. The objective of this panel is to facilitate career moves between the academic and non-academic sectors, to stimulate innovation, and to open attractive career opportunities for researchers outside academia.

The Widening Fellowships implemented through Work Programme part 15, Spreading Excellence and Widening Participation, provide specific support to researchers to undertake their fellowship in a widening country. This will help spread excellence and close the still apparent research and innovation gap within Europe.

Global Fellowships are based on a secondment to a third country and a mandatory 12 month return period to a European host. The researcher must comply with the rules of mobility in the country where the Global Fellowship secondment takes place, not for the country of the return phase.

Researchers receiving an Individual Fellowship may opt to include a secondment phase in Europe, notably in the non-academic sector, within the overall duration of their fellowship. For a fellowship of 18 months or less, the secondment phase may last up to three months. For a fellowship of more than 18 months, the secondment phase may last up to six months. The secondment phase can be a single period or be divided into shorter mobility periods. The secondment should significantly add to the impact of the fellowship. In the Global Fellowships, such a secondment can also take place at the start of the action at the beneficiary or a partner organisation in Europe for a maximum of 3 months, allowing the researcher to spend time there before moving on to a partner organisation in a third country.

A Career Development Plan should be established jointly by the supervisor(s) and the researcher. In addition to research or innovation objectives, this plan comprises the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences.

Researchers participating in the Individual Fellowships may opt to work part-time in order to pursue supplementary activities. These might include creating a company, or engaging in advanced studies not related to the MSCA grant. Any supplementary activities carried out part-time in parallel with the MSCA action must be agreed upon by the researcher and the beneficiary.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/mscation-if-2020

How to apply:
Read carefully the MSCA-IF programme in the link down below:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-msca_en.pdf

75)Widening Fellowships

Types of action: Career Restart panel, Reintegration panel, Global Fellowships, Standard European Fellowships, Society and Enterprise panel
Opening: 08 April 2020
Deadline: 09 September 2020 17:00:00 Brussels Time
Budget: € 7.000.000   **Acronym**: WF-03-2020

Description:
The Marie Skłodowska-Curie actions (MSCA) contribute to boosting jobs, growth and investment by equipping researchers with the new knowledge, skills and international and inter-sectorial exposure to fill the top positions of tomorrow and solve current and future societal challenges. They are based on the principle of mobility, and researchers can receive funding on the condition that they move from one country to another to acquire new knowledge. The results from the first years of MSCA in Horizon 2020 also revealed the existence of a mobility gap across Europe and discrepancies between European countries in their ability to attract funding. To specifically address this gap in participation Widening Fellowships will provide an additional opportunity to researchers of any nationality to acquire and transfer new knowledge and to work on research and innovation in Widening countries.

Scope:
Support is foreseen for individual, trans-national fellowships awarded to researchers of any nationality, in Widening countries. Applications to the 2020 call for Marie Skłodowska-Curie actions Individual Fellowships (MSCA-IF), where the host organisation is located in an eligible widening country, will be resubmitted to this call upon the agreement of the applicant and in case their proposal fails to reach an adequate place in the ranking to be funded in the regular MSCA-IF call. Applicants who do not wish to be considered for this funding opportunity should specify this in the application form.

The proposals submitted under the Widening Fellowships must fulfil all the admissibility and eligibility conditions of the Marie Skłodowska-Curie actions Individual Fellowships and pass all the thresholds for that call.
The award criteria, scoring and threshold for Marie Skłodowska-Curie actions apply to eligible proposals. Proposals will be ranked according to the 2020 MSCA-IF call scores and evaluation procedure and will retain scores and comments included in the Evaluation Summary Report (ESR) of the MSCA-IF call. The MSCA-IF model grant agreement and the unit costs applicable to MSCA-IF will also apply to the Widening Fellowships.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/wf-03-2020

How to apply:
Read carefully the MSCA-IF programme in the link down below:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-msca_en.pdf

76) ERC ADVANCED GRANT

Types of action: Coordination and support action (CSA)
Opening: 14 May 2020
Deadline: 26 August 2020 17:00 Brussels Time
Budget: € 492.000.000   **Acronym:** ERC-2020-ADG

Description:

Scope:
ERC Advanced Grants are designed to support excellent Principal Investigators at the career stage at which they are already established research leaders with a recognised track record of research achievements. Principal Investigators must demonstrate the ground-breaking nature, ambition and feasibility of their scientific proposal.

Profile of the ERC Advanced Grant Principal Investigator
ERC Advanced Grant Principal Investigators are expected to be active researchers and to have a track record of significant research achievements in the last 10 years which must be presented in the application. A competitive Advanced Grant Principal Investigator must have already shown a record which identifies them as an exceptional leader in terms of originality and significance of their research contributions.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/erc-2020-adg

How to apply:
Eligibility and admissibility conditions are described in the following links:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/erc/h2020-wp20-erc_en.pdf

https://ec.europa.eu/research/participants/data/ref/h2020/sgl/erc/h2020-erc-se-rules-amended2_en.pdf

77) Call for proposals for ERC Proof of Concept Grant

Types of action: ERC Proof of Concept Lump Sum Pilot
Opening: 14 October 2019
Deadline: 17 September 2020 17:00:00 Brussels Time
Budget: € 25.000.000   **Acronym:** ERC-2020-POC

Description:

Scope:
The ERC Proof of Concept Grants aim to maximise the value of the excellent research that the ERC funds, by funding further work (i.e. activities which were not scheduled to be funded by the original ERC frontier research grant) to verify the innovation potential of ideas arising from ERC funded projects. Proof of Concept Grants are therefore on offer only to Principal Investigators whose proposals draw substantially on their ERC funded research.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/erc-2020-poc

How to apply:
Size of ERC Proof of Concept Grants:
The financial contribution will be awarded as a lump sum of EUR 150 000 for a period of 18 months. The ERC expects that normally proof of concept projects should be completed within 12 months. However, to allow for those projects that require more preparation time, projects will be signed for 18 months. Given this initial flexibility, extensions of the duration of proof of concept projects may be granted only exceptionally. The lump sum offered will cover the beneficiaries' direct and indirect eligible costs for the project: if the project is implemented properly the amounts will be paid regardless of the costs actually incurred. Specifically, the lump sum has been designed to cover 100% of the eligible direct costs and indirect costs calculated by applying a flat-rate of 25% to the direct cost categories.

Eligible proposals: All proposals must be complete and submitted before the relevant call deadline. A complete proposal needs to include all parts or sections (see "Proposal page limit and layout" below). Incomplete proposals may be declared ineligible. The content of the proposal must relate to the objectives and to the grant type set out in the call, as defined in the ERC Work Programme 2020 funded frontier research project but only one Proof of Concept project may be running at any one time for the same ERC frontier research project.

78) SME instrument

Types of action: SME Instrument (grant only and blended finance)
Opening Date: 05 June 2019
Deadline Date: 07 October 2020 17:00:00 Brussles Time.
Budget: € 610.839.171   **Acronym:** EIC-SMEInst-2018-2020

Description:
¿Have you got an idea for an innovation that targets new markets and could boost the growth of your company ? ¿Are you looking for substantial funding to support you in the last stages of development? ¿And could you make use of business development resources and coaching to take your company forward? Then the EIC Accelerator pilot (SME Instrument) is for you. The EIC Accelerator pilot (SME Instrument) supports high-risk, high-potential small and medium-sized enterprises to develop and bring to market new products, services and business models that could drive economic growth. The EIC Accelerator pilot (SME Instrument) is for innovators with ground-breaking concepts that could shape new markets or disrupt existing ones in Europe and worldwide.

Europe needs more radical, market-creating innovations to improve productivity and international competitiveness and generate new jobs and higher standards of living.
These innovations must meet user and customer needs and tackle societal, technological and business challenges in a sustainable way.
Have you got what it takes? Then apply now!
Principles and funding of the EIC Accelerator pilot (SME Instrument)
Who can apply?
For-profit SMEs, including young companies and start-ups, from any sector. You must be established in an EU Member State or a Horizon 2020 associated country.
Following the cut-off date of 5 June 2019, only individual for-profit SMEs established in an EU Members State or a Horizon 2020 associated country.

Scope:
Principles and funding of the EIC Accelerator pilot (SME Instrument)
Who can apply?

For-profit SMEs, including young companies and start-ups, from any sector. You must be established in an EU Member State or a Horizon 2020 associated country.
Following the cut-off date of 5 June 2019, only individual[1] for-profit SMEs established in an EU Members State or a Horizon 2020 associated country.
What topics are covered?
There are no set topics. Negative impacts on climate and the environment shall be avoided.
How does it work?
The EIC Accelerator pilot (SME Instrument) provides full-cycle business innovation support. In Phase 2 support is provided in the form of grant only or, following the cut-off date of 5 June 2019, blended finance (combining grant and equity). The EIC Accelerator pilot (SME Instrument) also includes coaching and mentoring.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eic-smeinst-2018-2020

How to apply:
Eligibility and admissibility conditions: described in the following link:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-eic_en.pdf

79) Responsible Island - Prize for a renewable geographic energy island

Types of action: Recognition Prize
Opening Date: 18 March 2019
Deadline Date: 29 September 2020 17:00:00 Brussels Time.
Budget: € 1.700.000   **Acronym:** Prize-SC3-2019

Description:
The prize intends to highlight the potential of renewables for decentralized energy grids by addressing energy needs for electricity, heating, cooling and transport. The title is inspired by RES (short for Renewables) and "responsible" to highlight the citizen in the centre of the energy system. Within this context, the prize recognizes realised achievements in renewables on geographic energy islands.Geographic energy islands are ideal test labs for the deployment of innovative energy technologies. The prize will reward integrated local RES production in a decentralized electricity grid and the achievements in decarbonizing heating, cooling and transport. In this context, renewable energy consumed on the island is also linked to the renewable energy produced on the island, supporting its local value chains and self-engaging the local society as a RESponsible prosumer.The prize is in line with the objectives of the Political Declaration on Clean Energy on EU Islands and the Smart Islands Initiative and will contribute to Mission Innovation Challenge 2 ("Off Grid Access to Electricity Innovation Challenge").The specific rules of the contest will be published by the European Commission at the beginning of each yearly competition. The European Commission will directly launch and manage the annual contest and annual award the prize based on the judgement of independent experts.The indicative budget for the prize is EUR 1.7 million from the 2020 budget, intended as award for two yearly competitions: EUR 0.5 million for the 1st place, EUR 0.25 million for the 2nd place, EUR 0.1 million for the 3rd place.

Scope:
This activity directly aimed at supporting pilot activities is excluded from the delegation to INEA and will be implemented by the Commission services.

Expected Impact:
The prize will highlight realised achievements/best practices in reaching the potential of renewable energy for covering electricity, heating, cooling and transport needs in off-grid societies, and in the introduction of innovative technologies to the market. It will be a recognition of a responsible local society committed to expanding the share of renewables. It will also provide excellent visibility for citizens participating in the promotion of innovative renewable energy technologies.
The recognised solutions are expected to have high replicability also to other isolated energy systems with islands characteristics worldwide in the context of Mission Innovation Challenge 2 by show-casing working business models.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/prize-sc3-2019

How to apply:
Eligible countries: described in part 8 of the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-rules-responsible-island_en.pdf

Eligibility and exclusion criteria: described in part 8 of the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-rules-responsible-island_en.pdf

80) EIC Horizon Prize for European Low-Cost Space Launch

Types of action: Inducement Prize
Opening Date: 11 June 2019
Deadline Date: 01 June 2021 17:00:00 Brussels Time.
Budget: € 10.000.000   **Acronym:** Space-EICPrize-2019

Description:
To develop a European technologically non-dependent solution for launching light satellites into Low-Earth Orbit (LEO), which will enable dedicated low-cost launches with committed schedule and orbit.The solution needs to be innovative, implementable, affordable in development and exploitation phases, and commercially viable. Applicants are required to take a holistic approach and produce results that move beyond (but are complementary to) existing solutions. Moreover, the solution will enhance on European access to space and associated technological non-dependence and thereby will provide strategic and competitive advantages for European companies, SMEs, universities, and research organisations.Space technologies, data and services have become indispensable to the daily lives of European citizens. Moreover, development of space technology boosts jobs, growth, and investments in Europe and strengthens its role in the world. Space solutions can help Europe to respond better to new global and societal challenges: climate change, disaster management, security threats, migration, farming, transport, energy, and many more.While Europe has a world-class space sector, innovation in space and changing demands are leading to an increased appearance of light and agile satellites. Consequently, space solutions will increasingly consider this trend. Small satellites are well-suited for most kinds of institutional and commercial use: wireless communications networks, Internet services, broader connectivity, scientific observation, and data gathering.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/space-eicprize-2019

How to apply:
Eligible countries: described in part 4 of the following link:

https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-eic-rules-low-cost-space-launch_en.pdf

Eligibility and exclusion criteria: described in part 4 of the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-eic-rules-low-cost-space-launch_en.pdf

81) EIC Horizon Prize for Early Warning for Epidemics

Types of action: Inducement Prize
Opening Date: 25 April 2018
Deadline Date: 16 February 2021 17:00:00 Brussels Time
Budget: € 5.000.000   **Acronym**: Epidemics-EICPrize-2020

Description:
To develop a scalable, reliable and cost-effective early warning system prototype to forecast and monitor vector-borne diseases in order to contribute to the prevention of outbreaks mitigating their impact on local, regional and global scales and providing support to existing elimination efforts.According to the World Health Organisation (WHO), vector-borne diseases such as malaria, Zika, dengue or yellow fever cause more than 1 million deaths globally each year. Vectors are living organisms that can transmit infectious diseases between humans or from animals to humans. Vector-borne diseases are a global threat to public health and can have far-reaching economic and social impacts.Climate and environmental phenomena contribute to creating the necessary conditions for these kinds of diseases to thrive. Variables such as rainfall, temperature and humidity affect the number and survival rate of mosquitoes and other vectors of diseases.The 2030 Agenda for Sustainable Development, in the context of its Sustainable Development Goal 3 "Ensure healthy lives and promote well-being for all at all ages", aims to end the epidemics of malaria and neglected tropical diseases (amongst others) by 2030. It calls for strengthening the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks.The Earth Observation domain is changing with increasing amounts of data being generated from space-borne, air-borne, in-situ and citizen observatories.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/epidemics-eicprize-2020

How to apply:
Eligible countries: described in part 4 of the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-eic-rules-early-warning-epidemics_en.pdf

Eligibility and exclusion criteria: described in part 4 of the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-eic-rules-early-warning-epidemics_en.pdf

82) EIC Horizon Prize for 'Innovative Batteries for eVehicles

Types of action: Inducement Prize
Opening Date: 21 February 2018
Deadline Date: 17 December 2020 17:00:00 Brussels Time.
Budget: € 10.000.000 **Acronym:** Batteries-EICPrize-2018

Description:
To develop a safe and sustainable battery for electric-vehicles through the development of new materials and chemistries making use of abundant, sustainable low cost materials, which are easily available in Europe. Solutions are required to provide the same or better performance than vehicles with internal combustion engines and to be capable of recharging the electric vehicle within a time equivalent to fill a conventional gasoline/diesel fuel tank.

This prize will contribute significantly to the decarbonisation of Europe for the benefit of the EU's economy and its citizens.

Link:
https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/batteries-eicprize-2018

How to apply:
Eligible countries: described in part 4 of the following link:

https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-eic-rules-batteries-evehicles_en.pdf

Eligibility and exclusion criteria: described in part 4 of the following link:
https://ec.europa.eu/research/participants/data/ref/h2020/other/prizes/contest_rules/h2020-prizes-eic-rules-batteries-evehicles_en.pdf

83) EIC Horizon Prize for Fuel from the Sun: Artificial Photosynthesis

Types of action: IA (Innovation Actions)
Opening: 06 November 2017
Deadline: 27 October 2020 17:00:00 Brussels Time
Budget: € 100.000.000 **Acronym:** EIC-FTI-2018-2020

Description:
Who should apply to FTI, the Fast Track to Innovation?

Are you looking for partners that can help you with a fast go-to-market of an industry-driven, innovative concept that has strong potential to make your company grow and scale-up?
FTI accelerates the market uptake of ground-breaking innovations by providing funding in an open, accessible scheme that nurtures ideas from consortia of innovators of all types and sizes from across Europe.
Participation by industry — defined as private-for-profit organisations — is mandatory; industry is best-placed to ensure the due commercial exploitation of the innovation developed; in addition, company growth and development in order to strengthen Europe's industrial leadership are explicitly pursued with FTI support.

Scope:

Principles and funding of FTI

FTI supports actions undertaking innovation from the demonstration stage through to market uptake, including activities such as piloting, test-beds, systems validation in real-world working conditions, validation of business models, pre-normative research, and standard-setting.

FTI actions are encouraged to be interdisciplinary, cutting across different sector and technologies. Actions supporting innovative concepts that have the potential to disrupt or to create new markets are particularly welcome.

In your proposal, you should:

Specify the intended outcome and describe key performance indicators and success criteria. Make reference to and incorporate a business plan clearly describing the market potential, business opportunities for participants, measures to enhance the probability of eventual commercial take-up, and a credible commercialisation strategy that identifies next steps and specifies other actors to be involved.

Pay particular attention to IP protection and ownership and to the possibility of commercial exploitation (often known as 'freedom to operate').

Specify the expected impact in terms of competitiveness and growth of the business partners in the consortium, measured in terms of turnover and job creation.

Clearly describe the expected impact in both qualitative and quantitative terms, with factors such as time sensitivity and international competitiveness considered in the light of the technology field, innovation area and industry sectors concerned.

Link:

https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/opportunities/topic-details/eic-fti-2018-2020

How to apply:

Fast Track to Innovation (FTI): as described in the following link:

https://ec.europa.eu/research/participants/data/ref/h2020/wp/2018-2020/main/h2020-wp1820-eic_en.pdf

Latin American and Caribbean National Contact Points Network

¿What is it?

The Latin American and Caribbean National Contact Points Network (Red LAC NCP) is made up of all the National Contact Points officially designated by a CELAC State through the main competent body in Science, Technology and Innovation and which have been recognized by the European Commission through its official appointment

Main objectives?

The **objective** of the LAC NCP Network is to promote and increase the participation of academia, companies and institutions in the Horizon 2020 Program in order to democratize access opportunities among the different countries of the Region.

The aim is to create an efficient and dynamic, proactive and sustainable network to stimulate closer cooperation between all national contact points in Europe, Latin America and the Caribbean.

Its **specific objectives** are: to strengthen the designation and motivation of the NCPs in the CELAC region and to improve the participation of these countries in H2020.

How does it work?

The NCPs are named for each of the thematic areas of the H2020 Program, as well as for the transversal areas. The structure is the following one:

1) National NCP Coordinator
2) Legal and Financial Aspects
3) Companies
4) Access to Finance
5) European Research Council
6) Future and Emerging Technologies
7) Marie Sklodowska-Curie Actions
8) Research Infrastructures
9) Information and Communication Technologies (ICT)
10) Nanotechnologies, advanced materials, manufacturing and advanced processes
11) Space
12) Health, demographic change and well-being
13) Food security, sustainable agriculture, marine and maritime research, bio economy; & Biotechnology
14) Safe, clean and efficient energy
15) Intelligent, ecological and integrated transport
16) Climate action, resource efficiency and raw materials
17) Inclusive, innovative and reflective societies
18) Security
19) Euratom
20) Joint Research Center
21) Advanced manufacturing and processing
22) Science with and for Society

More information

Here you will find the NCP list and its information: NCP

REFERENCE MATERIALS

With the support of the European Comission, through the Alcue Net Project, we made guides and manuals for researchers and institutions for collaborative projects & Marie Sklodowska Curie

	[Guía para el establecimiento de Oficinas de Enlace con la Unión Europea en Latinoamérica y el Caribe.](#)
	[Manual de participación en el Programa Marco de Investigación e Innovación de la Unión Europea](#)
	[Guía para la participación exitosa de INSTITUCIONES Latinoamericanas y Caribeñas en las ACCIONES MARIE SKLODOWSKA-CURIE.](#)
	[Guía para la participación exitosa de INVESTIGADORES Latinoamericanos y Caribeños en las ACCIONES MARIE SKLODOWSKA-CURIE](#)

Videos

Below we share support material to develop Horizon 2020 projects

Marie Sklodowska-Curie (MSCA) in few words
Acceder al enlace

Horizonte 2020 supports the budget for the results initiative
Acceder al enlace

General information about Horizon 2020
Acceder al enlace
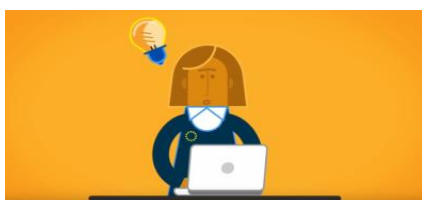
Intellectual Property in Horizon 2020
Acceder al enlace

Horizon 2020 – How to apply
Acceder al enlace

EU IPR help desk: Get your ticket for innovation (intellectual property)
Acceder al enlace

Definition of both sex and gender and how do they interact with each other Acceder al enlace

Understand the gender dimension for MSCA projects
Acceder al enlace

We share the open calls of the HORIZON 2020 PROGRAMME

The following table contains calls for 'international cooperation' as a priority, with filtering on geographical areas that includes: ALL (all countries) and Latin America.
The Horizon 2020 programme remains open to the world, but there are some calls targeting specific geographic regions - See portal Funding & tender opportunities.

	Programa de Investigación e Innovación de la Unión Europea 2014-2020 (Horizonte 2020) - Rev. 31 Julio 2020 - Fechas de cierre en 2020							
	Thematic area	Call code + hyperlink	Call title	Type of action	Geographical areas	Deadline	Stages	Budget million €
1	Health, demographic change and wellbeing	IMI2-2020-22-01	Restricted call to maximise impact of IMI2JU objectives and scientific priorities	RIA	All	29/09/2020	1	11.427.098
2	Health, demographic change and wellbeing	IMI2-2020-23-01	Returning Clinical Trial Data to study participants within a GDPR compliant and approved ethical framework.	RIA	All	29/09/2020	1	95.150.000
3	Health, demographic change and wellbeing	IMI2-2020-23-02	Modelling the impact of monoclonal antibodies and vaccines on the reduction of antimicrobial resistance.	RIA	All	29/09/2020	1	95.150.000

4	Health, demographic change and wellbeing	IMI2-2020-23-03	A platform for accelerating biomarker discovery and validation to support therapeutics development for neurodegenerative diseases	RIA	All	29/09/2020	1	95.150.000
5	Health, demographic change and wellbeing	IMI2-2020-23-04	Optimal treatment for patients with solid tumours in Europe through Artificial Intelligence.	RIA	All	29/09/2020	1	95.150.000
6	Health, demographic change and wellbeing	IMI2-2020-23-05	Shortening the path to Rare Disease diagnosis by using newborn genetic screening and digital technologies.	RIA	All	29/09/2020	1	95.150.000
7	Health, demographic change and wellbeing	IMI2-2020-23-06	Behavioural Model of Factors Affecting Patient Adherence	RIA	All	29/09/2020	1	95.150.000
8	Health, demographic change and wellbeing	LC-SC3-CC-1-2018-2019-2020	Social Sciences and Humanities (SSH) aspects of the Clean-Energy Transition	RIA	All	01/09/2020	1	10
9	Health, demographic change and wellbeing	LC-SC3-CC-7-2020	European Energy and Climate Modelling Forum (2020-2024)	RIA	All	01/09/2020	1	5
10	Health, demographic change and wellbeing	LC-SC3-CC-9-2020	Industrial (Waste) Heat-to-Power conversion	IA	All	01/09/2020	1	14
11	Health, demographic change and wellbeing	LC-SC3-ES-13-2020	Integrated local energy systems (Energy islands): International cooperation with India	IA	All	01/09/2020	1	9
12	Health, demographic change and wellbeing	LC-SC3-NZE-5-2020	Low carbon industrial production using CCUS	IA	All	01/09/2020	1	15
13	Health, demographic change and wellbeing	LC-SC3-NZE-6-2020	Geological Storage Pilots	RIA	All	01/09/2020	1	14
14	Health, demographic change and wellbeing	LC-SC3-RES-20-2020	Efficient combination of Concentrated Solar Power and	IA	All	01/09/2020	1	10

			desalination (with particular focus on the Gulf Cooperation Council (GCC) region)					
15	Health, demographic change and wellbeing	LC-SC3-RES-25-2020	International cooperation with Japan for Research and Innovation on advanced biofuels and alternative renewable fuels	RIA	All	01/09/2020	1	5
16	Health, demographic change and wellbeing	LC-SC3-RES-3-2020	International Cooperation with USA and/or China on alternative renewable fuels from sunlight for energy, transport and chemical storage	RIA	All	01/09/2020	1	10
17	Health, demographic change and wellbeing	LC-SC3-RES-34-2020	Demonstration of innovative and sustainable hydropower solutions targeting unexplored small-scale hydropower potential in Central Asia	IA	All	01/09/2020	1	10
18	Health, demographic change and wellbeing	LC-SC3-RES-36-2020	International cooperation with Canada on advanced biofuels and bioenergy	RIA	All	01/09/2020	1	5
19	Health, demographic change and wellbeing	LC-SC3-SCC-2-2020	Positive Energy Districts and Neighbourhoods for urban energy transitions	ERA-NET COFUND	All	01/09/2020	1	5
20	Health, demographic change and wellbeing	BBI-2020-SO1-D2	Use biogenic gaseous carbon to increase feedstock availability for the industry	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
21	Health, demographic change and wellbeing	LC-SC3-B4E-11-2020	Financing for energy efficiency investments - Smart Finance for Smart Buildings	CSA	All	10/09/2020	1	10
22	Health, demographic change and wellbeing	LC-SC3-B4E-12-2020	National roundtables to implement the Smart Finance for Smart Buildings initiative	CSA	All	10/09/2020	1	3

23	Health, demographic change and wellbeing	LC-SC3-B4E-13-2020	Aggregation - Project Development Assistance	CSA	All	10/09/2020	1	6
24	Health, demographic change and wellbeing	LC-SC3-B4E-14-2020	Enabling next-generation of smart energy services valorising energy efficiency and flexibility at demand-side	CSA	All	10/09/2020	1	6
25	Health, demographic change and wellbeing	LC-SC3-B4E-2-2020	Stimulating demand for sustainable energy skills in the building sector	CSA	All	10/09/2020	1	4
26	Health, demographic change and wellbeing	LC-SC3-B4E-3-2020	Upgrading smartness of existing buildings through innovations for legacy equipment	IA	All	10/09/2020	1	8
27	Health, demographic change and wellbeing	LC-SC3-B4E-4-2020	Next-generation of Energy Performance Assessment and Certification	CSA	All	10/09/2020	1	6
28	Health, demographic change and wellbeing	LC-SC3-EC-1-2018-2019-2020	The role of consumers in changing the market through informed decision and collective actions	CSA	All	10/09/2020	1	6
29	Health, demographic change and wellbeing	LC-SC3-EC-2-2018-2019-2020	Mitigating household energy poverty	CSA	All	10/09/2020	1	6
30	Health, demographic change and wellbeing	LC-SC3-EC-5-2020	Supporting public authorities in driving the energy transition	CSA	All	10/09/2020	1	9
31	Secure societies	SU-AI01-2020	Developing a research roadmap regarding Artificial Intelligence in support of Law Enforcement	CSA	All	27/08/2020	1	1.500
32	Secure societies	SU-AI02-2020	Secure and resilient Artificial Intelligence technologies, tools and solutions in support of Law Enforcement and citizen protection, cybersecurity operations and prevention and protection against	IA	All	27/08/2020	1	17

			adversarial Artificial Intelligence					
33	Secure societies	SU-AI03-2020	Human factors, and ethical, societal, legal and organisational aspects of using Artificial Intelligence in support of Law Enforcement	CSA	All	27/08/2020	1	.1.500
34	Secure societies	SU-BES01-2018-2019-2020	Human factors, and social, societal, and organisational aspects of border and external security	CSA	All	27/08/2020	1	5
35	Secure societies	SU-BES02-2018-2019-2020	Technologies to enhance border and external security	RIA	All	27/08/2020	1	21
36	Secure societies	SU-BES03-2018-2019-2020	Demonstration of applied solutions to enhance border and external security	IA	All	27/08/2020	1	10
37	Secure societies	SU-DRS01-2018-2019-2020	Human factors, and social, societal, and organisational aspects for disaster-resilient societies	RIA	All	27/08/2020	1	5
38	Secure societies	SU-DRS02-2018-2019-2020	Technologies for first responders	RIA	All	27/08/2020	1	21
39	Secure societies	SU-DRS03-2018-2019-2020	Pre-normative research and demonstration for disaster-resilient societies	IA	All	27/08/2020	1	6
40	Secure societies	SU-DRS04-2019-2020	Chemical, biological, radiological and nuclear (CBRN) cluster	RIA	All	27/08/2020	1	7
41	Secure societies	SU-DS02-2020	Intelligent security and privacy management	RIA	All	27/08/2020	1	20
42	Secure societies	SU-DS03-2019-2020	Digital Security and privacy for citizens and Small and Medium Enterprises and Micro Enterprises	IA	All	27/08/2020	1	18
43	Secure societies	SU-DS04-2018-2020	Cybersecurity in the Electrical Power and Energy System (EPES): an armour against cyber and	IA	All	27/08/2020	1	20

			privacy attacks and data breaches					
44	Secure societies	SU-FCT01-2018-2019-2020	Human factors, and social, societal, and organisational aspects to solve issues in fighting against crime and terrorism	RIA	All	27/08/2020	1	10
45	Secure societies	SU-FCT02-2018-2019-2020	Technologies to enhance the fight against crime and terrorism	RIA	All	27/08/2020	1	27.200
46	Secure societies	SU-FCT03-2018-2019-2020	Information and data stream management to fight against (cyber)crime and terrorism	IA	All	27/08/2020	1	8
47	Secure societies	SU-FCT04-2020	Chemicals: intelligence, detection, forensics	IA	All	27/08/2020	1	10
48	Secure societies	SU-GM01-2018-2019-2020	Pan-European networks of practitioners and other actors in the field of security	CSA	All	27/08/2020	1	7
49	Secure societies	SU-GM02-2018-2020	Strategic pre-commercial procurements of innovative, advanced systems to support security	CSA	All	27/08/2020	1	24
50	Secure societies	SU-INFRA01-2018-2019-2020	Prevention, detection, response and mitigation of combined physical and cyber threats to critical infrastructure in Europe	IA	All	27/08/2020	1	24
51	Biotechnology	BBI-2020-SO2-D3	Upscale the production of bio-based platform molecules for larger market applications	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
52	Biotechnology	BBI-2020-SO2-R1	Use enabling technologies to improve feedstock availability and sustainability for the bio-based industry	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
53	Biotechnology	BBI-2020-SO2-R2	Develop integral fractionation of lignocellulose to produce components for	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32

			high-value applications					
54	Biotechnology	BBI-2020-SO2-R4	Extract bioactive compounds from new, under-exploited and/or recalcitrant residual bio-based streams for high-value applications	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
55	Biotechnology	BBI-2020-SO3-D4	Demonstrate superior bio-based packaging solutions with minimal environmental damage	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
56	Biotechnology	BBI-2020-SO3-R5	Improve the sustainability of coatings	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
57	Biotechnology	BBI-2020-SO4-S1	Help start-ups and spin-offs to gain access to finance	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
58	Biotechnology	BBI-2020-SO4-S2	Provide insight on emerging technologies for bio-based value chains	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
59	Biotechnology	BBI-2020-SO4-S3	Create and interlink bio-based education centres to meet industry's needs of skills and competences	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
60	Biotechnology	BBI-2020-SO4-S4	Expand circular economy to include the underexploited circular bioeconomy	Bio-based Industries Innovation action - Demonstration	All	03/09/2020	1	104.682.972,32
61	Biotechnology	BBI-2020-SO1-D1	Resolve supply-chain hurdles for turning residual waste streams into functional molecules for food and/or non-food market applications	Based Industries Innovation action – Demonstration	All	03/09/2020	1	
62	Biotechnology	BBI-2020-SO1-F1	Valorise the organic fraction of municipal solid waste through an integrated	Based Industries Innovation action –	All	03/09/2020	1	104.682.972,32

			biorefinery at commercial level	Demonstration				
63	Biotechnology	BBI-2020-SO2-R3	Develop bio-based solutions to recycle composites	Based Industries Innovation action – Demonstration	All	03/09/2020	1	104.682.972,32
64	Biotechnology	BBI-2020-SO1-F2	Turn lignin into materials and chemicals for high-end applications	Based Industries Innovation action – Demonstration	All	03/09/2020	1	104.682.972,32
65	Biotechnology	BBI-2020-SO1-F3	Produce food ingredients with high nutritional value from aquatic sources	Based Industries Innovation action – Demonstration	All	03/09/2020	1	104.682.972,32
66	Innovation in Smes	EIC-mutuallearning-2020	Mutual learning and common tools and resources for national/regional schemes supporting innovation projects of start-ups and SMEs	CSA	All	22/09/2020	1	500
67	Innovation in Smes	INNOSUP-05-2018-2020	Peer learning of innovation agencies	CSA	All	14/10/2020	1	500
68	Future and emerging technologies	EIC-EICScalatorPilot-2020	EIC Scalator Pilot	CSA	All	02/09/2020	1	1.500
69	Future and emerging technologies	EuroHPC-2020-01-a	Advanced pilots towards the European supercomputers	EuroHPC-RIA	All	15/09/2020	1	37
70	Future and emerging technologies	ECSEL-2020-3-IMI-ECSEL	IMI-ECSEL Joint Activity Trials@Home	RIA	All	30/09/2020	1	5
71	Future and emerging technologies	FETOPEN-03-2018-2019-2020	FET Innovation Launchpad	CSA-LSP	All	14/10/2020	1	2.500
72	Future and emerging technologies	EIC-FTI-2018-2020	Fast Track to Innovation (FTI)	IA	All	27/10/2020	1	100
73	Msca actions	MSCA-COFUND-2020	Co-funding of regional, national and international programmes	MSCA	All	29/09/2020	1	100
74	Msca actions	MSCA-IF-2020	Individual Fellowships	MSCA	All	09/09/2020	1	263

75	Msca actions	WF-03-2020	Widening Fellowships	MSCA	All	09/09/2020	1	7
76	Grants	ERC-2020-ADG	ERC ADVANCED GRANT	CSA	All	26/08/2020	1	492
77	Grants	ERC-2020-POC	Call for proposals for ERC Proof of Concept Grant	ERC Proof of Concept Lump Sum Pilot	All	17/09/2020	1	25
78	Grants	EIC-SMEInst-2018-2020	SME instrument	SME Instrument	All	07/10/2020	1	610.839.171
79	Grants	Prize-SC3-2019	Responsible Island - Prize for a renewable geographic energy island	Recognition Prize	All	29/09/2020	1	1.700
80	Grants	Space-EICPrize-2019	EIC Horizon Prize for European Low-Cost Space Launch	Inducement Prize	All	01/06/2021	1	10
81	Grants	Epidemics-EICPrize-2020	EIC Horizon Prize for Early Warning for Epidemics	Inducement Prize	All	16/02/2021	1	5
82	Grants	Batteries-EICPrize-2018	EIC Horizon Prize for 'Innovative Batteries for eVehicles	Inducement Prize	All	17/12/2020	1	10
83	Grants	EIC-FTI-2018-2020	Fast Track to Innovation (FTI)	IA	All	27/10/2020	1	100

Type of Action	Description
RIA - Research and Innovation Actions	Activities aiming to establish new knowledge and/or to explore the feasibility of a new or improved technology, product, process, service or solution. For this purpose they may include basic and applied research, technology development and integration, testing and validation on a small-scale prototype in a laboratory or simulated environment. Projects may contain closely connected but limited demonstration or pilot activities aiming to show technical feasibility in a near to operational environment.
CSA - Coordination and Support Actions	Accompanying measures such as standardisation, dissemination, awareness-raising and communication, networking, coordination or support services, policy dialogues and mutual learning exercises and studies.
ERA-NET Cofund	Supports public-public partnerships, including joint programming initiatives between Member States, in their preparation, establishment of networking structures, implementation of joint activities as well as Union topping-up of a trans-national call for proposals. It allows for programme collaboration in any part of the entire research-innovation cycle. The main and compulsory activity of the ERA-NET Cofund is the implementation of the co-funded joint call for proposals to fund trans-national research and innovation projects.
MSCA - Marie Skłodowska-Curie Actions To know more click here.	The Marie Skłodowska-Curie actions (MSCA) provide grants for all stages of researchers' careers - be they doctoral candidates or highly experienced researchers - and encourage transnational, intersectoral and interdisciplinary mobility. The MSCA enable research-focused organisations (universities, research centres, and companies) to host talented foreign researchers and to create strategic partnerships with leading institutions worldwide.

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[1] **Some calls have two (2) stages and two deadlines:** For two-stage submission schemes, there is a first stage and second stage evaluation (against the evaluation criteria for each stage). In these submission schemes, proposals must be approved in the first to move to the second stage. Evaluation time: For phase 1: maximum 3 months from the submission deadline. For Stage 2: Maximum 5 months from the submission deadline.