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**Call Topics for International Cooperation
in Horizon 2020
EU and Third Countries**

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Content

Excellent Science 3
Science with and for Society 22
Societal Challenges..... 24

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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):	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.

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.

2019 deadline

Biological and Medical Sciences

Virus collections including for high-risk animal/human/plant pathogens. This activity aims at improving the access to high-quality authenticated collections of both human, animal and plant viruses including those requiring high-biosafety level laboratories (BSL 3 and 4), to support upstream virology, microbiology and immunology research as well as translational internationally-driven research aiming at drug and vaccine development, and to support epidemiological studies targeting disease and epidemics control in order to enhance the preparedness of countries to control their own emerging viral outbreaks.

Structural biology research infrastructures for health and food research. This activity should expand the availability of structural biology services (such as X-

ray and neutron scattering, advanced NMR and advanced imaging technologies) to new communities of users, and in particular to scientists with backgrounds other than structural biology, including from SMEs, to benefit translational research in drugs discovery, informed drugs design and other fields like biotechnology and biomaterials for health and food.

Nanomedicine characterisation infrastructures. This activity aims at further integrating and opening key reference facilities for characterisation and engineering of nanoparticles for medical applications. It should offer access to a coherent set of tools, resources and expertise to support academic research teams and industry in their chemical, physical and biological research and innovation on medical applications. Emphasis should be on widening the user base and the services, ensuring long term sustainability to their integration.

Research infrastructures in aquaculture. This activity aims at further integrating highly diverse aquaculture research facilities and providing to research teams easy access to them. Specific attention should be given to dedicated facilities for new species, disease aspects and contribution to sustainable aquaculture. Emphasis should be on widening the user base, enlarging and strengthening the offered services, and fostering the innovation role of such infrastructures.

Energy

European smart grids research infrastructure. High shares of renewable energy and more decentralised energy supply require a grid with sufficient hosting capacity and the ability to manage the power fluctuation of the renewable sources. This activity should further integrate and open laboratory environments that enable the development and testing of different smart grid configurations without influencing end-customers of the electrical power supply. Emphasis should be on widening the user base, enlarging the offered services, fostering the innovation role of such facilities and ensuring long term sustainability to their integration.

Environmental and Earth Sciences^[3]

Research infrastructures for long-term ecosystem and socio-ecological research. This activity should further integrate and open LTER (Long Term Ecological Research) facilities and critical zone observatories, in different terrestrial and aquatic environments. It should include relevant socio-ecological research platforms as well as integrate research field sites, associated data management and numerical simulation tools to address ecosystem and socio-ecological research issues such as biodiversity loss, climate change adaptation and mitigation, land use and management, food security and threats to soil and water.

Coastal and shelf seas observing research infrastructures. This activity aims at integrating and improving access to coastal observatories as well as developing innovative monitoring strategies to address better the complexity of coastal seas (such as the coupling of physics, biogeochemistry and biology). It should also promote harmonisation and seamless interface with open seas observing systems notably the relevant ESFRI infrastructures. It should foster

innovation and societal impact including through effective synergies with European and global initiatives such as COPERNICUS, EMODNET, GEO/GEOSS.

Multidisciplinary Marine Data Centres for ocean and marine data management. This activity aims to further integrate in a cloud environment and open key data centres for in-situ and remote sensing data for marine (including coastal) research. It must present a long-term sustainable perspective on the facilities and related resources integration, and develop appropriate connection to the EOSC. It should enhance and innovate the services offered to an expanded multidisciplinary community and promote the adoption of the developed protocols and standards for interoperability to other key downstream initiatives in the field.

Mesocosms facilities for research on marine and freshwater ecosystems. This activity aims at further integrating and opening leading mesocosm infrastructures in Europe enabling in particular research on impact of climate change, pollution and other disturbance on ecosystems, from Mediterranean to Arctic. Emphasis should be on widening the user base, and on enlarging and strengthening the offered services.

Research infrastructures for terrestrial research in the Arctic. As an international network for terrestrial research and monitoring in the Arctic, this activity should further integrate and open key research stations and large research field sites throughout the circumpolar Arctic and adjacent northern countries, to provide capacity for research, monitoring and education. The project should include work on best practises for managing stations, and (international) logistics and establish links with relevant ESFRI infrastructures.

Research Infrastructures for earthquake hazard. This activity aims at further integrating and opening the key research infrastructures in Europe for natural and anthropogenic earthquake risk assessment and mitigation. More integrated services from seismic and engineering infrastructures would contribute to supporting the reduction of vulnerability of European citizens and constructions to earthquakes. International collaboration activities and the further integration of the research field are encouraged.

Research infrastructures for environmental hydraulic research. This activity aims at further integrating and opening the key hydraulic infrastructures in Europe in order to optimise their use to help solve climate change adaptation problems. Particular attention to harmonising and organising the flux of data is expected. Emphasis should be on widening the user base, and on enlarging and strengthening the offered services including through synergies with relevant (emerging) ESFRI infrastructures.

Mathematics and ICT

Distributed, multidisciplinary European infrastructure on Big Data and social data mining. This activity should further integrate and open large social data repositories, social data mining methods and tools, and supercomputing facilities for conducting large-scale analytical processing. This integrated infrastructure should enable performing complex processes to extract social knowledge. Emphasis should be on enlarging and strengthening the offered

services, widening the user base, fostering the innovation role of such facilities and ensuring long term sustainability to their integration as well as connection to the EOSC.

Material Sciences and Analytical facilities

Research infrastructures for advanced research in nanoelectronics. This activity aims at further integrating and opening key infrastructures in the field to enable a smooth and consistent transition of the European industry to a new era of nanoelectronics. Emphasis should be on enlarging and strengthening the offered services, widening the user base, fostering the innovation role of such facilities and ensuring long term sustainability to their integration.

Advanced laser sources for leading-edge research. This activity aims at further integrating and opening key laser infrastructures enabling a wide range of novel applications with high industrial and social impact, such as nanoscience, bio- and nanophotonics, (bio)material analyses, (bio)medical diagnosis and treatment, advanced imaging, communication and data processing. It should widen the user base, enlarge the offered services, foster the innovation role of such facilities, ensure long term sustainability to their integration, stimulate international cooperation and new scientific activities exploiting new possibilities offered by relevant ESFRI infrastructures.

Physical Sciences

Research Infrastructures for Nuclear Physics. This activity aims at further integrating the key research infrastructures for studying the properties of nuclear matter at extreme conditions, using advances in nuclear physics experimentation to open new scenarios for fundamental research and employ them for new societal and industrial applications. It must present a long-term sustainable perspective on the integration of relevant facilities and related resources. Furthermore, it should also target new users and stimulate new scientific activities to take full advantage of new possibilities offered by relevant ESFRI infrastructures.

Research infrastructures for high-energy astrophysics. This activity aims at further integrating and opening facilities for developing, calibrating and testing technologies and individual instruments developed for supporting ground and space based experiments and missions in an environment representative of space conditions. In order to foster the creation of a European multi-messenger astrophysics platform, emphasis should be on enlarging the offered services, including in particular gravitational wave, electromagnetic wave and other high energy particle (e.g. neutrinos) observatories. Access to the infrastructures and data needs to be optimised in order to develop a wider multi-disciplinary community and foster a better exploitation of the results.

Research Infrastructures for planetary science. This activity aims at furthering the integration and opening of the key research infrastructures in Europe for studying planetary science by drawing in new partners and by providing access to the facilities to a larger number of users, taking into account the multi- and trans-disciplinary nature of the field. Emphasis should be on

enlarging and strengthening the offered services, widening the user base, and ensuring long term sustainability to their integration.

Social Sciences and Humanities

European research infrastructures for cultural heritage restoration and conservation. This activity aims at further integrating and opening facilities, located in research centres, universities and important culture institutions, for advanced diagnostics, restoration and conservation of cultural heritage. Emphasis should be on strengthening and enlarging the offered services to cover restoration and conservation in fields such as palaeontology, widening the user base, and fostering the innovation role of such facilities.

Contemporary European history: European Holocaust research infrastructure. This activity aims at further integrating and opening existing research infrastructures for research on Holocaust and expanding their services to include new material and new techniques in order to offer distributed and harmonised access of researchers to scattered material. Emphasis should be on enlarging and strengthening the offered services, widening the user base 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: Open Science, Gender, Clean Energy, Socio-economic science and humanities, International cooperation

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

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

^[3] When appropriate, proposals addressing areas under this domain are encouraged to develop synergies with Copernicus data and information as well as with relevant global initiatives such as GEO/GEOSS and ILTER.

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:	RIA Research and Innovation action, CSA Coordination and support 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^[1] strategic approach^[2], 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

^[1] The Senior Officials Meeting (SOM) on Science and Technology of the EU-CELAC Joint Initiative on Research and Innovation (JIRI)

^[2] See <http://ec.europa.eu/research/iscp/index.cfm?pg=latin-america-carib>

Horizon 2020 Pillar:	Excellent Science
Programme:	Marie Skłodowska-Curie actions
Call Title:	Marie Skłodowska-Curie Individual Fellowships
Call Identifier:	H2020-MSCA-IF-2018
Topic Title:	Individual Fellowships
Topic Identifier:	MSCA-IF-2018
Type of Action:	MSCA-IF-GF Global Fellowships, MSCA-IF-EF-ST Standard European Fellowships, MSCA-IF-EF-SE Society and Enterprise panel, MSCA-IF-EF-RI Reintegration panel, MSCA-IF-EF-CAR Career Restart panel
Deadline(s):	12-09-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-if-2018.html>

Specific Challenges: The goal of the Individual Fellowships is to enhance the creative and innovative potential of experienced researchers, wishing to diversify their individual competence in terms of skill acquisition through advanced training, international and intersectoral mobility.

Individual Fellowships provide opportunities to researchers of any nationality to acquire and transfer new knowledge and to work on research and innovation in Europe (EU Member States and Horizon 2020 Associated Countries) and beyond. The scheme particularly supports the return and (re)integration of European researchers from outside Europe and those who have previously worked here, as well as researchers displaced by conflict outside the EU and Horizon 2020 Associated Countries. It also promotes the career restart of individual researchers who show great potential.

Scope: Support is foreseen for individual, trans-national fellowships awarded to the best or most promising researchers of any nationality, for employment in EU Member States or Horizon 2020 Associated Countries. It is based on an application made jointly by the researcher and the beneficiary in the academic or non-academic sectors.

Only one proposal per individual researcher per call will be evaluated.

Fellowships take the form of European Fellowships or Global Fellowships. European Fellowships are held in EU Member States or Horizon 2020 Associated Countries and are open to researchers either coming to Europe from any country

in the world or moving within Europe. The researcher must comply with the rules of mobility in the country where the European Fellowship is held.

Direct return to and long-term reintegration of researchers in Europe, including in their country of origin, is supported via a separate multi-disciplinary reintegration panel of the European Fellowships. For the reintegration panel, there must be direct mobility to the country of the beneficiary in Europe from a **third country** (compulsory national service and/or short stays such as holidays are not taken into account).

Support to individuals to resume research in Europe after a career break, e.g. after parental leave or due to recent migration, is ensured via a separate multi-disciplinary career restart panel of the European Fellowships. To qualify for the career restart panel, researchers must not have been active in research for a continuous period of at least 12 months within the 18 months immediately prior to the deadline for submission.

Researchers seeking to work on research and innovation projects in an organisation from the non-academic sector will be supported via a separate multi-disciplinary society and enterprise panel of the European Fellowships. The objective of this panel is to facilitate career moves between the academic and non-academic sectors, to stimulate innovation, and to open attractive career opportunities for researchers outside academia.

The Widening Fellowships implemented through Work Programme part 15, Spreading Excellence and Widening Participation, provide specific support to researchers to undertake their fellowship in a widening country^[1]. This will help spread excellence and close the still apparent research and innovation gap within Europe.

Global Fellowships are based on a secondment to a **third country** and a mandatory 12 month return period to a European host. The researcher must comply with the rules of mobility in the country where the Global Fellowship secondment takes place, not for the country of the return phase.

Researchers receiving an Individual Fellowship may opt to include a secondment phase in Europe, notably in the non-academic sector, within the overall duration of their fellowship. For a fellowship of 18 months or less, the secondment phase may last up to three months. For a fellowship of more than 18 months, the secondment phase may last up to six months. The secondment phase can be a single period or be divided into shorter mobility periods. The secondment should significantly add to the impact of the fellowship. In the Global Fellowships, such a secondment can also take place at the start of the action at the beneficiary or a partner organisation in Europe for a maximum of 3 months, allowing the researcher to spend time there before moving on to a partner organisation in a **third country**.

A Career Development Plan should be established jointly by the supervisor(s) and the researcher. In addition to research or innovation objectives, this plan comprises the researcher's training and career needs, including training on transferable skills, teaching, planning for publications and participation in conferences.

Researchers participating in the Individual Fellowships may opt to work part-time in order to pursue supplementary activities. These might include creating a company, or engaging in advanced studies not related to the MSCA grant. Any supplementary activities carried out part-time in parallel with the MSCA action must be agreed upon by the researcher and the beneficiary.

Expected Impact:

At researcher level:

- Increased set of skills, both research-related and transferable ones, leading to improved employability and career prospects both in and outside academia
- Increase in higher impact R&I output, more knowledge and ideas converted into products and services
- Greater contribution to the knowledge-based economy and society

At organisation level:

- Enhanced cooperation and stronger networks
- Better transfer of knowledge between sectors and disciplines
- Boosting of R&I capacity among participating organisations

At system level:

- Increase in international, interdisciplinary and intersectoral mobility of researchers in Europe
- Strengthening of Europe's human capital base in R&I with more entrepreneurial and better trained researchers
- Better communication of R&I results to society
- Increase in Europe's attractiveness as a leading destination for R&I
- Better quality research and innovation contributing to Europe's competitiveness and growth

Cross-cutting Priorities: International cooperation, RRI, Open Science

^[1] These countries are aligned with Work Programme part 15, Spreading Excellence and Widening Participation.

Horizon 2020 Pillar: Excellent Science

Programme: Marie Skłodowska-Curie actions

Call Title: MSCA for researchers at risk

Call Identifier: H2020-MSCA-RR-2018

Topic Title: MSCA for researchers at risk

Topic Identifier: H2020-MSCA-RR-2018

Type of Action: CSA Coordination and support action

Deadline(s): 04-12-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/h2020-msca-rr-2018.html>

Specific Challenges: Facilitate trans-national co-operation between European and national initiatives and programmes in support of researchers at risk, with a view to identifying and sharing good practices and raising the general standard of support to applicants, taking into account the diversity of actors.

Scope: Funding will be given to a consortium of organisations with (i) experiences in supporting researchers at risk and (ii) knowledge of related European and national R&I funding programmes. “Researchers at risk” refers to researchers who are either at risk in their origin countries (due to discrimination, persecution, suffering and/or violence), or are seeking refuge out of these reasons or have recently found refuge in Europe.

Special attention will be given to assess the effectiveness of existing measures in European and national R&I programmes and to develop recommendations for policy-makers for effective programmes addressing support to researchers at risk to continue their scientific career in Europe, to find employment in line with their expertise and to support their integration in society in Europe.^[1]

The consortium should also build up cooperation with other related networks. It should also increase visibility of these R&I programmes to potential beneficiaries, especially in the non-academic sector. Therefore, particular focus should also be given to training schemes for researchers at risk, in line with the recommendation set out in the Report of the independent High Level Group on maximising the impact of EU Research & Innovation Programmes^[2].

This Coordination and Support Action should enable the enablers by facilitating the establishment of sustainable and long-term support networks in Europe beyond its duration in order to be prepared with contacts, guidance and support

structures to assist researchers at risk. This Action will support additional collaboration and peer-learning activities of existing networks and organisations.

The following activities should inter alia be envisaged in order to address these goals:

- Explore available national and European R&I programmes for researchers at risk and produce targeted guidance materials,
- Training and guidance for the application process for the MSCA and other relevant support programmes,
- Support for career development for researchers at risk, in the academic and non-academic sector,
- Awareness-raising about funding and support opportunities among stakeholders in Europe through workshops and training seminars,
- Examine or run test-cases of supporting the integration of researchers at risk in relation to their individual academic backgrounds and their professional careers.

The focus throughout these activities should be on topics specific to MSCA in relation to researchers at risk, in particular scientific excellence, skills and career development, intersectoral mobility, entrepreneurship, equal opportunities and inclusiveness, attractive working conditions, work/life balance, and lead to policy recommendations in this thematic area. It should not duplicate other actions foreseen under Horizon 2020, notably Science4Refugees. Furthermore, the activities should complement actions in Member States and Associated Countries.

In order to ensure maximum inclusiveness, the consortium should gather a group of legal entities from EU Member States and Associated Countries with broad experiences in the field of supporting and integrating researchers at risk in Europe and beyond. Representatives from other entities from EU Member States, Associated Countries or **third countries** from outside the consortium might however be invited to participate in the CSA's activities (e.g. workshops and conferences) for exchanging best practices.

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 1.5 million would allow this specific challenge to be addressed appropriately. The requested duration of support should not exceed three years from the starting date specified in the grant agreement. Nevertheless, this does not preclude submission and selection of proposals requesting other amounts or duration.

Expected Impact:

- An improved, sustainable and professionalised support network for researchers at risk across Europe, facilitating access to Horizon 2020 calls, creating level playing field for applicants to MSCA and other R&I programmes, and raising the average quality of submitted proposals.
- A more consistent and sustained level of preparedness for supporting researchers at risk in Europe.

Cross-cutting Priorities: Open Science, International cooperation

^[1] “Action Plan on the integration of **third country** nationals”. Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions COM(2016) 377 final, p. 4-5

^[2] “LAB – FAB – APP – Investing in the European future we want.” Report of the independent High Level Group on maximising the impact of EU Research & Innovation Programmes, p.13

Horizon 2020 Pillar:	Excellent Science
Programme:	Marie Skłodowska-Curie actions
Call Title:	Marie Skłodowska-Curie Research and Innovation Staff Exchange
Call Identifier:	H2020-MSCA-RISE-2019
Topic Title:	Research and Innovation Staff Exchange
Topic Identifier:	MSCA-RISE-2019
Type of Action:	MSCA-RISE RISE
Deadline(s):	02-04-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-rise-2019.html>

Specific Challenges: The RISE scheme promotes international and cross-sector collaboration through exchanging research and innovation staff, and sharing knowledge and ideas from research to market (and vice-versa).

The scheme fosters a shared culture of research and innovation that welcomes and rewards creativity and entrepreneurship and helps to turn creative ideas into innovative products, services or processes.

Scope: RISE involves organisations from the academic and non-academic sectors (in particular SMEs), based in Europe (EU Member States and Horizon 2020 Associated Countries) and outside Europe (**third countries**).

Support is provided for the development of partnerships in the form of a joint research and innovation project. This is aimed at knowledge sharing via international as well as intersectoral mobility, based on secondments of research and innovation staff (exchanges) with an in-built return mechanism.

The organisations constituting the partnership contribute directly to the implementation of a joint research and innovation project by seconding and/or hosting eligible staff members. Secondments shall always take place between legal entities independent from each other^[1].

RISE should exploit complementary competences of the participating organisations, as well as other synergies, and enable networking activities, organisation of workshops and conferences to facilitate sharing of knowledge, new skills acquisition and career development for research and innovation staff members.

RISE proposals can focus either on one dimension of mobility (intersectoral / international), or include a combination of both.

Exchanges can be for both early-stage and experienced researchers and can also include administrative, managerial and technical staff directly involved in the research and innovation activities of the proposal.

Support for the exchanges between institutions within Europe (EU Member States and Horizon 2020 Associated Countries) covers only intersectoral secondments.

Exchanges with institutions from and to **third countries** can be intersectoral as well as within the same sector.

Secondments between institutions established in **third countries** or within the same EU Member State or Horizon 2020 Associated Country will not be supported.

Expected Impact:

At staff member level:

- Increased set of skills, both research-related and transferable ones, leading to improved employability and career prospects both in and outside academia
- Increase in higher impact R&I output, more knowledge and ideas converted into products and services
- Greater contribution to the knowledge-based economy and society

At organisation level:

- Enhanced cooperation and transfer of knowledge between sectors and disciplines
- Strengthening of international and intersectoral collaborative networks
- Boosting of R&I capacity among participating organisations

At system level:

- Increase in international, interdisciplinary and intersectoral mobility of researchers in Europe
- Strengthening of Europe's human capital base in R&I
- Increase in Europe's attractiveness as a leading destination for R&I
- Better quality R&I contributing to Europe's competitiveness and growth

Cross-cutting Priorities: RRI, Open Science

^[1] Independence in the meaning of Article 8 of the Horizon 2020 Rules for Participation.

Science with and for Society

Horizon 2020 Pillar:	Science with and for Society
Programme:	Science with and for Society
Call Title:	Science with and for Society
Call Identifier:	H2020-SWAFS-2018-2020
Topic Title:	The gender perspective of science, technology and innovation (STI) in dialogue with third countries
Topic Identifier:	SwafS-12-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	02-04-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-12-2019.html>

Specific Challenges: In its Conclusions of 1 December 2015 on advancing gender equality in the European Research Area, the Council invited the Commission and the Member States to consider including, among others, a gender perspective in dialogues with **third countries** in the area of science, technology and innovation (STI).

The EU Member States and many countries outside the European Union are facing similar challenges in terms of gender equality in STI: gender-related biases are leading to horizontal (disparities among different scientific disciplines) and vertical (low levels of women representation on top positions) segregation. The perception of and support for gender equality varies significantly across cultures. Cultural and institutional barriers turn women away from STI and affect their careers. Also the take up of the gender dimension in research and innovation content^[1] is still limited. The EU has developed a strategy for gender equality along three objectives relating to equality in careers, gender balance in decision-making and the integration of the gender dimension in R&I content.

The Commission has pledged reinforced cooperation with **third countries** under one of the three goals set by the current Commissioner, i.e. Open to the World. There is increasing interest from **third countries** to cooperate with the EU in the field of STI and encourage the mobility of researchers. It is therefore important to develop common solutions for common challenges regarding gender inequalities in STI.

Scope: The project will investigate how gender equality matters are taken into consideration at different levels of international cooperation in the area of science, technology and innovation between the EU and a selected set of **third**

countries, along three objectives, i.e. equality in scientific careers, gender balance in decision making, and the integration of the gender dimension in R&I content. The project will build on the work done by the ERA-related groups in charge of gender equality and international cooperation as well as EU funded projects. It will provide a mapping and a subsequent analysis of how gender equality is taken into account and promoted:

- in the formal bilateral and multilateral agreements in the STI area between the EU Member States and Associated Countries on one side and the selected **third countries** on the other side;
- in the bilateral and multilateral STI implementation activities, including access to grants and the evaluation process;
- in the dissemination and promotion of the results of international dialogues and cooperation.

The project will also formulate recommendations to enhance the integration of gender equality objectives at the various stages mentioned above.

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

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 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: Improve awareness and implementation of gender equality objectives in the bilateral and multilateral activities between EU Member States and **third countries** in the area of STI. Contribute to removing potential barriers to the equal treatment of women and men scientists and to integrate the gender dimension in R&I content in international dialogues and cooperation.

Cross-cutting Priorities: Gender, International cooperation, RRI

^[1] Taking into account the biological characteristics and cultural / social features of women and men in doing research, innovating and developing technologies

Societal Challenges

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:	Raw materials policy support actions for the circular economy
Topic Identifier:	CE-SC5-08-2018-2019-2020
Type of Action:	CSA Coordination and support action
Deadline(s):	19-02-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ce-sc5-08-2018-2019-2020.html>

Specific Challenges: In order to secure the sustainable access to primary and secondary raw materials, including metals, industrial minerals, construction raw materials, wood, and particularly Critical Raw Materials (CRMs) for the EU economy, there is a need to tackle a number of specific non-technological challenges at local, regional, national, EU and global levels.

Illegal shipments of waste, both within the EU and to non-EU countries, and poor recycling have adverse effects on human health and the environment, create unfair competition for law abiding operators and give rise to the loss of valuable resources in the case of poor or no treatment. However, port authorities and enforcement authorities have limited resources to control the ever increasing amount of material shipped and this without blocking normal traffic. In addition, at the moment there is no distinction in customs codes between “new goods” and “second hand goods” which implies that illegal waste shipments are often disguised as “second hand goods”.

Currently, at most only one third of waste wood is recycled, the rest being landfilled or incinerated and there are great differences between Member States in wood recycling performance. Increasing production costs combined with stagnating product prices in recent years have put pressure on the profit margins of the EU woodworking industries, mostly dominated by SMEs. There is a need for higher resource efficiency and increased use of recycled wood in wood processing that can provide measurable improvements in company profitability.

Requirements for responsible sourcing in the raw materials value chain have recently been strengthened in one aspect by the new EU Conflict Minerals legislation. However, the need for the industry to engage in responsible sourcing

and responsible business conduct and to perform relevant due diligence goes beyond legislative obligations – it is rooted in the growing expectations of consumers, civil society, governments and procurement managers (buyers). While it is very difficult for individual operators to meet such expectations due to the limited availability of the necessary information, downstream industries increasingly require all operators in their supply chain to address risks by performing due diligence. Responsible sourcing of raw materials is becoming a new business reality; in the short term it may offer a competitive advantage to frontrunners and in the long term, it could become a necessary "license to operate" and, given the global character of today's supply chains, it is also a way to be integrated in global supply chains.

Scope: All actions should contribute to building the EU knowledge base of primary and secondary raw materials (EC Raw Materials Information System – RMIS^[1]).

In support of the EIP on Raw Materials actions should envisage clustering activities with other relevant selected projects for cross-projects co-operation, consultations and joint activities on cross-cutting issues and share of results as well as participating in joint meetings and communication events. To this end proposals should foresee a dedicated work package and/or task, and earmark the appropriate resources accordingly.

Actions should address the following sub-topic:

c) Responsible sourcing of raw materials in global value chains (2019): Actions should create a global business and stakeholder platform for exchange of information and the promotion of responsible sourcing and responsible business conduct involving a network of key international experts and stakeholders. The aim is to engage governmental and corporate partners from the EU/Associated Countries and **third countries** in developing a globally acceptable concept of a responsible sourcing in minerals and metals value chains.

The platform should develop ideas for creating incentives for responsible sourcing in raw materials value chains, strengthen EU outreach to **third countries** to promote the concept in intergovernmental forums and to establish responsible sourcing in EU business practice. Interaction with other related existing platforms, networks and initiatives is encouraged. Actions should consider the relevant aspects related to environmental sustainability.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, particularly with partners from advanced countries using raw materials^[2].

The Commission considers that for this sub-topic, proposals requesting a contribution from the EU of up to EUR 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:

The project results are expected to contribute to:

- achieving the objectives of both the Raw Materials Initiative^[3] and the EIP on Raw Materials in terms of the access and responsible sourcing of raw materials;
- improved awareness of consumers/corporates and improved perception of responsible sourcing as a source of competitive advantage through more responsible sourcing and responsible business conduct initiatives with regards to raw materials;
- increased visibility of responsible sourcing in global political agenda-setting and emergence of a globally accepted definition of responsible sourcing.

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

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

^[1] <https://ec.europa.eu/jrc/en/scientific-tool/raw-materials-information-system>

^[2] Proposals should pay attention to the specific call conditions for this topic

^[3] http://ec.europa.eu/growth/sectors/raw-materials/policy-strategy/index_en.htm

Horizon 2020 Pillar:	Societal Challenges
Programme:	Food security, sustainable agriculture and forestry, marine, maritime and inland water research and the bioeconomy
Call Title:	Blue Growth
Call Identifier:	H2020-BG-2018-2020
Topic Title:	The Future of Seas and Oceans Flagship Initiative
Topic Identifier:	BG-07-2019-2020
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/bg-07-2019-2020.html>

Specific Challenges: Our future is intimately linked to the future of the seas, oceans and coasts. The seas, oceans and coasts provide multiple ecosystem services and a wealth of resources, influence climate and provide many economic opportunities. To fully profit from the seas and oceans also in the future, we have to preserve those valuable resources and ensure that their exploitation is sustainable. Furthermore, without appropriate ocean observations for forecasting and for the protection of property and human activities, the global economy would lose hundreds of billions of euros annually. For this, we need to have the technologies for observations, integrated ocean observing systems, data management systems, and appropriate models and services. This action will contribute to make ocean observations and data management in European seas and the Atlantic Ocean fit for the future, in line with the G7 Future of the Oceans Initiative (Tsukuba Communiqué of the G7 Science Ministers^[1]). It will also support the Collaborative Research Action on Oceans of the Belmont Forum^[2] and the International Ocean Governance Communication^[3]. Similarly, ocean observation data must be available to effectively address local, national and global challenges such as the forecasting of ocean conditions and climate change, to take stock of biomass and biodiversity, to mitigate the impact of climate change and ocean acidification, to ensure food security and food safety (also in fresh water), and to contribute to the UN 2030 Sustainable Development Agenda, notably UN SDGs 2, 13, 14 and 15, and monitoring their targets for 2020 and 2025.

Scope: Proposals shall address one of the following sub-topics: blue cloud services, or ocean observations and forecasting^[4], or technologies for observations (in 2020). Actions shall demonstrate integration, capacity and (scientific, economic etc)

potential. They shall complement and build on existing observation tools and systems such as EuroGOOS/EOOS, IOOS, GEO/GEOSS, COPERNICUS Marine Service or EMODnet, European research infrastructures such as Euro-Argo ERIC and EMSO ERIC as well as funded H2020 projects such as SeaDataCloud^[5]. The interdisciplinary and cross-sectorial nature of the proposal should also apply to training activities improving the professional skills and competencies of workers and supporting the creation of new jobs in the blue economy.

[A] 2019 - Blue Cloud services

Activities shall develop cloud services for applications that are specific for oceans, seas and fresh water bodies and are necessary for marine ecosystems research, conservation, forecasting and innovation in the Blue Economy, building and implementing also Blue Cloud demonstrators as needed. Blue Cloud demonstrators should integrate the Essential Ocean Variables^[6], notably the biological variables, including plankton biomass and diversity. They shall build on ongoing efforts (data, tools, EOSC, including its Pilot Blue Cloud, Data and Information Access Services (DIAS) of COPERNICUS, etc) and take account of the parallel EOSC thematic initiatives being developed – such as the Food Cloud Demonstrator.^[7] The action shall contribute to unlocking the innovation potential of the Blue Cloud, and demonstrate its potential in promoting the blue economy shortening the time span between research and innovation in frontier fields, such as micro-organisms and genomics-enabled innovations^[8]. Activities shall build on existing research infrastructures, take advantage of existing data sharing activities (for example EMODnet), and build on relevant results of past and on-going global, national and EU projects such as SeaDataCloud^[9], BlueBridge, the EOSC Pilot and other relevant projects funded under Horizon 2020, including those under Information and Communication Technologies^[10]. Proposals should include a task to cluster with other projects financed under this topic and – if possible – with other relevant projects in the field funded by Horizon 2020.

[B] 2019 - Observations and forecasting

The action shall contribute to the development and demonstration of the feasibility of the European component of a future Global Ocean Observing System in line with the G7 Tsukuba Communiqué^[11]. It will support activities in the different EU sea basins and the Atlantic Ocean, including the deep sea (below 2000 m), also supporting the needs of food security and safety as outlined in Food 2030^[12]. It will also support the future Collaborative Research Action on Oceans of the Belmont Forum^[13]. It will underpin forecasting of the state of the ocean, climate change impact and weather. Activities shall include the demonstration of methods and technologies and their integration in existing systems to collect information on the state and variability of European seas and the Atlantic Ocean, including the impact of stressors and marine litter, and underpin sustainable management of the marine environment and its resources (e.g. the effect of networks of protected areas and other spatial protection measures). They shall take account of the needs deriving from the G7 Future of the Seas and Oceans Initiative^[14], from actions such as the Atlantic Ocean Research Alliance and its related South Atlantic

Flagship, the BLUEMED Initiative, and notably common priorities with the WestMED Initiative^[15] and the EUSAIR^[16], and actions addressing other European regional seas. The inclusion of forecasting tools (for example to protect aquaculture installations or to inform fisheries decision making) shall be an advantage. Similarly, the sustainability of the approach selected, the integration of innovative observations solutions and existing systems, the smooth storage of data in open access data centres and the improvement of the predictive capability shall be demonstrated. Observations and data handling may also include pilots for Essential Ocean Variables (EOVs)^[6] under consideration (for example, nutrients, carbonate, sound and microbes/omics) and variables that are of importance in European regional seas as well as the integration of “augmented” observatories (i.e. genomic-enabled multidisciplinary observatories)^[17]. Flow of information across variables and disciplines shall be included. Data collected shall be in line with agreed standards, be openly available via portals (including EMODnet) and feed into the Pilot Blue Cloud (part of the European Open Science Cloud). International cooperation with **Third country** partners is encouraged.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 6 million for sub-topic [A] and EUR 12 million for sub-topic [B] would allow this specific challenge to be adequately addressed. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Proposals shall include a task to cluster with other projects financed under this topic and – if possible – with other relevant projects in the field funded by Horizon 2020. Possible links with related research and innovation activities supported by the Belmont Forum^[18] on Ocean sustainability shall also be considered.

[C] 2020 - Technologies for observations

Expected Impact: Contributing to the ongoing implementation of EU Policies such as the Bioeconomy Strategy, the Circular Economy Strategy, the European Open Science Cloud Initiative, the Blue Growth Strategy, the Common Fisheries Policy, the Maritime Spatial Planning Directive, the Marine Strategy Framework Directive, the International Ocean Governance Communication and the UN SDGs, activities shall:

In the short term:

- Support the implementation of the Future of the Oceans Initiative of the G7 Science Ministers.
- Deliver cloud services with work starting at technology readiness level (TRL) between 4 and 5 and achieving TRL between 6 and 7 or higher (sub-topic A).
- Achieve at least TRL 6 for ocean observations' systems and tools (sub-topic B).
- Contribute to regularly measure 50% of biological and biogeochemical EOVs, including in the sea below 2000 m, and predict negative impacts of ocean acidification and other selected stressors to take timely prevention, notably to protect aquaculture resources by 2020 (sub-topic B).

- Lay the foundations for and contribute to the sustainable management and protection of marine and coastal ecosystems to avoid significant adverse impacts (UN SDG 14) (sub-topic).

In the medium term:

- Increase scientific knowledge, develop research capacity and transfer marine technology, taking into account the Intergovernmental Oceanographic Commission Criteria and Guidelines on the Transfer of Marine Technology, in order to improve ocean health (UN SDG 14).
- Improve forecasting of climate change, weather and ocean conditions to protect human activities in support of UN SDG 14 and other relevant goals, and of the objectives of related Conventions (for example, on biodiversity).
- Shorten the time span between research and innovation and foster economic value in the blue economy.
- Improve the professional skills and competences of those working and being trained to work within the blue economy and in the context of open data sharing.
- Contribute to policymaking in research, innovation and technology.
- Increase data sharing and increase integration of data.

Delegation Exception Footnote: This topic is expected to continue in 2020.

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

[1] <http://www8.cao.go.jp/cstp/english/others/20160517communique.pdf>

[2] Belmont Forum <https://www.belmontforum.org/>

[3] (JOIN(2016) 49)

[4] All proposals under B) must include an observation part.

[5] This will also include mutual feedback processes with the Copernicus Programme and other relevant actions such as those undertaken by IOC/IODE or the Marine Environment Monitoring Service.

[6] http://goosoocean.org/index.php?option=com_content&view=article&id=14&Itemid=114

[7] See topic DT-SFS-27-2019 under this Work Programme's SC2 Sustainable Food Security Call.

[8] Following up on the Communication "European Cloud Initiative – Building a competitive data and knowledge economy in Europe", the European Open Science Cloud (EOSC) will soon become an important tool for scientists, citizens and policy makers <https://ec.europa.eu/digital-single-market/en/news/communication-european-cloud-initiative-building-competitive-data-and-knowledge-economy-europe>

[9] This will also include mutual feedback process with the Copernicus Programme and other relevant actions such as those undertaken by IOC/IODE or the Marine Environment Monitoring Service.

[10] <https://ec.europa.eu/digital-single-market/en/information-communication-technologies-horizon-2020>

[11] <http://www.japan.go.jp/g7/userdata/common/data/20160517communique.pdf>

[12] European Research and Innovation for Food and Nutrition Security, SWD(2016)319. <http://ec.europa.eu/transparency/regdoc/rep/10102/2016/EN/SWD-2016-319-F1-EN-MAIN.PDF>

[13] <https://www.belmontforum.org/collaborative-research-actions>

[14] Recommendations 1, 3 and 4 on ocean observations and data sharing

[15] Initiative for the sustainable development of the blue economy in the Western Mediterranean

[16] <http://www.adriatic-ionian.eu/>

[17] The development of such laboratories is not part of this call.

[18] <https://www.belmontforum.org/>

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:	ERANETs in agri-food
Topic Identifier:	SFS-31-2019
Type of Action:	ERA-NET-Cofund ERA-NET Cofund
Deadline(s):	23-01-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-31-2019.html>

Specific Challenges: The agri-food sector^[1] is subject to multiple external pressures, such as rising demand for food, competition for land and other natural resources with other biomass uses, globalisation, threats from animal or plant diseases, environmental and climatic changes and public health considerations. Climate change will further impact the agri-food sector both directly through its effect on production at EU level, but also indirectly through its supply chain. This implies the need to become more efficient and sustainable; improve its impact on consumer health; take advantage of new technological developments; and become more transparent and responsive to consumer demands, within a food-system approach.

Scope: Proposals should address one or more of the following sub-topics (A) to (C) and should clearly indicate to which one they refer.

A. [2019] ICT-enabled agri-food systems

Today, despite increased information demand from consumers and food chain players alike, Europe's food businesses and farmers are slow at adopting digital technologies. This is due in part to the inherent complexities of relevant products and processes, and in part to the dynamically changing open network organisation of the food sector with its multitude of SMEs, its cultural diversity, its differences in expectations and in the ability to serve transparency needs. The agri-food sector needs to take more advantage of the potential of digital technologies. Relevant technologies may include Internet of Things, Artificial Intelligence, Big Data technologies, remote and localised sensing. This sub-topic will engage the agri-food community in supporting the development of solutions to remove the barriers to adoption

of digital technologies, taking a multi-actor approach across different supply chains (conventional and organic) from farm to fork. These solutions will be targeted to supporting third party development of a variety of digital technologies which can take advantage of, integrate with, and complement the standardisation efforts and platform developments in other Horizon 2020, European Structural and Investment Funds (ESIF) and regionally/nationally-funded projects. In addition, this sub-topic will support the development of new data-driven ICT platforms and solutions which derive value for multiple actors from the data collected throughout the food chain, thereby enabling new business models which will increase the affordability and adoption of such solutions, reduce the environmental footprint, increase system resilience, and empower consumers. Interregional and international cooperation will be encouraged and complementarity with other ERA-NETs will be ensured throughout the project development stages by means of active collaboration and communication. When relevant, projects should consider synergies with the Thematic Smart Specialisation Platform on Agri-food (TSSP-AF)^[2] and related interregional partnerships under the Research and Innovation Strategies for Smart Specialisation (RIS3).

B. [2019] Climate change and food systems

Proposals under this sub-topic will aim at developing climate-resilient and sustainable value chains for food systems. In particular they will assess risks and vulnerabilities of food systems faced with climate change, including expected effects on supply chains, thereby offering low carbon footprint solutions (technological and/or non-technological) to increase resilience and sustainability. Specific focus will be put on the socio-economic impacts of climate change on different food chains, price volatility and the territorial dimension on access to accessible and nutritious foodstuffs. Complementarity with SusFood ERA-NETs will be ensured throughout the project development stages.

C. [2019] International coordination of research on infectious animal diseases

Animal health is a key element to guarantee food safety and security, by means of competitive and sustainable livestock systems. Partnerships and collaborations at the European and International levels are important for fighting infectious animal diseases, including those which are a significant threat to human health and international trade.

The ERA-Net will cover the major groups of infectious diseases of animals, including infections by viral, bacterial, protozoal, fungal pathogens, prions, parasites, and multifactorial diseases. An important focus will be put on at least African swine fever (ASF) and animal influenza.

The ERA-NET will pool and share resources and expertise between countries to further the fundamental understanding of hosts, pathogens and their interactions. Also, focus on understanding wider animal infectious disease issues e.g. systems-based studies that integrate host/pathogen studies with the epidemiology, and population dynamics of disease, pathogenesis, ecology, evolution, and transmission, resulting eventually in better prevention of

disease. An important focus will be put on the role of wildlife in the emergence and transmission of infectious diseases to livestock, and on related disease surveillance and control, in order to also contribute to animal health risk assessment activities, in particular by EFSA or OIE.

In addition, consideration needs to be given to data sharing, integration and analysis to develop new tools to accelerate identification of outbreaks, enabling a rapid response and thus reducing the spreading of diseases. This should be done in coordination with existing data sharing systems (e.g. WAHIS^[3] and ADNS^[4] systems).

Another focus will also be on development of safe and effective vaccines, generic technology platforms for producing novel and/or improved vaccines, and rapid, accurate and easy to use in-field diagnostics technology. Vaccination strategies, including the tools to distinguish vaccinated animals from non-vaccinated ones (DIVA vaccines) should also be addressed. New and improved vaccines have been identified as an important component in strategies to reduce reliance on antimicrobials (OIE ad hoc Group on prioritisation of diseases for which vaccines could reduce antimicrobial use in animals, 2015). There is a need to investigate new methods of generating vaccines and to understand of how best to design vaccines that drive long-lasting and protective memory responses.

Projects should be complementary to other H2020 projects in the same area.

International cooperation and industry engagement in projects selected under the ERA-Net are encouraged. The projects selected should take into consideration the EU animal health regulatory framework, and follow the policies and contribute to the objectives of the STAR-IDAZ international research consortium^[5]. Participation of legal entities from **third countries**, and/or regions including those not automatically eligible for funding in accordance with General Annex A, is encouraged in the joint call as well as in other joint activities including additional joint calls without EU co-funding. Participants from countries not listed in General Annex A are eligible for EU funding under this topic and may request a Union contribution (on the basis of the ERA-NET unit cost) only for the coordination costs of additional activities.

The Commission considers that proposals requesting a contribution from the EU of EUR 5 million for sub-topic A) and 5 million for sub-topics B) and C), respectively, would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

- Improve coordination between national and EU funding and ensure better use of resources in the priority research areas above [A, B, C];
- Reduce the environmental footprint of the sector by reducing inputs and waste [A, B].
- Realise the potential of ICT and digital technologies to share data throughout the food value chain, thereby driving greater sustainability, offering new

business models and helping to empower consumers to make smarter, more sustainable, healthier and more personal food and dietary choices, taking into account data regarding environmental impact, origin, nutrition, safety, integrity, etc., underpinned by the concept of transparency [A];

- Integrate effectively with major digital platforms from food actors, ICT solution providers and consumers [A];
- Enhance understanding and awareness about the effects of climate change on global food value chains [B];
- Develop innovative solutions to cope with the multiple risks and challenges to the food systems posed by global environmental changes [B];
- Improve control of specific infectious animal diseases, in particular those where the role of wildlife is prominent, by further understanding of the epidemiology and means of surveillance and control [C].
- Provide new generic tools, systems for better prevention and improved preparedness to react to infectious animal disease outbreaks, in particular by designing and developing new or improved vaccines, diagnostic tools and vaccination strategies[C];
- Improved translation of key knowledge on host and pathogen interaction into pathways for means of prevention, detection and control of animal infectious diseases [C];
- Improve collaboration with international initiatives to promote coherence and the applicability of research to preventive tools in order to control infectious animal diseases [C];
- Contribute to the reduction of antimicrobial use in livestock, minimising antimicrobial resistance [C].
- Contribute to animal welfare by a better prevention of diseases [C].
- More broadly, contribute to food security and sustainable production, by reducing the burden of disease and reducing impact on international animal trade [C].

[1] OECD/WTO (2013), developing on FAO (2005) on agrifood value chain: "A 'value chain' in agriculture identifies the set of actors and activities that bring a basic agricultural product from the field to final consumption and add value at each stage of the production process."

[2] <http://s3platform.jrc.ec.europa.eu/agri-food>

[3] <http://www.oie.int/en/animal-health-in-the-world/wahis-portal-animal-health-data/>

[4] https://ec.europa.eu/food/animals/animal-diseases/not-system_en

[5] <http://www.star-idaz.net/>

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):	16-04-2019 (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 ICPeMed^[1], which includes representatives from most EU countries along with several other European countries and Canada. Also the wider internationalisation of ICPeMed can be underpinned by coordinating networking activities with **third countries**.

Scope:

Each action should focus on one of the following fields:

1. 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 2019 call, the project should focus 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 China.

2. Standardisation for clinical study design. Establishment of innovative clinical trial design methodology for PM, including guidelines for research and reflection papers. The action should take into account sex/gender differences as well as the work done by relevant stakeholders and authorities such as EMA^[2] and the HMA network^[3], as well as the European legal framework^[4]. SME participation is encouraged. The results of the studies and workshops should be actively disseminated to a wider audience, including, industry, researchers and other professionals. (2019 call).

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 ICPeMed initiative; furthermore:

1. International aspect: Integrating the country/group of countries into ICPeMed 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.
2. Standardisation for clinical study design: Contribute to standardisation of PM clinical trial design. Demonstrate feasibility and importance of PM approaches. Underpin accelerated market uptake. Improved knowledge and understanding among healthcare professionals, regulatory authorities and industry how best to adapt clinical trials designs to stratified patient populations.

Delegation Exception Footnote: This topic will continue in 2020

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

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

^[2] European Medicines Agency; <http://www.ema.europa.eu>

^[3] Heads of Medicines Agencies; <http://www.hma.eu/>

^[4] Especially the clinical trials regulation (EU) No 536/2014 and the data protection regulation (EU) 2016/679

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:	Joint programming actions to foster innovative energy solutions
Topic Identifier:	LC-SC3-JA-1-2018
Type of Action:	ERA-NET-Cofund ERA-NET Cofund
Deadline(s):	11-09-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lc-sc3-ja-1-2018.html>

Specific Challenges: The EU needs to accelerate the transformation of its energy system by bridging the gap between research and commercial deployment with innovative solutions. Bridging this gap often requires substantial volumes of investment which cannot be allocated by individual countries or by the European Commission on their own. Mobilising the necessary investment can only be achieved by pooling together financial resources from multiple countries, the Commission, and the private sector. This is a challenge because the funding landscape is complex.

One of the objectives of the SET Plan is to create funding synergies on such a big scale by organising joint programming actions between the entities responsible for public funding programmes and the Commission. ERA-NETs are a key instrument for joint programming actions within the SET Plan, and they also contribute to achieving the objectives of the European Research Area (ERA). In addition, they can play a key role in achieving the goal of the Energy Union of moving away from a fragmented system characterised by uncoordinated national policies and towards an integrated European R&I approach which accelerates the transformation of the energy system.

Areas suitable for ERA-NETs will be identified by Member States' / Associated Countries' representatives in the SET Plan governance bodies (in particular the Joint Actions Working Group). They will then be developed from the early stages in close collaboration with the European Commission and with input from the Programme Committee as needed. This collaboration will ensure that proposed ERA-NETs are in line with energy R&I and SET Plan policy objectives.

Scope: Actions should aim at coordinating the efforts of participating Member States, Associated Countries and Regions towards achieving SET Plan objectives and, where they exist, executing the Implementation Plans jointly developed by SET Plan countries' representatives, industry and research organisations within the SET Plan priority areas numbers 1 to 9 ^[1]. In establishing their thematic scope, proposals will also take into due consideration support already provided through other topics in this work programme part. As for their technology development scope, proposals can support projects addressing any stage of the innovation chain through joint calls.

Proposals should pool the necessary financial resources from participating national or regional research programmes with a view to implementing a joint call for proposals resulting in grants to third parties with EU co-funding. Proposers are requested to also implement other joint activities, including additional joint calls without EU co-funding.

Proposals shall include provision for at least one joint call without EU funding on top of the compulsory co-funded joint call.

Proposals shall specify which additional activities will be carried out as part of the action in accordance with the definition given in General Annex D.

It is expected that actions funded through this topic will bring together national and regional programme owners and programme managers who represent diverse conditions and approaches from the EU.

Participation of legal entities from **third countries** is also encouraged in the joint calls and in additional joint activities, on the basis of common interest and mutual benefit. Participants from these countries may request a Union contribution (on the basis of the ERA-NET unit cost) for the coordination costs of additional activities.

Expected Impact:

It is expected that actions will help to:

- Establish long-lasting joint programming research efforts between Member States/Associated Countries/Regions in areas of common interest;
- Accelerate the time to commercial deployment of affordable, cost-effective and resource-efficient technology solutions which decarbonise the energy system in a sustainable way;
- Reduce the environmental impact of the energy system;
- Make a measurable contribution to the objectives of the Energy Union, the SET Plan, and the European Research Area;
- Achieve a funding leverage effect of at least 5:1 between national, regional and private sector contributions, on the one hand, and EU contributions on the other.

Delegation Exception Footnote: This activity directly aimed at supporting public-public partnerships with Member States and Associated Countries, and technology platforms with industrial partners is excluded from the delegation to the Innovation & Networks Executive Agency (INEA) and will be implemented by the

Commission services. In the case of energy efficiency, the activity is not excluded from the delegation to the Executive Agency for SMEs (EASME).

Cross-cutting Priorities: Clean Energy, Blue Growth, ERA-NET

^[1] C(2015)6317, pp.10-13: SET Plan Priorities no.1 to no.9

https://ec.europa.eu/energy/sites/ener/files/documents/1_EN_ACT_part1_v8_0.pdf

C(2015)6317, pp.10-13: SET Plan Priorities no.1 to no.9

https://ec.europa.eu/energy/sites/ener/files/documents/1_EN_ACT_part1_v8_0.pdf