# International Cooperation in Horizon 2020

## EU and Mexico

2017-11-27

# Table of Contents

Excellent Science ..... 3
Industrial Leadership ..... 20
Societal Challenges ..... 23

In addition to the topics mentioned herein the European Commission flagged the following calling topics (listed on page 11 in the Roadmap for EU-Mexico S&T cooperation an on page 11 in the Roadmap for EU-CELAC S&T cooperation) as being particularly and thematically suitable for international STI cooperation with Mexico.

# Excellent Science

**Horizon 2020 Pillar:** Excellent Science

**Programme:** European research infrastructures (including e-Infrastructures)

**Call Title:** Integrating and opening research infrastructures of European interest

**Call Identifier:** h2020-infraia-2018-2020

**Topic Title:** Integrating Activities for Advanced Communities

**Topic Identifier:** INFRAIA-01-2018-2019

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 22-03-2018 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/infraia-01-2018-2019.html

**Specific Challenges:** European researchers need effective and convenient access to the best research infrastructures in order to conduct research for the advancement of knowledge and technology. The aim of this action is to bring together, integrate on European scale, and open up key national and regional research infrastructures to all European researchers, from both academia and industry, ensuring their optimal use and joint development.

**Scope:** 'Advanced Communities' are scientific communities whose research infrastructures show an advanced degree of coordination and networking at present, attained, in particular, through Integrating Activities awarded under FP7 or previous Horizon 2020 calls.

An Integrating Activity will mobilise a comprehensive consortium of several key research infrastructures in a given field as well as other stakeholders (e.g. public authorities, technological partners, research institutions) from different Member States, Associated Countries and other **third countries**[1] when appropriate, in particular when they offer complementary or more advanced services than those available in Europe.

Funding will be provided to support, in particular, the trans-national and virtual access provided to European researchers (and to researchers from **Third countries** under certain conditions[2]), the cooperation between research infrastructures, scientific communities, industry and other stakeholders, the improvement of the services the infrastructures provide, the harmonisation, optimisation and improvement of access procedures and

interfaces. Proposals should adopt the guidelines and principles of the European Charter for Access to Research Infrastructures.

To this extent, an Integrating Activity shall combine, in a closely co-ordinated manner:

i. Networking activities, to foster a culture of co-operation between research infrastructures, scientific communities, industries and other stakeholders as appropriate, and to help develop a more efficient and attractive European Research Area;
ii. Trans-national access or virtual access activities, to support scientific communities in their access to the identified key research infrastructures;
iii. Joint research activities, to improve, in quality and/or quantity, the integrated services provided at European level by the infrastructures.

All three categories of activities are mandatory as synergistic effects are expected from these different components.

Access should be provided only to key research infrastructures of European interest, i.e., those infrastructures able to attract significant numbers of users from countries other than the country where they are located. Other national and regional infrastructures in Europe can be involved, in particular in the networking activities, for the exchange of best practices, without necessarily being beneficiaries in the proposal.

Proposals from advanced communities will have to clearly demonstrate the added value and the progress beyond current achievements in terms of integration and services, of a new grant. The strongest impact for advanced communities is expected typically to arise from focusing on innovation aspects and widening trans-national and virtual access provision, both in terms of wider and more advanced offer of scientific services, than in terms of number of users and domains served. Furthermore, in particular for communities supported in the past under three or more integrating activities, the creation of strategic roadmaps for future research infrastructure developments as well as the long-term sustainability of the integrated research infrastructure services provided at European level, need to be properly addressed. The latter requires the preparation of a sustainability plan beyond the grant lifecycle as well as, where appropriate, the involvement of funders.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), Integrating Activities should, whenever appropriate, pay due attention to any related international initiative (i.e. outside the EU) and foster the use and deployment of global standards.

Integrating Activities should also organise the efficient curation, preservation and provision of access to the data collected or produced under the project, defining a data management plan, even when they opt out of the extended Pilot on Open Research Data. Data management (including ethics and privacy issues), interoperability, as well as advanced data and computing services should be addressed where relevant. To this extent, proposals should build

upon the state of the art in ICT and e-infrastructures for data, computing and networking, and ensure connection to the European Open Science Cloud.

Integrating Activities should in particular contribute to fostering the potential for innovation, including social innovation, of research infrastructures by reinforcing the partnership with industry, through e.g. transfer of knowledge and other dissemination activities, activities to promote the use of research infrastructures by industrial researchers, involvement of industrial associations in consortia or in advisory bodies.

Integrating Activities are expected to duly take into account all relevant ESFRI and other world-class research infrastructures to exploit synergies, to reflect on sustainability and to ensure complementarity and coherence with the existing European Infrastructures landscape.

Proposals should include clear indicators allowing the assessment of the progress towards the general and specific objectives, other than the access provision.

As the scope of an integrating activity is to ensure coordination and integration between all the key European infrastructures in a given field and to avoid duplication of effort, advanced communities are expected to submit one proposal per area.

Further conditions and requirements that applicants should fulfil when drafting a proposal are given in part D of the section "Specific features for Research Infrastructures". Compliance with these provisions will be taken into account during evaluation.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 million would allow this topic to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

On the basis of a multiannual plan drafted taking into account the assessment and the timing of previous grants as well as strategic priorities and needs, in term of research infrastructures services, emerging from other parts of Horizon 2020, this work programme invites proposals addressing the following areas listed under the different domains. A balanced coverage of the various domains, in line with the distribution of areas per domain, is expected as outcome of this topic.

2018 deadline

Biological and Medical Sciences

- Microbial Resource Centres.
  This activity aims at integrating the key Microbial Resource Centres and opening them up to European researchers for biotechnology research and development. Emphasis should be on widening the user base, enlarging and strengthening the offered services, sharing resources at global level, fostering the innovation role of such

infrastructures and ensuring long term sustainability to their integration.

- Facilities for high throughput DNA sequencing.
  This activity aims at integrating the key research infrastructures in Europe as well as leading-edge research infrastructures located in **third countries**, to open them up to European researchers and offer services beyond the state-of-art which is already ensured by commercial providers. Adequate consideration should be taken of the produced data and its availability for research.
- Centres for replacement, reduction and refinement (3 Rs) of non-human primate testing.
  This activity aims at integrating the key non-human primate centres in Europe promoting 3 Rs, i.e. replacement, reduction, and refinement. The proposal will contribute to the objective of 3Rs, reinforcing the implementation of ethical and good practices at European level, and the protection of animals used in scientific experiments[3]. The proposal should also develop the necessary collaborations outside Europe.
- High throughput facilities for proteome analysis.
  This activity aims at integrating the key high throughput facilities in Europe for proteome analysis, based on state-of-the-art proteomics techniques and tools for data handling and analysis, including structural proteomics and structural bioinformatics. Emphasis should be on widening the user base, enlarging and strengthening the offered services, fostering the innovation role of such infrastructures and ensuring long term sustainability to their integration.

Energy

- Research Infrastructures for solar energy:
  concentrating solar power. This activity should bring together the key European research infrastructures in solar concentrating systems (solar concentrators and relating research infrastructures) for carrying out energy and materials research as well as research in other fields using the extreme temperature conditions in solar concentrators, e.g. thermal storage equipment and reuse of stored energy. This topic would support the European Strategic Energy Technology Plan (SET-Plan).
- Research Infrastructures for solar energy:
  photovoltaic. This activity aims at integrating and opening the key research infrastructures in Europe for all aspects of photovoltaic research: buildings, transport, new materials, grid connection, efficiency, etc. This topic would support the European Strategic Energy Technology Plan (SET-Plan).

Environmental and Earth Sciences[4]

- Research infrastructures for forest ecosystem and resources research.
  This activity aims at further integrating and facilitating broad access to forest research facilities, methodologies and data on genetic and species diversity to enable environmental and biological research including biological effects of air pollution, mitigation and adaptation to climate change, and development of forest management approaches. Emphasis will be on widening the user base and ensuring long term sustainability to the service integration.
- Natural history collections.
  This activity aims at integrating and improving access to key European Natural History collections and to their related instrumentation facilities. Emphasis should be on improving accessibility to collections to a wide range of scientists, on developing innovative research services to answer the needs of a broader scientific community of users from climate change to human health and food security, and on ensuring long term sustainability of the integrated services.
- Research aircrafts for environmental and geo-science research.
  This activity aims at integrating key research aircrafts and improving their availability to European researchers from larger multidisciplinary scientific communities. It should develop a long-term strategy towards sustained integrated services and innovative synergies with complementary observing systems and models to study atmospheric processes and the Earth's surface.
- Research vessels.
  This activity aims at further providing, integrating and improving access to the key European research vessels and associated major equipment. It should include innovative initiatives to ensure a more efficient and coordinated operation of European fleets, to develop synergies with complementary observing systems and infrastructures and to set-up sustained integrated services to the user communities.
- Research infrastructures for Earth's climate system modelling.
  This activity aims at further integrating and opening the research infrastructures (e.g. data repositories, models) used by the climate modelling community in Europe, promoting the ongoing development of a common distributed modelling infrastructure. Emphasis should be on widening the user base, expanding the interdisciplinary research fields addressed, enlarging and strengthening the offered services, and ensuring long term sustainability to the service integration.
- Sites and experimental platforms of anthropogenic impacts for ecosystem functioning and biodiversity research.
  This activity aims at bringing together highly instrumented experimental, analytical and modelling facilities, across all major

European ecosystem types and all major pressures on them. It will optimise the collaborative use of these sites by a wider scientific community and develop efficient methods and techniques for rapid data sharing and processing at the European level.

Mathematics and ICT

- Visualisation facilities. This activity aims at further integrating and opening key virtual reality visualisation facilities, holographic image processing facilities and other computer graphics and animation facilities for advanced visualisation of scientific information and massive data, either resulting from academic research or being produced in collaboration with the industrial sector. Emphasis should be on widening the user base, enlarging and strengthening the offered services, and fostering the innovation role of such infrastructures.

Material Sciences, Analytical facilities and Engineering

- Electron Microscopies for advanced imaging, diffraction, spectroscopy and metrology of materials. This activity aims at further integrating and opening advanced electron microscopies for material research and technological development. Emphasis should be on widening the user base, strengthening and enlarging the offered services, stimulating new scientific activities, facilitating access, fostering the innovation role of such infrastructures and ensuring long term sustainability to their integration.
- High and low energy ion beam labs. This activity aims at further integrating and opening key ion beam facilities for material, biomedical and environmental research and technological development. Emphasis should be on widening the user base, enlarging and strengthening the offered services, fostering the innovation role of such infrastructures and ensuring long term sustainability to their integration.
- Infrastructures for Neutron Scattering and Muon Spectroscopy. This activity will provide and facilitate wider access to the key research infrastructures in Europe for Neutron scattering and Muon Spectroscopy. It should present a long-term sustainable perspective on the integration of these facilities and related resources.
- Facilities for research on materials under extreme temperature conditions. This activity aims at integrating research facilities in physics and materials science dealing with extreme low and high temperature conditions, e.g. nanoscience at microkelvin temperatures. Emphasis should be on widening the user base, enlarging the offered services, fostering the innovation role of such infrastructures and ensuring long term sustainability to their integration.

- Infrastructures for studying turbulence phenomena and applications. This activity aims at further integrating key facilities enabling the study of high turbulence phenomena in various areas of science and technology. Emphasis should be on combining modelling and experimental in situ testing, widening the user base, enlarging the offered services, fostering the innovation role of such infrastructures and ensuring long term sustainability to their integration.

Physical Sciences

- Research Infrastructures for hadron physics. This activity will provide and facilitate access to key research infrastructures in Europe for studying the properties of nuclear matter at extreme conditions, turning advances in hadron physics experimentation into new applications. It should present a long-term sustainable perspective on the integration of relevant facilities and related resources.
- Research Infrastructures for high resolution solar physics. This activity aims at further integrating and opening key research infrastructures in the field of high resolution solar physics. It should foster cooperation between theory and observations.

Social Sciences and Humanities

- Research infrastructures for the assessment of science, technology and innovation policies. This activity aims at further integrating and opening research data infrastructures in the field of science, technology and innovation (including social innovation). Emphasis should be on facilitating trans-national access and widening the user base, enlarging and strengthening the offered services, fostering the innovation role of such infrastructures and ensuring long term sustainability to their integration.
- Digital archives and resources for research on European history. This activity aims at further integrating and opening key data collections and services in Europe for European History. Emphasis should be on widening the user base, enlarging and strengthening the offered services, e.g. by covering further historical periods, and ensuring long term sustainability to their integration.
- Archaeological data infrastructures for research. This activity aims at further integrating and opening key archaeological data infrastructures to facilitate research in all fields of archaeology (from prehistory to contemporary society). Emphasis should be on widening the user base, enlarging and strengthening the offered services, including fields such as paleo-anthropology, bioarchaeology and environmental archaeology, sharing resources at global level, and ensuring long term sustainability to their integration.

**Expected Impact:**

- Researchers will have wider, simplified, and more efficient access to the best research infrastructures they require to conduct their research, irrespective of location. They benefit from an increased focus on user needs.
- New or more advanced research infrastructure services, enabling leading-edge or multidisciplinary research, are made available to a wider user community.
- Operators of related infrastructures develop synergies and complementary capabilities, leading to improved and harmonised services. There is less duplication of services, leading to an improved use of resources across Europe. Economies of scale and saving of resources are also realised due to common development and the optimisation of operations.
- Innovation is fostered through a reinforced partnership of research organisations with industry.
- A new generation of researchers is educated that is ready to optimally exploit all the essential tools for their research.
- Closer interactions between larger number of researchers active in and around a number of infrastructures facilitate cross-disciplinary fertilisations and a wider sharing of information, knowledge and technologies across fields and between academia and industry.
- For communities which have received three or more grants in the past, the sustainability of the integrated research infrastructure services they provide at European level is improved.
- The integration of major scientific equipment or sets of instruments and of knowledge-based resources (collections, archives, structured scientific information, data infrastructures, etc.) leads to a better management of the continuous flow of data collected or produced by these facilities and resources.
- When applicable, the integrated and harmonised access to resources at European level can facilitate the use beyond research and contribute to evidence-based policy making.
- When applicable, the socio-economic impact of past investments in research infrastructures from the European Structural and Investment Funds is enhanced.

**Cross-cutting Priorities:** International cooperation, Gender, Open Science, Socio-economic science and humanities

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[1] See the Eligibility and admissibility conditions for this call.

[2] See part D of the section "Specific features for Research Infrastructures".

[3] As framed by the directive 86/609/EEC, and by the Commission proposal for its revision, COM(2008)543

[4] When appropriate, proposals addressing areas under this domain are encouraged to develop synergies with Copernicus data and information as well as with GEO/GEOSS.

**Horizon 2020 Pillar:** Excellent Science

**Programme:** European research infrastructures (including e-Infrastructures)

**Call Title:** Integrating and opening research infrastructures of European interest

**Call Identifier:** h2020-infraia-2018-2020

**Topic Title:** Integrating Activities for Advanced Communities

**Topic Identifier:** INFRAIA-01-2018-2019

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 20-03-2019 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/infraia-01-2018-2019.html

**Specific Challenges:** European researchers need effective and convenient access to the best research infrastructures in order to conduct research for the advancement of knowledge and technology. The aim of this action is to bring together, integrate on European scale, and open up key national and regional research infrastructures to all European researchers, from both academia and industry, ensuring their optimal use and joint development.

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Funding will be provided to support, in particular, the trans-national and virtual access provided to European researchers (and to researchers from **Third countries** under certain conditions[2]), the cooperation between research infrastructures, scientific communities, industry and other stakeholders, the improvement of the services the infrastructures provide, the harmonisation, optimisation and improvement of access procedures and

interfaces. Proposals should adopt the guidelines and principles of the European Charter for Access to Research Infrastructures.

To this extent, an Integrating Activity shall combine, in a closely co-ordinated manner:

i. Networking activities, to foster a culture of co-operation between research infrastructures, scientific communities, industries and other stakeholders as appropriate, and to help develop a more efficient and attractive European Research Area;
ii. Trans-national access or virtual access activities, to support scientific communities in their access to the identified key research infrastructures;
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All three categories of activities are mandatory as synergistic effects are expected from these different components.

Access should be provided only to key research infrastructures of European interest, i.e., those infrastructures able to attract significant numbers of users from countries other than the country where they are located. Other national and regional infrastructures in Europe can be involved, in particular in the networking activities, for the exchange of best practices, without necessarily being beneficiaries in the proposal.

Proposals from advanced communities will have to clearly demonstrate the added value and the progress beyond current achievements in terms of integration and services, of a new grant. The strongest impact for advanced communities is expected typically to arise from focusing on innovation aspects and widening trans-national and virtual access provision, both in terms of wider and more advanced offer of scientific services, than in terms of number of users and domains served. Furthermore, in particular for communities supported in the past under three or more integrating activities, the creation of strategic roadmaps for future research infrastructure developments as well as the long-term sustainability of the integrated research infrastructure services provided at European level, need to be properly addressed. The latter requires the preparation of a sustainability plan beyond the grant lifecycle as well as, where appropriate, the involvement of funders.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), Integrating Activities should, whenever appropriate, pay due attention to any related international initiative (i.e. outside the EU) and foster the use and deployment of global standards.

Integrating Activities should also organise the efficient curation, preservation and provision of access to the data collected or produced under the project, defining a data management plan, even when they opt out of the extended Pilot on Open Research Data. Data management (including ethics and privacy issues), interoperability, as well as advanced data and computing services should be addressed where relevant. To this extent, proposals should build

upon the state of the art in ICT and e-infrastructures for data, computing and networking, and ensure connection to the European Open Science Cloud.

Integrating Activities should in particular contribute to fostering the potential for innovation, including social innovation, of research infrastructures by reinforcing the partnership with industry, through e.g. transfer of knowledge and other dissemination activities, activities to promote the use of research infrastructures by industrial researchers, involvement of industrial associations in consortia or in advisory bodies.

Integrating Activities are expected to duly take into account all relevant ESFRI and other world-class research infrastructures to exploit synergies, to reflect on sustainability and to ensure complementarity and coherence with the existing European Infrastructures landscape.

Proposals should include clear indicators allowing the assessment of the progress towards the general and specific objectives, other than the access provision.

As the scope of an integrating activity is to ensure coordination and integration between all the key European infrastructures in a given field and to avoid duplication of effort, advanced communities are expected to submit one proposal per area.

Further conditions and requirements that applicants should fulfil when drafting a proposal are given in part D of the section "Specific features for Research Infrastructures". Compliance with these provisions will be taken into account during evaluation.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 million would allow this topic to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

On the basis of a multiannual plan drafted taking into account the assessment and the timing of previous grants as well as strategic priorities and needs, in term of research infrastructures services, emerging from other parts of Horizon 2020, this work programme invites proposals addressing the following areas listed under the different domains. A balanced coverage of the various domains, in line with the distribution of areas per domain, is expected as outcome of this topic.

2019 deadline

The areas to be addressed under the different domains will be defined at a later stage, before the opening of the related call.

**Expected Impact:**

- Researchers will have wider, simplified, and more efficient access to the best research infrastructures they require to conduct their research, irrespective of location. They benefit from an increased focus on user needs.

- New or more advanced research infrastructure services, enabling leading-edge or multidisciplinary research, are made available to a wider user community.
- Operators of related infrastructures develop synergies and complementary capabilities, leading to improved and harmonised services. There is less duplication of services, leading to an improved use of resources across Europe. Economies of scale and saving of resources are also realised due to common development and the optimisation of operations.
- Innovation is fostered through a reinforced partnership of research organisations with industry.
- A new generation of researchers is educated that is ready to optimally exploit all the essential tools for their research.
- Closer interactions between larger number of researchers active in and around a number of infrastructures facilitate cross-disciplinary fertilisations and a wider sharing of information, knowledge and technologies across fields and between academia and industry.
- For communities which have received three or more grants in the past, the sustainability of the integrated research infrastructure services they provide at European level is improved.
- The integration of major scientific equipment or sets of instruments and of knowledge-based resources (collections, archives, structured scientific information, data infrastructures, etc.) leads to a better management of the continuous flow of data collected or produced by these facilities and resources.
- When applicable, the integrated and harmonised access to resources at European level can facilitate the use beyond research and contribute to evidence-based policy making.
- When applicable, the socio-economic impact of past investments in research infrastructures from the European Structural and Investment Funds is enhanced.

**Cross-cutting Priorities:** International cooperation, Gender, Open Science, Socio-economic science and humanities

[1] See the Eligibility and admissibility conditions for this call.

[2] See part D of the section “Specific features for Research Infrastructures”.

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|---|---|
| **Horizon 2020 Pillar:** | Excellent Science |
| **Programme:** | European research infrastructures (including e-Infrastructures) |
| **Call Title:** | Support to policy and international cooperation |
| **Call Identifier:** | h2020-infrasupp-2018-2020 |
| **Topic Title:** | Policy and international cooperation measures for research infrastructures |
| **Topic Identifier:** | INFRASUPP-01-2018-2019 |
| **Type of Action:** | CSA Coordination and support action, RIA Research and Innovation action |
| **Deadline(s):** | 20-03-2019 (single-stage) |

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/infrasupp-01-2018-2019.html

**Specific Challenges:** High-quality, accessible research infrastructures are at the heart of the knowledge triangle of research, education and innovation. They enable tens of thousands of researchers in academia and industry to develop innovative ideas, products and services that foster European competitiveness and help tackle societal challenges facing our continent. However, ensuring the availability of state-of-the-art facilities requires multi-billion Euro long-term investments across the European Research Area. In the context of implementing the ERA Roadmap, the focus of this action is to set the conditions for effective investment and optimise the use of research infrastructures of European interest.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation for research infrastructures is needed with a number of key partners located in third countries/regions seen as strategic both for the development, exploitation and management of world-class research infrastructures and for ensuring the necessary complementarities on the international scene required to address research challenges with a global dimension by optimising the use of the available resources.

**Scope:**

Proposals will address the following sub-topic:

[D] Coordination and support actions for the 2019 deadline

Actions under this sub-topic, in line with the EU-**CELAC** SOM[2] strategic approach[3], will concretely build on the outputs of the newly established EU-**CELAC** Research Infrastructure Working Group, and will:

1. support the identification of priorities for regional and bi-regional cooperation based on the respective strategic road-mapping exercises;
2. foster the exchange of best practices between the EU and **CELAC** on issues of common strategic relevance such as regional road-mapping processes, research infrastructure management, RI staff development.
3. support the identification of a limited number of Research Infrastructures of bi-regional interest on which the project will have to conduct pilot cooperation demonstrators comprising:
   - The organisation of dedicated workshops and meetings between the EU and **CELAC** involved communities (research infrastructures, ministries, funding agencies). This can also be supported by bi-regional staff exchange activities, dedicated thematic training programmes (e.g. summer schools);
   - The development of specific roadmaps for cooperation for each of the pilot thematic dimensions and the initial implementation of identified actions, such as supporting reciprocal access to Research Infrastructures in the two regions by covering travel and subsistence costs;
   - The regular reporting to the EU-**CELAC** RI WG on the progress, for which an advisory board should be set up.

Under this sub-topic, legal entities established in Brazil and Mexico are eligible for funding from the Union.

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

**Expected Impact:**

[D] Coordination and Support actions for the 2019 deadline

- strengthen the development of a consistent cooperation agenda with **CELAC**;
- develop the international outreach of the European research infrastructures' ecosystem;
- foster a global research area vision and the development of global research infrastructures;
- contribute to capacity building and research infrastructures human capital development in targeted/relevant regions;
- enhance the role of the Union in multilateral fora;

**Cross-cutting Priorities:** International cooperation

[2] The Senior Officials Meeting (SOM) on Science and Technology of the EU-**CELAC** Joint Initiative on Research and Innovation (JIRI)

[3] See http://ec.europa.eu/research/iscp/index.cfm?pg=latin-americ-carib

**Horizon 2020 Pillar:** Excellent Science

**Programme:** Future and Emerging Technologies

**Call Title:** FET Proactive – High Performance Computing

**Call Identifier:** h2020-fethpc-2018-2020

**Topic Title:** International Cooperation on HPC

**Topic Identifier:** FETHPC-01-2018

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 15-05-2018 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/fethpc-01-2018.html

**Specific Challenges:** The aim is to develop strategic partnership in HPC with Brazil and **Mexico** that enables advancing the work on HPC applications in domains of common interest. Brazilian and **Mexican** partners will not be funded by the EU and they are expected to participate in the project with their own funding.

**Scope:**

a. Cooperation with **Mexico**: in the frame of the Bilateral Agreement on Science and Technology between the European Union and the United States of **Mexico**[1], collaboration for the development of state-of-the-art HPC applications (codes, algorithms, software tools, etc.) in domains of common interest such as energy (including oil, renewables, wind, etc.), life sciences, earth sciences, climate change and air pollution, and natural disasters, among others.

b. Cooperation with Brazil: developing state-of-the-art HPC applications in domains of common interest, such as in eHealth and drug design (e.g., related to diseases such as Zika and Dengue) or energy (e.g., renewables or management of natural resources). Proposals should put emphasis on application development towards exascale performance, develop codes, algorithms, other software tools, big data analytics, and hardware where appropriate. Proposals should ensure access to and using relevant big data suites as needed.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 2 million for the cooperation with **Mexico** and up to EUR 2 million for the cooperation with Brazil would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**Expected Impact:**

- Improved international cooperation of EU-**Mexico** and EU-Brazil research and industrial communities on advanced HPC application development.
- Improved sharing of information and expertise to solve common societal problems with the use of advanced computing.

**Cross-cutting Priorities:** International cooperation

[1] Communiqué of the 8th Joint Steering Committee of 27th May 2016 in Brussels

# Industrial Leadership

**Horizon 2020 Pillar:** Industrial Leadership

**Programme:** Leadership in Enabling and Industrial Technologies - Space

**Call Title:** Space 2018-2020

**Call Identifier:** h2020-space-2018-2020

**Topic Title:** International Cooperation Copernicus – Designing EO downstream applications with international partners

**Topic Identifier:** DT-SPACE-06-EO-2019

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 12-03-2019 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/dt-space-06-eo-2019.html

**Specific Challenges:** Copernicus, the Union's Earth observation and monitoring programme produces a wealth of data and information regarding the Earth sub-systems (land, atmosphere, oceans) and cross-cutting processes (climate change, emergency and security). Cooperation with international partners is key to promoting the uptake of Copernicus globally, exploiting possibilities for integrating in-situ, space data and information technologies. Building the Copernicus full, free and open data policy, the Commission seeks to facilitate access to Copernicus data and information for interested international partners. Administrative cooperation arrangements on Copernicus data access and earth observation data exchange have already been signed with the United States and Australia, and discussions towards similar cooperation have been started with other countries and regions (including Africa, **Latin American** countries and Asia-Pacific countries).

Cooperation with partner countries should be fostered with a view to using Copernicus data to jointly develop algorithms, services and/or products which serve local user needs and/or enhance the Copernicus global product quality.

It is encouraged to cooperate on data processing and applications using the Copernicus DIAS, integrate third-party data (including in-situ data) and envisage data assimilation into models and products made available on the Copernicus platform of the Copernicus services.

For such applications and developments to succeed in the market or with public users, the products need to be shaped according to users' needs and their value to users must be openly demonstrated to the wider user

community. This needs to be achieved in an environment integrated at the level of the user, in order for users to accept the innovative potential which the product promises. This will require also specific attention to be given to the various processes in place in the users' workflows which incorporate the EO information. Furthermore, the transition of R&D product prototypes to viable commercial product lines after the end of the EU funded phase remains a challenge to be addressed early on during product development.

**Scope:** Proposals shall address a wide variety of applications stemming from the use of Earth observation and their smart integration with other related technologies. Copernicus should be considered as part of the solution which may include other space or non-space inputs. This is likely to lead to greater value, opportunities and especially market uptake. Applications shall be sustained by a production process capable of delivering to the user a product which is validated and accepted as a marketable product in the international partner country. International collaboration has a key role to play in this context, as it enhances access to markets beyond the national borders, notably by enabling space application providers to absorb market-related tacit knowledge and know-how of their partners. Corresponding validations and customisations are to be undertaken, and the business case for the application is to be demonstrated. Service level models are to be developed, with appropriate quality of service definitions for the application. Application products are expected to adopt open standards for data documentation, data models and services including data processing, visualisation and cataloguing on a large scale.

Activities shall include joint cal/val activities or integration of local in-situ systems to enhance service products. It is important to exploit the added value of integration of EO observation technologies (both satellite, airborne and ground based) with positioning ones, and ICT (enhancing new frontiers opened by cloud computing) from international partner countries through the development of applications, and encourage their insertion into the market.

The choice of EO application is left to the proposer.

Applicants are advised to consult further information on the availability of Copernicus Sentinel Data, access to Copernicus Contributing Mission data, as well as issues recommended to be detailed in the proposals via the Commission's Copernicus website[1].

For projects to be funded under this topic:

- Participation of partners from countries that have signed a Copernicus Cooperation Arrangement[2] is required;
- Participation of industry, in particular SMEs, is encouraged;
- Participation of partners involved in international GEO initiatives is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This topic contributes to the Horizon 2020 focus area "Digitising and transforming European industry and services".

**Expected Impact:**

- Establish sustainable supply chains for innovative EO value added products and services with demonstrated commercial value with international client communities;
- Complete integration, based on international standards, into the customer's existing business processes and processing chains, as well as the economic viability of the application is to be demonstrated;
- Enhance the European industry's potential to take advantage of market opportunities and establish leadership in the field and to boost business activity;
- Lead to new or improved products, processes or services on the market that are capable of generating within 3 years after the end of public funding a significant turnover for the participants, and create new jobs;
- Lead to an improved quality of the Copernicus global product, thereby enhancing the stating of Copernicus data and information in a global environment and GEOSS.

**Cross-cutting Priorities:** International cooperation

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[1] http://www.copernicus.eu/main/data-access

[2] See Copernicus.eu for list of countries concerned

# Societal Challenges

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Climate action, environment, resource efficiency and raw materials

**Call Title:** Building a low-carbon, climate resilient future: climate action in support of the Paris Agreement

**Call Identifier:** h2020-lc-cla-2018-2019-2020

**Topic Title:** Inter-relations between climate change, biodiversity and ecosystem services

**Topic Identifier:** LC-CLA-06-2019

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 19-02-2019,04-09-2019 (two-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-cla-06-2019.html

**Specific Challenges:** The Paris Agreement notes the importance of taking action to ensure the integrity of all ecosystems and the protection of biodiversity in the context of combatting climate change and adapting to its impacts. An improved understanding of the interactions and feedbacks between ecological processes and climate change, together with evidence-based guidance, is crucial for the development of appropriate solution-oriented strategies and measures for biodiversity conservation and cost-effective ecosystems-based climate change adaptation and mitigation. Furthermore, there are opportunities to let biodiversity and ecosystems benefit multidimensionally from climate change adaptation and mitigation, because intelligent climate policy can simultaneously reduce other environmental stresses, such as air pollution.

**Scope:** Actions should investigate at all relevant spatial and temporal scales the way that ecological processes, biodiversity (including terrestrial and/or marine ecosystems as appropriate) and ecosystem services are impacted, both directly and indirectly, by climate change. Actions should consider the interactions and feedbacks between climate change and biodiversity, ecosystem functions and services. The vulnerability of biodiversity and ecosystems functions and services to climate change should be investigated and modelled across a range of European (including other European territories) climatic and ecological regions; this includes human activities with relevance to climate change. They should account for social, ecological and

economic aspects and climate change relevant stressors and sources of uncertainty. These should include tipping points and safe operating spaces. The role of nature-based solutions[1]in enhancing the efficiency and effectiveness of climate change adaptation and mitigation strategies should be assessed and synergies with other pollution-reducing environmental policies be explored. Work should build, as appropriate, on existing knowledge and activities such as relevant FP7/Horizon 2020 projects, European climate adaptation platforms and Copernicus Services, in particular on climate change, land monitoring and marine environmental monitoring, and contribute to long-term monitoring initiatives.

Projects should envisage resources for clustering with projects funded under the same topic and with ongoing and future projects funded under other relevant topics within Societal Challenge 5 and other parts of Horizon 2020.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with **CELAC**[2] countries.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million to 7 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:**

The project results are expected to contribute to:

- more effective, integrated and evidence-based biodiversity conservation strategies and ecosystem management in the face of climate change;
- pushing the EU to the forefront in climate-change predictive capacity through models better accounting for the interactions and feedbacks between biodiversity, ecosystems and the climate system;
- more effective ecosystem-based adaptation and mitigation, through evidence-based design and implementation of systemic nature-based solutions ;
- enhanced ecosystem integrity, functionality, resilience and delivery of services;
- increased investment in nature-based solutions, and ecosystem conservation, restoration and management, to support climate change adaptation and mitigation strategies;
- underpinning the EU Nature Directives, EU Biodiversity Strategy, 7th Environment Action Programme, and the EU Strategy on adaptation to climate change;
- informing major international scientific assessments such as the IPCC reports and the IPBES;
- the protection, restoration and enhancement of natural capital in line with the work of the Convention on Biological Diversity (CBD), the Intergovernmental science-policy Platform on Biodiversity and Ecosystem Services (IPBES), the Intergovernmental Panel on Climate Change (IPCC) and further relevant global processes and organisations.

**Cross-cutting Priorities:** Socio-economic science and humanities, International cooperation

[1] A definition is provided in the introductory text of this Work Programme

[2] Community of **Latin American** and **Caribbean** States

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Climate action, environment, resource efficiency and raw materials

**Call Title:** Greening the economy in line with the Sustainable Development Goals (SDGs)

**Call Identifier:** h2020-sc5-2018-2019-2020

**Topic Title:** Strengthening international cooperation on sustainable urbanisation: nature-based solutions for restoration and rehabilitation of urban ecosystems

**Topic Identifier:** SC5-13-2018-2019

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 19-02-2019,04-09-2019 (two-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-13-2018-2019.html

**Specific Challenges:** Unsustainable, non-resilient urbanisation patterns, the expansion or neglect of urban areas have caused the fragmentation, depletion and destruction of habitats, biodiversity loss and the degradation of ecosystems and their services. Increasing connectivity between existing, modified and new ecosystems and restoring and rehabilitating them within cities and at the urban-rural interface through nature-based solutions[1], is necessary to enhance ecosystem resilience and adaptive capacity to cope with the effects of climate and global changes and to enable ecosystems to deliver their services for more liveable, healthier and resilient cities.

**Scope:** Actions should develop models, tools, decision support systems, methodologies, strategies, guidelines, standards and approaches for the design, construction, deployment and monitoring of nature-based solutions and restoration, prevention of further degradation, rehabilitation and maintenance measures for urban and peri-urban ecosystems and the ecological coherence and integrity of cities. Actions should review and capitalise upon existing experiences and good practices in Europe and **CELAC**. The strategies and tools should be part of an integrated and ecologically coherent urban planning and city-making process that would secure a fair and equitable distribution of benefits from the restored urban ecology and limit its exposure to environmental stresses. Methodologies, schemes and indicators should be developed to allow for the assessment of the cost-effectiveness of the restoration measures, also accounting for their

possible negative effects. They should account for the totality of the benefits delivered by the restored ecosystems in terms of, for example, enhancing cities' climate-proofing and resilience, enhancing mitigation options, improving human health and well-being, reducing inequalities and reducing cities' environmental footprint. Actions should also dedicate efforts to awareness raising, outreach activities and education of citizens, including school children about the benefits of nature for their social, economic and cultural well-being.

Actions should bring together European and **CELAC** research partners, government agencies and urban authorities, private sector and civil society with relevant expertise and competence and foster participatory engagement in urban ecological restoration actions. Further to the eligibility and admissibility conditions applicable to this topic, proposals are encouraged to ensure, to the extent possible, an appropriate balance in terms of effort and/or number of partners between the EU and the international partners, which would correspond to their respective ambition, objectives and envisaged work. This would enhance the impact of the actions and the mutual benefits for both the EU and the international partners.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged. Proposals should pay attention to the special call conditions for this topic.

The participation of social sciences and humanities disciplines, addressing also the gender dimension, is crucial to properly address this topic. Cooperation and synergies with the activities undertaken within the Covenant of Mayors initiative for Climate and Energy[2] initiative (supported by the EC) should be sought where appropriate.

Actions should address the following topic:

Strengthening EU-**CELAC** collaboration (2019)

The possibility for participants from some **CELAC** countries to apply for funding under national co-funding mechanism should be explored[3].

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 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:**

The project results are expected to contribute to:

- restored and functioning urban ecosystems with an enhanced capacity to deliver their services;
- making a business and investment case for nature-based solutions on the basis of increased evidence about the benefits from restored urban ecosystems with regards to urban liveability, climate change resilience, social inclusion, urban regeneration, public health and well-being;

- guidelines for cost effective urban ecosystem restoration and ecological rehabilitation measures and new planning approaches and methods.

**Cross-cutting Priorities:** Socio-economic science and humanities, Open Innovation, International cooperation, Gender, RRI, Clean Energy

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[1] A definition is provided in the introductory text of this Work Programme

[2] www.covenantofmayors.eu

[3] See http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm#support-non-eu-countries

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Europe in a changing world – Inclusive, innovative and reflective societies

**Call Title:** GOVERNANCE FOR THE FUTURE

**Call Identifier:** h2020-sc6-governance-2018-2019-2020

**Topic Title:** Partnering for viability assessments of innovative solutions for markets outside Europe

**Topic Identifier:** GOVERNANCE-08-2018

**Type of Action:** CSA Coordination and support action

**Deadline(s):** 13-03-2018 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/governance-08-2018.html

**Specific Challenges:** New and emerging markets outside Europe offer huge opportunities for the European industry. To compete effectively in these markets, European companies and especially SMEs need to develop partnerships with innovation players in these economies from early on and to develop receptiveness for local success. This is crucial to better understand the specific market context and the consequent needs and demands of emerging users and consumers. The end goal is to bring a new product, service or process to the foreign market, possibly through an innovative application of existing technologies, methodologies, or business processes.

**Scope:** This action will enhance the evidence base for EU R&I policy through in-depth analyses of the outcomes, experiences and impacts of a critical number of viability assessment projects of innovative solutions for markets outside Europe.

The assessment projects will be selected following a series of open calls organised by the action. The proposal for undertaking the action should define the organisational process for selecting the assessment projects for which financial support will be granted, including the process of selecting, allocating and reporting on the use of independent experts and ensuring no conflicts of interest.

At least 80% of the EU funding shall be allocated to financial support for the third parties carrying out the selected assessment projects. The series of open calls shall address markets of developing countries, large **Emerging**

**Economies** (Brazil, Russia, India, China, **Mexico**) and developed countries with roughly the same allocation for each of these three country category.

The calls should specify that each assessment project should include a wide variety of activities to explore the practical, technological and commercial viability of an innovative solution in particular in terms of how it needs to meet local conditions and demands.

The proposal must clearly detail a fixed and exhaustive list of the different types of activities for which a third party may receive financial support such as market studies, partner search and networking, approaches for client/user involvement including societal, behavioural and cultural aspects, and other activities aimed at overcoming barriers for market introduction and uptake.

The proposal must clearly detail the criteria for awarding financial support and simple and comprehensive criteria for calculating the exact amount of such support, which may not exceed EUR 60 000 for each assessment project. The award criteria must be objective and non-discriminatory.

Each assessment project shall be led by an entity established in an EU Member State or Horizon 2020 Associated Country and shall involve at least one entity not established in an EU Member State or Horizon 2020 Associated Country. The proposal shall specify whether and how the latter would be funded according to its type of involvement (e.g. subcontractor, cooperation agreement) and its geographic origin (country automatically eligible for funding or not according to Horizon 2020 rules). Highly innovative SMEs with clear commercial ambitions and potential for high growth and internationalisation shall be targeted in particular.

The open calls must be published widely, including on the Horizon 2020 Participants Portal and through National Contact Points, and Horizon 2020 standards with respect to transparency, equal treatment, no conflict of interest and respect of confidentiality must be adhered to. The results of the calls must be published without delay, including, for each assessment project, a description of the project, the legal name and country of the third party, the start date and duration of the project, and the amount of the award.

The proposal should specify how it will promote the calls, how it will monitor and report on call results and how it will assess the quality of the outcomes and experiences from the assessment projects, as well as how it will provide regular in-depth analyses and which indicators will be used for measuring the impacts achieved. Analyses should draw up R&I policy conclusions on questions such as which additional joint R&I activities in third countries should be supported, what framework conditions for R&I cooperation need improving, and what further R&I support services should be implemented.

The Commission considers that a proposal requesting a contribution from the EU of up to EUR 9 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting another amount. The selected beneficiary or beneficiaries should have a solid operational and financial capacity.

**Expected Impact:**

- Economic growth and job creation, both in Europe and in the target countries, as well as additional societal and environmental benefits.
- Increased European economic and industrial competitiveness and excellence and participation in international value chains.
- Inclusion of locally developed and accepted technology and business models, including through co-creation with innovation players in the target countries.
- Greater availability, uptake and use of innovative solutions responding to the specific local needs and circumstances of the target countries and markets.
- R&I policy conclusions based on better connections and larger insights into market conditions outside Europe.

**Cross-cutting Priorities:** Socio-economic science and humanities, International cooperation

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy

**Call Title:** Rural Renaissance

**Call Identifier:** h2020-rur-2018-2020

**Topic Title:** Closing nutrient cycles

**Topic Identifier:** CE-RUR-08-2018-2019-2020

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 13-02-2018,11-09-2018 (two-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-rur-08-2018-2019-2020.html

**Specific Challenges:** The EU depends strongly on external sources for the supply of key fertilisers used in agriculture. Resource depletion and an increasing global demand for mineral fertilisers may, in the long term, lead to price tensions with an impact on food security. Mineral-based fertilisation also poses significant environmental problems, linked e.g. to the amounts of fossil energy needed to produce and transport these fertilisers. At the same time, large amounts of minerals are being dispersed in the environment through a large variety of organic waste streams, resulting in soil, water and air pollution. Agro-food specialisation has led to regional imbalances: whilst in some regions a nutrient overabundance is causing severe environmental impacts (e.g. nitrate pollution), other are experiencing nutrient deficits. These contrasting effects may also be observed between locations within the same region.

Several technologies are being developed to recover and re-use nutrients from organic by-products, but many are insufficiently mature and the characteristics of end-products do not always match end-user preferences. It is expected that the EU 'circular economy package' will boost the emergence and commercialisation of such new fertilisers, hence it is important to understand their agronomic and environmental performance in order to establish adequate policies, guidelines and application rules.

**Scope:** Proposals shall address inter-regional and intra-regional imbalances through effective nutrient recovery from by-products of the agro-food or the forestry sectors, and conversion into novel fertilisers. Proposals should include a task to cluster with other projects financed under this topic, under topic SFS-39-

2019 and – if possible – with other relevant projects in the field funded by Horizon 2020 (including under the BBI JU).

Proposals should address the following sub-topic:

A.[2018] Understanding properties and impacts of bio-based fertilisers (RIA)

The project shall generate a knowledge basis that could support policy decisions related to novel fertilisers based on organic resources[1]. On the basis of products that are currently available or under development, a comprehensive set of potential environmental impacts shall be identified and assessed across the fertiliser value chain[2], along with criteria related to their agronomic performance, safety and quality. Parameters and reference values shall be proposed as a basis for future policies related to new organic-based fertilisers. The project shall also propose reliable analytical measurement and testing methods for future compliance checks. An analysis of nutrient imbalances between regions in the EU shall be carried out, and the viability and sustainability of nutrient flows between regions through new organic-based fertilisers (including the understanding of logistic costs) shall be assessed.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 million for sub-topic A and 8 million for sub-topics B and C would allow this specific challenge to be addressed appropriately. Nonetheless this does not preclude the submission and selection of proposals requesting other amounts. For sub-topics B and C, participation of partners from **CELAC** countries[6] is encouraged.

**Expected Impact:** Proposals are expected to provide the technologies needed to develop a new generation of commercial, sustainable and safe fertilisers based on organic by-products, and the scientific knowledge needed to frame their use. This will help to:

- set up a coherent policy framework for the sustainable production and use of organic-based fertilisers (sub-topic A);
- replace conventional, non-renewable mineral fertilisers, hence reducing external dependence and risks related to depletion (sub-topics A, B and C);
- balance nutrient concentrations between or within regions, thus increasing resource efficiency (sub-topics A, B and C);
- reduce the environmental impacts linked to the dispersion of nutrients present in waste flows, or to the production of fossil-based fertilisers (sub-topics A, B and C);

In the long term, this shall contribute to a thriving, sustainable and circular bio-economy, the development of new business models that are synergic with other economic sectors, and therefore to the creation of wealth and quality jobs in rural areas.

**Delegation Exception Footnote:** It is expected that this topic will continue in 2020

**Cross-cutting Priorities:** Socio-economic science and humanities, Blue Growth, RRI

[1] This shall include both products with low organic matter (comparable to current mineral fertilisers) and products with high organic matter content (advanced organic fertilisers)

[2] Including the production, transport and use phases.

[6] Community of **Latin American** and **Caribbean** States

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy

**Call Title:** Sustainable Food Security

**Call Identifier:** h2020-sfs-2018-2020

**Topic Title:** European Joint Programme on agricultural soil management

**Topic Identifier:** LC-SFS-20-2019

**Type of Action:** COFUND-EJP COFUND (European Joint Programme)

**Deadline(s):** 23-01-2019 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sfs-20-2019.html

**Specific Challenges:** Good agriculture soil management contributes to food security, climate change mitigation/adaptation and ecosystem services. Preserving and increasing fertility of soils, not least through their organic content and water retaining capacity, increases agricultural production. Soils and their carbon content are also important for climate change mitigation. A number of good soil management practices have been developed to deal with some of the challenges; however serious knowledge gaps exist, e.g. on the characteristics of soils in various regions of Europe, the factors influencing their fertility or their capacity to store carbon, depending on different climate and environment conditions. The European Union is committed to addressing climate change with ambitious targets. An integrated framework for soil research in Europe is required to overcome current fragmentation and unleash the potential of agricultural soils to contribute to climate change mitigation/adaptation, while preserving or increasing agricultural functions.

**Scope:** The European Joint Programme will boost soil research with main emphasis on agricultural soil contribution to climate change mitigation and adaptation. The aim is to construct a sustainable framework for an integrated community of research groups working on related aspects of agricultural soil management[1]. The activities should look at how management of agricultural soils can reduce degradation of land and soils (in particular soil erosion and loss of organic matter), preserve and increase fertility of soils and how the processes related to organic content and water retaining capacity can support mitigation and adaptation to climate change. The EJP will evaluate and foster implementation of novel technologies for soil management and carbon sequestration. The aim of the EJP is also to look for synergies between

different approaches used in Europe for farm level accounting of emissions and removals from agricultural activities and particularly of carbon storage. In doing so, activities will contribute to improving inventories, measurements, reporting and accounting activities at different scales. Sustainable agricultural productivity and environmental aspects will also be targeted in connection with climate change mitigation and adaptation, so that optimisation of land management is ensured.

The European Joint Programme will include joint programming and execution of research and other joint integrative activities such as education and training (e.g. short-term missions, workshops), knowledge management, access to experimental facilities and databases, including also harmonisation, standardisation.

State-of-art technologies for mapping and soil sampling (physical, chemical and biological parameters) should be explored for wider and simple use from national level to farm level. In return, by e.g. developing new ICT tools, this could help farmers to protect and manage soils in line with current scientific understanding of processes. The EJP should also facilitate sampling and further development of LUCAS[2] –European Soil Database as well support EU contribution to global soil mapping activities.

Participating legal entities must have research funding and/or management responsibilities in the field of agriculture soil management.

The proposal should include a five-year roadmap describing the key priorities and governance processes as well as the first annual work plan.

The acquired knowledge should support policy making in the domain of agricultural soil management and related policies, such as agriculture, climate and environment, and when feasible and appropriate transfer of science to practice for better agricultural soil management by farmers should be envisaged.

The activities will need to be coordinated as appropriate with the Global Soil Partnership and more particularly with European Soil Partnership node, with the **Global Research Alliance** on agricultural greenhouse gases, the project selected under SFS-50-2017, 4/1000, GACSA, JPI FACCE, JPI CLIMATE, Belmont Forum, and soil activities coordinated by the JRC[3] when relevant and appropriate. The work of the EJP will also support number of policies: Common Agricultural Policy, Climate Change related policy and relevant environmental policies, in particular the implementation of the EU Soil Thematic Strategy[4].

Considering the budget available, the scope covered and the potential entities for the EJP, the Commission considers that an EU contribution to a maximum 50% of the total eligible costs of the action or up to 40 million EUR would allow this specific challenge to be addressed appropriately.

**Expected Impact:** The project will lead to significant long term alignment of research strategies and activities at national and EU level by:

- fostering understanding of soil management and its influence on climate mitigation and adaptation, sustainable agricultural production and environment;
- understanding how soil carbon sequestration can contribute to climate change mitigation at regional level including accounting for carbon;
- strengthening scientific cooperation at European level including training of young scientists;
- development of agreed knowledge base and database for European contribution towards international reporting;
- contributing to the European Soil Data Centre with harmonised European soil information for international reporting.

[1] Agro-forestry is included in the topic.

[2] Land use/cover area frame statistical survey, abbreviated as LUCAS, is a European field survey program funded and executed by Eurostat http://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Land_use/cover_area_frame_survey_%28LUCAS%29

[3] European Soil Data Centre; EIONET - European Environment Information and Observation Network – soil network

[4] COM(2006)231

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy

**Call Title:** Rural Renaissance

**Call Identifier:** h2020-rur-2018-2020

**Topic Title:** Closing nutrient cycles

**Topic Identifier:** CE-RUR-08-2018-2019-2020

**Type of Action:** IA Innovation action

**Deadline(s):** 23-01-2019 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-rur-08-2018-2019-2020.html

**Specific Challenges:** The EU depends strongly on external sources for the supply of key fertilisers used in agriculture. Resource depletion and an increasing global demand for mineral fertilisers may, in the long term, lead to price tensions with an impact on food security. Mineral-based fertilisation also poses significant environmental problems, linked e.g. to the amounts of fossil energy needed to produce and transport these fertilisers. At the same time, large amounts of minerals are being dispersed in the environment through a large variety of organic waste streams, resulting in soil, water and air pollution. Agro-food specialisation has led to regional imbalances: whilst in some regions a nutrient overabundance is causing severe environmental impacts (e.g. nitrate pollution), other are experiencing nutrient deficits. These contrasting effects may also be observed between locations within the same region.

Several technologies are being developed to recover and re-use nutrients from organic by-products, but many are insufficiently mature and the characteristics of end-products do not always match end-user preferences. It is expected that the EU 'circular economy package' will boost the emergence and commercialisation of such new fertilisers, hence it is important to understand their agronomic and environmental performance in order to establish adequate policies, guidelines and application rules.

**Scope:** Proposals shall address inter-regional and intra-regional imbalances through effective nutrient recovery from by-products of the agro-food or the forestry sectors, and conversion into novel fertilisers. Proposals should include a task to cluster with other projects financed under this topic, under topic SFS-39-

2019 and – if possible – with other relevant projects in the field funded by Horizon 2020 (including under the BBI JU).

Proposals should address the following sub-topic:

B.[2019] Bio-based fertilisers from animal manure (IA)

Projects shall demonstrate processes for recovery of mineral nutrients and production of novel fertilisers from animal manure. Proposals shall perform a thorough analysis of the state of the art, and demonstrate that the activities proposed go beyond past or ongoing research, without overlaps. Technologies that are currently under development shall be further improved, and possibly integrated, to produce high quality end-products[3]. Proposals shall address end-product marketability, safety, sustainability including emissions of greenhouse gasses and pollutants, and compliance with relevant EU regulations[4]. Their suitability and acceptability under the organic farming regulatory framework shall also be analysed. An integrated assessment of the business model (economic, agronomic, social and environmental) shall be performed. The whole value chain shall be demonstrated to a near-commercial scale (TRL 6-7). Proposals shall fall under the concept of the 'multi-actor approach'[5] including relevant actors such as agro-food industries, technology providers, research centres, end-users (farmers and farmer associations), or public administration.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 million for sub-topic A and 8 million for sub-topics B and C would allow this specific challenge to be addressed appropriately. Nonetheless this does not preclude the submission and selection of proposals requesting other amounts. For sub-topics B and C, participation of partners from **CELAC** countries[6] is encouraged.

**Expected Impact:** Proposals are expected to provide the technologies needed to develop a new generation of commercial, sustainable and safe fertilisers based on organic by-products, and the scientific knowledge needed to frame their use. This will help to:

- replace conventional, non-renewable mineral fertilisers, hence reducing external dependence and risks related to depletion (sub-topics A, B and C);
- balance nutrient concentrations between or within regions, thus increasing resource efficiency (sub-topics A, B and C);
- reduce the environmental impacts linked to the dispersion of nutrients present in waste flows, or to the production of fossil-based fertilisers (sub-topics A, B and C);
- develop new business models creating value from agro-food, fisheries, aquaculture or forestry by-products (sub-topics B and C).

In the long term, this shall contribute to a thriving, sustainable and circular bio-economy, the development of new business models that are synergic with

other economic sectors, and therefore to the creation of wealth and quality jobs in rural areas.

**Delegation Exception Footnote:** It is expected that this topic will continue in 2020

**Cross-cutting Priorities:** Socio-economic science and humanities, Blue Growth, RRI

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[3] These can be mineral-type (i.e. with low organic matter content), or advanced organic fertilisers (e.g. through improved composting processes).

[4] This includes notably regulations relative to fertilisers, animal by-products, or nitrates.

[5] See definition of the 'multi-actor approach' in the introduction to this Work Programme part.

[6] Community of **Latin American** and **Caribbean** States

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| **Horizon 2020 Pillar:** | Societal Challenges |
| **Programme:** | Health, demographic change and wellbeing |
| **Call Title:** | Better Health and care, economic growth and sustainable health systems |
| **Call Identifier:** | h2020-sc1-bhc-2018-2020 |
| **Topic Title:** | Actions in support of the International Consortium for Personalised Medicine |
| **Topic Identifier:** | SC1-HCO-01-2018-2019-2020 |
| **Type of Action:** | CSA Coordination and support action |
| **Deadline(s):** | 18-04-2018 (single-stage) |

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-hco-01-2018-2019-2020.html

**Specific Challenges:** Personalised Medicine is a very broad and multifaceted area where success relies on a well-functioning collaboration between several disciplines and different actors. While great advances have been made in some fields of medicine, in particular in stratification of cancer patients and in addressing rare diseases, most of today's healthcare protocols do not include personalised approaches apart from occasional division into broad age groups (children/adults/elderly), sex or ethnicity. Furthermore the prevention aspect of personalised medicine, i.e. identifying individuals prone to develop certain diseases, is largely isolated from treatment options. As is the case for a relatively nascent field there is a need for standardisation of approaches, including for sampling, data storage, interpretation and data exchange and also for clinical trials design and reimbursement models. European countries with their social model of healthcare along with (in several cases) centralised cost reimbursement, are ideally placed to lead the way for an integrated health management system. Many needs for coordination and support activities have been identified by ICPerMed[1], which includes representatives from most EU countries along with several other European countries and Canada. Also the wider internationalisation of ICPerMed can be underpinned by coordinating networking activities with third countries.

**Scope:**

The action should focus on the following field:

International aspect
The action should focus on building links with third countries by analysing the potential and advantages of collaboration in personalised medicine (PM) with those countries, studying areas of interest for Europe in PM collaboration and promoting international standards in the field. In particular the uptake of personalised approaches in health systems and healthcare should be addressed, taking into account social and cultural aspects, health economy issues and equitable healthcare. For the 2018 call, the project should focus on **CELAC**[2] as a group of countries, and for the 2019 call on China. Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals shall include at least one participant from the international partner region **CELAC** or from China, respectively.

For grants awarded under this topic for Coordination and Support Actions it is expected that results could contribute to European or international standards. Therefore, the respective option of Article 28.2 of the Model Grant Agreement will be applied.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 and 2 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:**

Contributing to the implementation and reach of the ICPerMed initiative; furthermore:

International aspect
Integrating the country/group of countries into ICPerMed activities. Support wider adoption of standards developed in Europe. Contribute towards the UN Sustainable Development Goal 3: Ensure healthy lives and promote well-being for all at all ages.

**Delegation Exception Footnote:** This topic will continue in 2020

**Cross-cutting Priorities:** Socio-economic science and humanities, International cooperation, Gender

[1] International Consortium for Personalised Medicine; http://icpermed.eu

[2] Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Grenada, Guyana, Jamaica, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay,Venezuela

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Health, demographic change and wellbeing

**Call Title:** Better Health and care, economic growth and sustainable health systems

**Call Identifier:** h2020-sc1-bhc-2018-2020

**Topic Title:** **Global Alliance for Chronic Diseases** (**GACD**) - Scaling-up of evidence-based health interventions at population level for the prevention and management of hypertension and/or diabetes

**Topic Identifier:** SC1-BHC-16-2018

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 18-04-2018 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-bhc-16-2018.html

**Specific Challenges:** The **Global Alliance for Chronic Diseases**[1] (**GACD**) aims to coordinate research on chronic diseases at a global level in order to enhance knowledge exchange across individual projects, and to better understand the impact of socio-economic, cultural, geopolitical and policy on research findings, so as to appropriately adapt interventions and scale-up to different geographical, economic and cultural settings. The **GACD** call will support research associated with the scale-up of interventions for the prevention and/or management of hypertension and/or diabetes in low- and middle-income countries (LMIC[2]) and/or in vulnerable populations in High Income Countries (HIC).

Hypertension affects one billion people worldwide and is a major contributor to the growing global pandemic of cardiovascular disease and stroke. It is estimated that raised blood pressure indirectly currently kills approximately 8 million people every year[3], while cardiovascular disease accounts for approximately 18 million deaths a year[4], nearly one third of total deaths. Not only is hypertension more prevalent in LMIC, there are also more people affected because a larger proportion of the population live in those countries than in HIC.

Poor hypertension control and the absence of strategies to maintain normal blood pressure, particularly in LMICs and in vulnerable populations in HIC, reflect the challenges of effective and affordable implementation in healthcare and other sectors.

In the past twenty years the global death rate from diabetes has doubled and the World Health Organisation is predicting that this will increase by two thirds by 2030. It is currently estimated that 422 million adults worldwide suffer from diabetes of which 80% are from LMIC. In 2012, an estimated 1.5 million deaths were directly caused by diabetes and another 2.2 million deaths were attributable to high blood glucose[5].

Identifying and evaluating interventions to assess efficacy is not always enough to ensure their wide uptake in the real-world. Even when information, tools and interventions have been tested within real-world effectiveness studies, the development of knowledge to support their broader uptake[6] has often remained outside the remit of research. Effectively implementing and scaling-up interventions, programmes, and policies to the regional and national levels are persistent challenges.

It is essential that policy makers, communities, families, caregivers, patients, as well as healthcare practice and other settings are equipped with evidence-based strategies to integrate scientific knowledge and effective interventions into everyday use. Researchers have found it challenging to ensure that tools and interventions deemed efficacious within clinical or community-based trials are readily adopted and implemented. Scaling-up interventions to large populations is not a straightforward task. In practice, translation from a pragmatic trial to the real-life commissioning and continuous delivery of an intervention across a health system is a huge political and economic challenge. Without intentional, guided efforts to scale-up, a new evidence-based intervention might not be broadly implemented.

**Scope:** Proposals must focus on the scale-up of interventions at population level for hypertension and/or diabetes prevention and/or management in LMIC, and/or in vulnerable populations in HIC. Proposals addressing comorbidities with either hypertension or diabetes, including between them, are encouraged.

Proposals must align with commitments or planned commitments at a regional or country level to implement evidence-based interventions (including evidence of cost-effectiveness and affordability) across health or other sectors. Policymakers, intervention payers (excluding research funding agencies), researchers (including local researchers), implementers and beneficiaries should be involved at all stages of the intervention development and implementation design to identify the challenges to intervention delivery in real settings. Such partners will be integral to the success and sustainability of the programme and it is essential that they are engaged early, and participate actively in the design of the research proposal. Researchers should collaborate closely with the authorities responsible for the programme's delivery. Those authorities must pay for and provide the interventions, possibly through loans contracted from development banks or other financial providers. Proposals will carry out the research associated with the scale-up of the intervention.

Proposals must build on evidence-based interventions (including evidence of cost-effectiveness and affordability) for the respective population groups under defined contextual circumstances and should seek to replicate and scale-up interventions. The selected interventions to be scaled-up should have been proven to be equitable, safe, effective, and efficient as well as making local health systems and health services more responsive and person-centred. In particular, proposals should:

- Be targeted at the regional or national level.
- Identify, develop, test, evaluate and/or refine strategies to scale-up evidence-based practices[7] into public health, clinical practice, and community settings.
- Identify, understand, and develop strategies for overcoming barriers to the adoption, adaptation, integration, scale-up and sustainability of evidence-based interventions, tools, policies, and guidelines. They should address a range of scale-up challenges, including complex processes, inefficient use of resources, inequitable allocation of resources, and supply and demand barriers to scaling-up and sustainability.
- Identify, understand, and develop strategies for measuring the unintended consequences of intervening at a system level.
- Use scale-up methods, tools, and approaches to enhancing equity, efficiency, people-centred, and responsive health systems, promoting a culture of evidence-informed learning, engaging stakeholders, and improving decisions on policies and programmes to achieve better health outcomes.
- Be aligned with existing policies, programme management, monitoring and evaluation processes. They may include important shifts in the practices, incentives, and engagement of global, national and regional health policy, regulatory frameworks, management, research, publication, and civil society stakeholders.
- Include health economic assessments as an integral part of the proposed research.
- Demonstrate that policy makers and health authorities are supportive of, and have been engaged in designing the research proposal.

Proposals should be multidisciplinary and cross-sectorial. Relevant gender and cultural aspects, as well as vulnerable populations, should be taken into account. Proposals may build on previous hypertension and diabetes projects supported under the **GACD** that have demonstrated the potential for impact.

The proposal will cover the research around the scaling up of the interventions. The research may cover:

- Identification of the best evidence-based interventions;
- Definition and implementation of optimum scale-up methods (e.g. pilots in multiple settings, defining a scalable unit);
- Embed real time monitoring/evaluation to refine protocols and ensure adaptability and effective uptake;
- Evaluation of health outcomes;

- Where appropriate, make recommendations for the replication of the applied scale-up interventions to other countries or very large regions.

Research under **GACD** involves regular exchange of research findings and information across participating projects by means of cross-project working groups and annual joint meetings. Wherever feasible, projects should harmonise and standardise their data collection and exchange data. Applicants must budget for annual costs of having two team members participate in one annual face-to-face meeting of the Annual Scientific Meeting (location to vary annually).

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 4 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:**

(one of or combinations of):

- Enhanced programmes and policies that can significantly reduce the numbers of patients with hypertension and/or diabetes through prevention.
- Enhanced programmes and policies that can significantly increase the number of patients for whom hypertension and/or diabetes was previously undetected.
- Enhanced programmes and policies that can significantly increase the number of patients for whom hypertension and/or diabetes is controlled.
- Enhanced effective, efficient, equitable and sustainable health systems, to lesser inequalities and greater health equity and additional societal benefits, in the medium and long-term.
- Improved health services more responsive to the need of the comorbidities of hypertension and diabetes and other non-communicable diseases.
- Recommendations to translate findings to other countries or very large regions.
- Contribute to the attainment of the sustainable development goals for non-communicable diseases[8].

**Cross-cutting Priorities:** Gender, Socio-economic science and humanities, International cooperation

[1] http://www.**gacd**.org/

[2] World Bank country classification based on estimates of gross national income per capita: databank.worldbank.org/data/download/site-content/CLASS.xls

[3] Forouzanfar et al. JAMA. 2017;317(2):165-182. doi:10.1001/jama.2016.19043

[4] Roth et al. J Am Coll Cardiol. 2017 May 15. pii: S0735-1097(17)37244-3.

[5] WHO Global report on diabetes: http://www.who.int/diabetes/global-report/en/

[6] For instance: cost and financing of the intervention, provider training, availability of resources, integration into healthcare systems, delivery to vulnerable or difficult-to-reach populations, monitoring the quality of intervention delivery

[7] For instance: behavioural interventions; prevention, early detection, diagnostic, treatment and disease management interventions; quality improvement programmes

[8] https://sustainabledevelopment.un.org/sdg3

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| **Horizon 2020 Pillar:** | Societal Challenges |
| **Programme:** | Health, demographic change and wellbeing |
| **Call Title:** | Better Health and care, economic growth and sustainable health systems |
| **Call Identifier:** | h2020-sc1-bhc-2018-2020 |
| **Topic Title:** | Translational collaborative cancer research between Europe and the Community of **Latin American** and **Caribbean** States (**CELAC**) |
| **Topic Identifier:** | SC1-BHC-18-2018 |
| **Type of Action:** | RIA Research and Innovation action |
| **Deadline(s):** | 18-04-2018 (single-stage) |

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-bhc-18-2018.html

**Specific Challenges:** The world is facing a critical healthcare problem: due to a growing and aging population increasingly exposed to a number of well-known and new risk factors, cancer is becoming one of the most important public health problems worldwide.

In 2012, the incidence of new cancer cases in the Community of **Latin American** and **Caribbean** States (**CELAC**) countries was 1.1 million, with 0.6 million deaths; in Europe the incidence was 3.45 million new cases, with 1.75 million deaths[1]. Moreover, about two-thirds of all cancer deaths occur in low- and middle-income countries and incidence and mortality are expected to increase by about 75% in these countries by 2030[1].

Current cancer care does not fully reflect ethnic, cultural, environmental and resource differences. In addition, limited research is being conducted on tumours primarily found in **CELAC** countries.

There is a need to establish evidence obtained through international high-quality translational collaborative research to tailor cancer control to specific patient groups.

**Scope:** Proposals must focus on translational and multidisciplinary research to identify specific patient groups in view of improving one or more of the following aspects: screening, early detection, diagnosis, and/or prognosis.

Proposals must build on the diverse genetic backgrounds, risk factors, cancer incidence[3], geographical environment, and/or different healthcare models (including social care and volunteers) in European and **CELAC** countries.

Proposals may integrate molecular, behavioural, nutritional, clinical, social and environmental epidemiology[4] data from cohorts; registries; biobanks; repositories; research infrastructures;

Considerations of effectiveness and potential clinical benefit should be integrated in the proposals where relevant.

Specific population age groups, sex and gender aspects, socio-economic, ethical, ethnic, cultural, lifestyle and behavioural factors and any other non-health related individual attributes should be taken into consideration where relevant.

Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals shall include at least two participants from two different **CELAC** countries[5].

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 4 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:**

The proposals should address one of or combinations of:

- Identify high-risk populations with a view to tailor early detection and diagnosis or to optimise prevention.
- Improve early detection and/or diagnosis and/or prognosis of cancer adapted to specific settings.
- Provide evidence to national programmes and policies focusing on screening, early detection and/or diagnosis and/or prognosis.
- Provide novel opportunities for the development of targeted therapies.
- Contribute to attaining sustainable development goals for non-communicable diseases[6]

**Cross-cutting Priorities:** International cooperation, Socio-economic science and humanities, Gender, Open Science

[1] http://www.iarc.fr

[2] http://www.iarc.fr

[3] For instance, cancers proportionally more frequent in the **CELAC** region include gastric, cervical, gallbladder, childhood leukaemia

[4] including environmental carcinogens, e.g. in homes, occupational, urban and rural settings

[5] **CELAC** countries: Antigua and Barbuda, Argentina, Bahamas, Barbados, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominica, Dominican Republic, Ecuador, El Salvador, Guatemala, Haiti, Grenada, Guyana, Jamaica, Honduras, **Mexico**, Nicaragua, Panama, Paraguay, Peru, Saint Lucia, Saint

Kitts and Nevis, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay, Venezuela.

[6] https://sustainabledevelopment.un.org/sdg3

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Secure, clean and efficient energy

**Call Title:** Building a low-carbon, climate resilient future: Secure, clean and efficient energy

**Call Identifier:** h2020-lc-sc3-2018-2019-2020

**Topic Title:** Market Uptake support

**Topic Identifier:** LC-SC3-RES-28-2018-2019-2020

**Type of Action:** CSA Coordination and support action

**Deadline(s):** 13-02-2018 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-res-28-2018-2019-2020.html

**Specific Challenges:** Since the adoption of RES Directive in 2009, most Member States have experienced significant growth in renewable energy production and consumption, and both the EU and a large majority of Member States are on track towards the 2020 RES targets. The "Clean Energy for all Europeans" package adopted at the end of 2016 introduces further targets towards 2030 and introduces modifications in the energy market design that will empower individuals or communities to participate actively to the energy system transformation. Renewable energy technologies have the opportunity to play a crucial role in this transition, leading to an increased share of renewable energy consumed in the EU and to a more active role for the consumers. However, introducing and deploying at large scale new and improved technologies entails a number of challenges, notably as regards their initial high cost, the consumer acceptance and the legal and financial barriers arising from bringing novel solutions to a technical environment with already reliable solutions in place.

**Scope:** The proposal will develop solutions which can be easily implemented for overcoming barriers to the broad deployment of renewable energy solutions. In particular, the proposal will address one or more of the following issues:

- Recommendation for harmonisation of regulations, life cycle assessment approaches, environmental impact methodologies of renewable energy solutions;
- Development of additional features for RES to be compliant with the electricity market requirements, making them "market fit", such as developing the possibility to provide additional services to the grid such

as peak power and having an active role in electricity balancing/reserve market;
- Support sharing of best practice between public funding bodies for the cross-border participation in RES electricity support schemes, increasing the use of the "RES co-operation mechanisms" foreseen in the legislation;
- Development of insurance schemes to be available to developers in Europe and worldwide to mitigate risks, such as in geothermal drilling and offshore installation;
- Development of innovative financing mechanisms, schemes and sharing of best practices for cost-effective support for uptake of renewable sources, such as through the use of Public Procurement of Innovative Solutions instrument or smartly designed tenders;
- Development of support tools to facilitate export markets, especially for technologies where export market potential is much higher than internal market e.g. for hydropower. The focus will be on capacity building for market activities in developing and **Emerging Countries**, including identifying research needs, within the objectives of developing country-specific technologies and solutions, and/or adapting existing ones, taking into account local aspects of social, economic and environmental sustainability. Participation of developing and **Emerging Countries** is encouraged, in particular if these countries have identified energy as a priority area for their development and whenever common interest and mutual benefits are clearly identified.
- Development of tools (methods and models) for environmental impact assessments of renewable energy projects;
- Development of tools or services using global earth observation data, (such as those available through COPERNICUS), to support development and deployment of renewable energy sources;
- Determining conditions and defining options for retrofitting existing energy and industrial installations (first generation biofuels, pulp and paper, fossil refineries, fossil firing power and Combined Heat and Power (CHP) plants) for the complete or partial integration of bioenergy, with concrete proposals for such retrofitting for the different cases of bioethanol, biodiesel, bio-kerosene, intermediate bioenergy carriers and other advanced biofuels and renewable fuels and biomass based heat and power generation, on the basis of the assessment of the capital expenditure (CAPEX) reduction and market benefit;
- Development of optimisation strategies regarding cost, energy-performance and LCA for bioenergy and sustainable renewable fuels in upgraded energy and industrial installations;
- Development of cost-effective logistics, feedstock mobilisation strategies and trade-centres for intermediate bioenergy carriers.

For all actions, the consortia have to involve and/or engage relevant stakeholders and market actors who are committed to adopting/implementing the results. The complexity of these challenges and of the related market uptake barriers calls for multi-disciplinary research designs, which should include contributions also from the social sciences

and humanities. Where relevant, regional specificities, socio-economic, spatial and environmental aspects from a life-cycle perspective will be considered. Where relevant, proposals are expected to also critically evaluate the legal, institutional and political frameworks at local, national and European level and how, why and under what conditions these (could) act as a barrier or an enabling element.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 3 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:**

It is expected that the solution proposed will contribute to:

- Facilitate the introduction of these technologies and increase the share of renewable energy in the final energy consumption;
- Lead to substantial and measurable reductions for project developments, whilst still fully addressing the needs for environmental impact assessments and public engagement;
- Develop more informed policy, market support and financial frameworks, notably at national, regional and local level, leading to more cost effective support schemes and lower financing costs for RES facilities.

**Delegation Exception Footnote:** It is expected that this topic will continue in 2020.

**Cross-cutting Priorities:** International cooperation, Open Innovation, Clean Energy, RRI, Socio-economic science and humanities

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Secure, clean and efficient energy

**Call Title:** Building a low-carbon, climate resilient future: Secure, clean and efficient energy

**Call Identifier:** h2020-lc-sc3-2018-2019-2020

**Topic Title:** Market Uptake support

**Topic Identifier:** LC-SC3-RES-28-2018-2019-2020

**Type of Action:** CSA Coordination and support action

**Deadline(s):** 11-12-2018 (single-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-res-28-2018-2019-2020.html

**Specific Challenges:** Since the adoption of RES Directive in 2009, most Member States have experienced significant growth in renewable energy production and consumption, and both the EU and a large majority of Member States are on track towards the 2020 RES targets. The "Clean Energy for all Europeans" package adopted at the end of 2016 introduces further targets towards 2030 and introduces modifications in the energy market design that will empower individuals or communities to participate actively to the energy system transformation. Renewable energy technologies have the opportunity to play a crucial role in this transition, leading to an increased share of renewable energy consumed in the EU and to a more active role for the consumers. However, introducing and deploying at large scale new and improved technologies entails a number of challenges, notably as regards their initial high cost, the consumer acceptance and the legal and financial barriers arising from bringing novel solutions to a technical environment with already reliable solutions in place.

**Scope:** The proposal will develop solutions which can be easily implemented for overcoming barriers to the broad deployment of renewable energy solutions. In particular, the proposal will address one or more of the following issues:

- Recommendation for harmonisation of regulations, life cycle assessment approaches, environmental impact methodologies of renewable energy solutions;
- Development of additional features for RES to be compliant with the electricity market requirements, making them "market fit", such as developing the possibility to provide additional services to the grid such

as peak power and having an active role in electricity balancing/reserve market;
- Support sharing of best practice between public funding bodies for the cross-border participation in RES electricity support schemes, increasing the use of the "RES co-operation mechanisms" foreseen in the legislation;
- Development of insurance schemes to be available to developers in Europe and worldwide to mitigate risks, such as in geothermal drilling and offshore installation;
- Development of innovative financing mechanisms, schemes and sharing of best practices for cost-effective support for uptake of renewable sources, such as through the use of Public Procurement of Innovative Solutions instrument or smartly designed tenders;
- Development of support tools to facilitate export markets, especially for technologies where export market potential is much higher than internal market e.g. for hydropower. The focus will be on capacity building for market activities in developing and **Emerging Countries**, including identifying research needs, within the objectives of developing country-specific technologies and solutions, and/or adapting existing ones, taking into account local aspects of social, economic and environmental sustainability. Participation of developing and **Emerging Countries** is encouraged, in particular if these countries have identified energy as a priority area for their development and whenever common interest and mutual benefits are clearly identified.
- Development of tools (methods and models) for environmental impact assessments of renewable energy projects;
- Development of tools or services using global earth observation data, (such as those available through COPERNICUS), to support development and deployment of renewable energy sources;
- Determining conditions and defining options for retrofitting existing energy and industrial installations (first generation biofuels, pulp and paper, fossil refineries, fossil firing power and Combined Heat and Power (CHP) plants) for the complete or partial integration of bioenergy, with concrete proposals for such retrofitting for the different cases of bioethanol, biodiesel, bio-kerosene, intermediate bioenergy carriers and other advanced biofuels and renewable fuels and biomass based heat and power generation, on the basis of the assessment of the capital expenditure (CAPEX) reduction and market benefit;
- Development of optimisation strategies regarding cost, energy-performance and LCA for bioenergy and sustainable renewable fuels in upgraded energy and industrial installations;
- Development of cost-effective logistics, feedstock mobilisation strategies and trade-centres for intermediate bioenergy carriers.

For all actions, the consortia have to involve and/or engage relevant stakeholders and market actors who are committed to adopting/implementing the results. The complexity of these challenges and of the related market uptake barriers calls for multi-disciplinary research designs, which should include contributions also from the social sciences

and humanities. Where relevant, regional specificities, socio-economic, spatial and environmental aspects from a life-cycle perspective will be considered. Where relevant, proposals are expected to also critically evaluate the legal, institutional and political frameworks at local, national and European level and how, why and under what conditions these (could) act as a barrier or an enabling element.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 3 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:**

It is expected that the solution proposed will contribute to:

- Facilitate the introduction of these technologies and increase the share of renewable energy in the final energy consumption;
- Lead to substantial and measurable reductions for project developments, whilst still fully addressing the needs for environmental impact assessments and public engagement;
- Develop more informed policy, market support and financial frameworks, notably at national, regional and local level, leading to more cost effective support schemes and lower financing costs for RES facilities.

**Delegation Exception Footnote:** It is expected that this topic will continue in 2020.

**Cross-cutting Priorities:** International cooperation, Open Innovation, Clean Energy, RRI, Socio-economic science and humanities

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Smart, green and integrated transport

**Call Title:** 2018-2020 Mobility for Growth

**Call Identifier:** h2020-mg-2018-2019-2020

**Topic Title:** InCo flagship on reduction of transport impact on air quality

**Topic Identifier:** LC-MG-1-1-2018

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 30-01-2018, 19-09-2018 (two-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-mg-1-1-2018.html

**Specific Challenges:** The air quality situation in Europe has not sufficiently improved for some pollutants and significant exceedances are still found, for example, for particles, ozone and nitrogen oxides, particularly in areas affected by specific environmental or industrial conditions.. Similar situations occur in many cities around the world, and this is the reason for designing this international cooperation flagship.

High hopes are pinned on zero tailpipe emission technologies that might solve the problem in the longer term, particularly in the road sector. However, fleet renewal is too slow to just wait for all vehicles on the road to be replaced by electrified ones in order to solve the air quality issue. Also, emissions from other sectors, such as ships and aircraft in ports, internal waterways and airports, can contribute significantly to the problem, and zero emission technologies are not often available.

It is therefore urgent to address in as many ways as possible the reduction of the impact of the existing internal combustion transport fleets and support local authorities and other regulatory bodies with the provision of appropriate/advanced tools. Monitoring of the car fleet, for instance, can detect high emitters, allowing to provide information to authorities for possible cases of defeat devices, tampering, poor durability of depollution systems.

In the case of tampering, the legal situation varies among member states and needs to be clarified in view of facilitating enforcement.

The choices of customers buying new vehicles can be oriented towards cleaner vehicles by making visible which are those that have an overall better performance (i.e. as a consumer information measure, separate from EU

certified type-approval testing, while users of existing polluting vehicles could be encouraged to use them in a more environmentally friendly way.

It is also important to verify the performance of On Board Detection (OBD) systems and of periodic inspections and improve them where appropriate.

On board measurement of pollutants could enable new implementation approaches to regulation showing on the one hand how much each driver pollutes (helping in the eco-driving effort) whilst on the other hand allowing a real "polluter pays" approach to certification, taxation and traffic regulation (the needed technology will be explored in LC-MG-1-4-2018, together with research on hardening de-pollution systems against tampering).

Apart from road vehicles, airports and ports can strongly contribute to poor air quality, it is therefore important to quantify their impact and monitor their evolution.

Finally, the health impact of extremely fine particles and of Volatile and Semi-Volatile Organic Compounds (VOCs and SVOCs free or absorbed in the particles), is still not well understood. Such ultra-fine particles have been proven to pass the alveoli, placental and brain barriers and they can reach other organs through the blood stream and generate serious health impacts which need further research.

**Scope:** Given the policy relevance of the topic, the selected consortia will regularly share their findings with relevant European Commission services. Proposals will have to address one of the following subtopics and clearly indicate which subtopic they are addressing:

a. Low-emission oriented driving, management and assistance. This area aims at exploring the impact of the user (including his driving behaviour and choices in maintaining the vehicle) on emission production:

- Driving behaviour exploration: PEMS[1] driving measurement campaigns to assess driver behaviour variability and correlate it with real powertrain emission, and (if needed by lab measurement and modelling) brakes and road/tires emissions;
- Derivation of low polluting-emissions driving practices and dissemination through awareness campaigns. The collected data should be of adequate quality to be also usable as input for future implementation in driving assistance tools and automated driving, as well as traffic management;
- Assessment of the impact of other user behaviours such as poor maintenance or tampering. All aspects and causes should be studied, including an assessment of the real effectiveness of OBD and periodic inspections, of the legal situation of tampering in each member state (for both sales of devices and installation) and of the most effective ways to induce car owners not to tamper and to properly maintain their vehicles (considering both technical and economic reasons for their behaviour);

- Assessment of the potential impact of retrofits[2], both for light and heavy duty road vehicles and NRMM[3] (including the development of methodologies to verify a level of durability appropriate for the application) and promotion of their application in cities with pollution problems.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497) international cooperation is encouraged, in particular with China and other Asian and/or **CELAC** countries.

b. Starting from recently defined emissions indicators (RDE test results including NOx max and PN max values, WLTP CO2 emissions), development of a 12 to 18 month project to timely develop support to informed consumer choice by defining a holistic testing and scoring mechanism. This should be capable of assessing all vehicles (conventional and electrified) and lead to a single "GREEN VEHICLE index". Such index should encompass all of the relevant criteria, e.g. tailpipe CO2, and polluting emissions such as NOx/NO2, hydrocarbons and particles, noise, performance and operating cost. The developed methodology should be fine-tuned in a pilot phase on a sufficiently large number of vehicles to ensure that the results are comparable and provide a fair and reliable assessment. Such an index could result in a public awareness scheme (running after project end) capable of orienting eco-conscious consumer choice, and to create a virtuous circle (as achieved by EURONCAP for safety) creating competition on who brings to market the cleanest vehicles. The mechanism should complement (not overlap with) the results of regulatory real-driving emissions (RDE) tests with an aim to maximise the coverage of real-world driving situations and provide relevant information. Particular attention should be paid to the ways in which the variability of real-world emissions performance is communicated, and what usage patterns deliver the best performance (being therefore complementary to the study and awareness raising activities in Subtopic A).

c. Sensing and monitoring emission in urban road transportation system. This area intends to urgently provide a means to monitor fleet-wide on-road emissions, to detect and repress any emission-affecting modifications of individual vehicles (tampering) or bad maintenance/poor after-treatment system durability/OBD ineffectiveness, to support local air quality plans, and to help national and local enforcement authorities in identifying and prosecuting infringing vehicles.

- Remote sensing of road vehicle emissions (contactless measurements from the roadside, portals or from chasing vehicles); further technological development of available techniques is needed to improve performance, reduce costs, facilitate use by unskilled personnel and achieve a broader deployment potential;

- Establishment of a proper data infrastructure built around vehicle registration databases, traffic management measures and air quality monitoring systems;
- Demonstration of the system in several cities;

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with China.

d. Cost effective enforcement of shipping related emissions legislation, both at the EU and global level, is essential for the expected environmental improvements to be achieved. To support the enforcement, assess their effectiveness and to identify potential future gaps it is necessary to develop, evaluate and demonstrate cost effective systems to measure the airborne emissions of pollutants from a vessel under real operational conditions ( e.g using on board systems) and to target ships for inspection and the enforcement of emission limits.

   For coastal, urban and port areas, develop measuring technologies and 'beyond state of the art' modelling tools to assess the contribution of air emissions from ships and their comparative impact on air quality and health building also on projects such as 'Interreg Clean North Sea Shipping (CNSS) and the LIFE project 'Clean Inland Shipping' (CLINSH).

   In addition to characterising and quantifying particulate matter (in particular, the most harmful, including ultrafine), such systems should also be able to simultaneously measure other relevant pollutants including SOx and NOx.

   In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with the involvement of the largest ports and regulating authorities and other relevant bodies within the Asian region as well as in the frame of the activities of the International Maritime Organisation to which EU Member States and global maritime nations are parties.

e. Measurement of airborne pollutants emissions from aircraft under parking (with functioning APU), taxiing, take-off and climb-out conditions and under different climate conditions (In addition to characterising and quantifying particulate matter down to at least 10nm, systems should also be able to simultaneously measure other relevant pollutants including SOx and NOx). An assessment of pollutants' transport and impact on air quality in and around airports, in a form potentially suitable for regulation should be performed.

   In line with the Union’s strategy for international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with Asia, **CELAC** and the US.

f. In-vitro and in-vivo assessment of health effects of ultrafine nanoparticles (VOCs and SVOCs) emitted from engines of the different transport modes

particularly when using fuels with high aromatic content. Focus should be on understanding the biological processes leading to acute genotoxic and systemic effects in the lungs and, in particular, beyond.

The Commission considers that proposals requesting a contribution from the EU between EUR 2 and 5 million would allow the different specific challenges to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

**Expected Impact:** All the above actions contribute to the UN's Sustainable Development Goals (SDG), in particular SDG 3 ("Ensure healthy lives and promote wellbeing for all at all ages") and 11 (“Make cities and human settlements inclusive, safe, resilient and sustainable”) through:

- Reduction of emissions from the existing combustion-engined car fleet (A, C);
- Reduction of unnecessary driver-induced emissions though a better awareness by the public of their role in controlling polluting emissions (A) ;
- Increase of low emitting vehicle sales by providing more information to guide buyers towards the cleanest available vehicles (B);
- Reduction of transport-related emissions though the improvements of detection and enforcement against vehicles with tampering, defeat devices or durability issue, as well as of ships not complying with emissions regulations, i.e. not using clean low-sulphur fuels, suitable engine parameters for NOx reduction or properly activating de-pollution devices where appropriate (C, D) ;
- Better understanding of the impact of the different transport modes through monitoring detection and modelling of emissions in the existing road vehicle fleet as well as ships and aircraft (C, D, E) ;
- Improved and more comprehensive data for risk assessment from air pollutants from different transport modes and identification of cost effective reduction measures (F);
- Provide technical evidence to assess gaps in current regulation of vehicles and air quality (All).

**Cross-cutting Priorities:** International cooperation, Socio-economic science and humanities

[1] Portable Emissions Measurement Systems

[2] For instance those resulting from the Horizon Prize for the cleanest engine retrofit.

[3] Non-Road Mobile Machinery, i.e. earth moving machines, locomotives etc).

**Horizon 2020 Pillar:** Societal Challenges

**Programme:** Smart, green and integrated transport

**Call Title:** 2018-2020 Mobility for Growth

**Call Identifier:** h2020-mg-2018-2019-2020

**Topic Title:** InCo Flagship on Integrated multimodal, low-emission freight transport systems and logistics

**Topic Identifier:** MG-2-9-2019

**Type of Action:** RIA Research and Innovation action

**Deadline(s):** 16-01-2019,12-09-2019 (two-stage)

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/mg-2-9-2019.html

**Specific Challenges:** Global as well as regional and local freight transport is massively changing due to accelerating technological changes, the establishment of new players in global trade, the rise of protectionism, and the slowing down of economic growth of important partners such as China. New logistics concepts (such as the Physical Internet) and new disruptive technologies, such as Blockchain, Industry 4.0, vehicle automation and truck platooning or new business models, like 'crowdshipping' and the circular economy models will have an impact on global freight transport, its optimisation and its environmental footprint that needs to be better understood and assessed. Furthermore new trade routes from and to Europe will probably change the traditional pattern of freight movement and will need new connections with European corridors and hubs at a time of budget limitation on investment for transport infrastructure.

Sustainable integrated multimodal freight transport is particularly important for the development of countries in special situations – least developed countries, landlocked developing countries, and small island states and outermost regions - which face common problems resulting from the under-resourcing of transport infrastructure and services, traffic-related air pollution and high accident levels, but also diverse geopolitical and trade situations. These countries/regions also have an enormous potential for sustainable development. International cooperation can support their economies both domestically and globally for a global benefit and ensuring better integration of these regions into the world economic landscape.

**Scope:**

Proposals should address one or more of the following aspects:

- Understanding how new concepts in logistics, in combination with new national strategies to organize freight flows in ports and airports have an impact on global freight transport, and on related greenhouse gas emissions. Multimodal transfer zones from ports and airports from long-haul to last mile logistics need to be better analysed in order to find appropriate measures and for ensuring seamless door-to-door transport, exploiting the full potential of modularization and other innovative logistics concepts. International cooperation with major trade partner countries is essential to ensure the smooth transfer at all levels of the transport chain. Proposals should also address solutions that enable peripheral regions and landlocked developing countries to have proper accessibility to international trade.
- Speed up the process and transition towards the Physical Internet paradigm, demonstrating how different technologies, business cases and standards come together in real-world applications, and are able to deliver added value to the users and have positive impacts in terms of emissions and energy consumption. Priority partners should be USA, Canada, China, Japan. Demonstrations of satellite-based applications using EGNOS and Galileo are also suggested.
- Research the range of new issues and questions emerging with the new trade routes to and from Europe, such as the Northern Sea Route (across an ice-free Arctic in summer months) or the new Silk Road routes and the Chinese One Belt One Road strategy; the effect of the development of these new routes on trans-continental freight modal split; the additional interfaces needed between the new overland routes and the EU internal transport networks / corridors. Priority partners are those along the routes. The geopolitical and trade aspects of these developments, in particular on countries affected by these developments, should be considered.
- Understand new disruptive trends emerging as on-demand logistics solutions such as crowd-sourcing of deliveries (or 'crowdshipping') which have the potential to be a logistics 'game-changer', evidencing different impacts in both emerging and industrialized countries, including the possible integration of passengers and freight flows. Research on the crowd-sourcing of logistics would benefit from international collaboration, partly to compare the development of the phenomenon in different markets, but also to explore whether it can be extended to long-haul / cross border freight delivery, taking in consideration economic, regulatory and security constraints.
- Assess the impact of emerging technologies in other sectors than freight transport (e.g. Blockchain, Industry 4.0, 5G, 3D printing, unmanned aerial vehicles (UAV's)) on the logistics operational system, and identify the potential development paths that lead to the optimal exploitation of their positive effect.

- Collect best case models and develop decision support systems aimed at helping public authorities and private companies to determine the most likely scenarios and to promote a higher level of collaboration between the different stakeholders, including new emerging ones.
- Consideration of aspects of governance, privacy and cybersecurity of and with regard to cargo.

The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

In line with the Union's strategy for international cooperation in research and innovation[1], international cooperation is encouraged. In particular proposals should consider cooperation with projects or partners from the US, Japan, Canada, China, **Latin America**.

In particular, proposals should foresee twinning with entities participating in projects funded by US DOT to exchange knowledge and experience and exploit synergies.

**Expected Impact:** Main impact from the R&I activities should be the improved integration of the European transport network (both hard – TEN-T – and soft – logistics and IT) with the global network, through the sustainable development of the transport nodes likely to benefit from the emergence of new trade routes and harmonised platforms and new and revised 'nodes', also in support of the sustainable development of new logistics routes and their link with national/regional markets. Better understanding of the impact of emerging technologies on freight flow and subsequent guidelines to optimize vehicle, infrastructure and operation accordingly. Facilitate the development of disadvantaged regions and their inclusion into the international trading system. Better understanding of links between technological development, trade and geopolitics. Research should be validated in a selected number of case studies through pilot demonstration, trials and testing involving service providers and end-users.

**Cross-cutting Priorities:** International cooperation

[1] (COM(2012)497)

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| **Horizon 2020 Pillar:** | Societal Challenges |
| **Programme:** | Smart, green and integrated transport |
| **Call Title:** | Building a low-carbon, climate resilient future: Green Vehicles |
| **Call Identifier:** | h2020-lc-gv-2018-2019-2020 |
| **Topic Title:** | InCo flagship on "Urban mobility and sustainable electrification in large urban areas in developing and **Emerging Economies**" |
| **Topic Identifier:** | LC-GV-05-2019 |
| **Type of Action:** | IA Innovation action |
| **Deadline(s):** | 24-04-2019 (single-stage) |

**Participant Portal Weblink:**
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-gv-05-2019.html

**Specific Challenges:** Climate change, energy security and local air pollution are some of the key questions for the 21st century. Urban areas in developing and **Emerging Countries** are major driving factors in growing global energy demand and Greenhouse Gas emissions.

Although cities cover only 2% of the earth's surface, 50% of the world's population lives in cities, but they are responsible for three-quarters of the global energy consumption as well as approximately 80% of the global greenhouse gas emissions. While the trend towards urbanisation and the associated increase of personal and freight transport creates massive challenges, in particular in developing and **Emerging Economies**, it also offers the unique opportunity to shape energy use especially in the transport and urban form towards a low carbon pathway. Moving towards sustainable mobility will also help addressing urban congestion, access to jobs and public services, and local air pollution.

This is why urbanisation requires integrated mobility solutions that bring together technology opportunities with local and national policy, including land use and mobility planning. Efficient transport and mobility, based on a balanced mix of public and private transport and dependent on the characteristics of each city, is and will continue to be the backbone of cities' growth and competitiveness.

Whereas environmental issues are very high on urban mobility agendas, the importance of transport in urban social and economic structures is often

neglected in discussions. All three aspects of urban sustainability must be treated with equal importance and have to be examined in parallel.

**Scope:** Actions should bring together European, Asian (e.g. China), **CELAC** (Community of **Latin American** and **Caribbean** States) and African research partners, government agencies and urban authorities, private sector and civil society with relevant expertise and competence within the corresponding cooperation framework and foster participatory engagement in urban electrification in order to reduce air pollution and CO2 emissions. All types of vehicle are considered under this topic (powered 2 wheelers, cars, buses, trucks and LDV).

Proposals should address all of the following activities:

- Development of a toolbox for advanced management strategies towards a more efficient private and public electric mobility: E-mobility management strategies, focusing on smart deployment and operation of vehicles, in particular electrified vehicle, to increase mobility and energy efficiency, emission reduction and user acceptance of electrified vehicles
  - A smart and cooperative management of the vehicle in urban operation, (intermodal route planning, ecorouting eco-driving charging and parking infrastructure availability…).
  - Deployment and operation of infrastructure use charging infrastructure (conventional and wireless) and network, availability of parking places. Adaptation and integration of existing/ adapted vehicles of different types if necessary.
  - Efficient integration of the operations of different electrified road public transport, from e-bike to bus rapid transit ( e- BRT) including mini-buses, taxi and mobility services on demand through smart navigation and routing, coordinated traffic management, demand-responsive service and dispatching
- Comparative demonstrations activities and pilots in cities in Europe, Asia, African and/or **CELAC** countries: Innovative concepts for electrified road public transport (passenger and freight), jointly designed through International Partnerships as a contribution to a wider sustainable mobility concept, from the perspective of a seamless mobility, taking in account the acceptance of users (travellers or freight operator). Comparative demonstrations activities and pilots (in European and Chinese's Cities, African, **CELAC** countries) of such jointly designed concepts developed by local partners.
- Implementation concepts to scale up the demonstration activities. Evaluation of the relative outputs and accordingly the development of implementation concepts to scale up the demonstration activities and exploration of the sustainable mobility planning in the city transformation process :
  - Sustainable planning of city and transportation infrastructure: link city planning with policy discussion and implementation solutions and city goals

- Dedicated plans for financing solutions, including public and private operations.
- Regional and international replication conditions to reach out to a larger number of cities and countries

Cooperation and synergies with ongoing activities undertaken with international initiatives such as Decarbonising Transport (International Transport Forum) and the Urban Electric Mobility Initiative (UN-Habitat) and other joint initiatives of European Member States international cooperation initiatives and the European Commission (e.g. Mobilise Your City) should be sought where appropriate.

In line with the strategy for EU international cooperation in research and innovation[1], international cooperation is encouraged.

Applicants are invited to read the eligibility and admissibility conditions for this topic.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 15 and 18 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 contribute to:

- Capability to quantify the potential reduction of greenhouse gas and pollutant emissions as well as traffic congestion, by demonstrating improvements that can be achieved with new urban mobility systems and electrification, for each stakeholder in the value chain (in line with the objectives set by the COP21 and the New Urban Agenda)
- Reference models of the mobility system to provide a basis in order to assess the ability to replicate sustainable concepts by demonstrating the short- and long-term benefit for the stakeholders involved, and especially considering the relevant boundary conditions (i.e infrastructure, vehicle, usage needs and patterns, governance, financing schemes, urban organisation, etc) and how the result contributes to key EU policy goals ( including climate goals and competitiveness of European industry
- A basis for strengthening the collaboration of the European Union with Asia (e.g. China, India, etc), **Latin America** (**CELAC**) and Africa, which also offers both a common starting point for common future legislative efforts, as well a favourable setting for new business opportunities for innovative local and European entrepreneurs.

**Cross-cutting Priorities:** Open Innovation, Contractual Public-Private Partnerships (cPPPs), EGVI, International cooperation, Socio-economic science and humanities

[1] (COM (2012) 497)