



International Cooperation in Horizon 2020

EU and Third Countries

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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):	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

^[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>

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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

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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.

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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”.

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-2018
Topic Title:	Research and Innovation Staff Exchange
Topic Identifier:	MSCA-RISE-2018
Type of Action:	MSCA-RISE RISE
Deadline(s):	21-03-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-rise-2018.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: International cooperation, Gender, Socio-economic science and humanities, Open Science

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

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-EF-CAR Career Restart panel, MSCA-IF-EF-RI Reintegration panel, MSCA-IF-EF-SE Society and Enterprise panel, MSCA-IF-EF-ST Standard European Fellowships, MSCA-IF-GF Global Fellowships
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:**Objective**

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: Gender, Socio-economic science and humanities, International cooperation

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

Industrial Leadership

Horizon 2020 Pillar:	Industrial Leadership
Programme:	Information and Communication Technologies
Call Title:	Cybersecurity
Call Identifier:	h2020-su-ict-2018-2020
Topic Title:	Dynamic countering of cyber-attacks
Topic Identifier:	SU-ICT-01-2018
Type of Action:	IA Innovation action
Deadline(s):	28-08-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ict-01-2018.html>

Specific Challenges: The prevention of and the protection against attacks that target modern ICT components, complex ICT infrastructures and emerging technologies (e.g. IoT) remains a difficult task. The complexity of heterogeneous collections of hardware and software components finds its roots in the diversity of development contexts and of levels of maturity, in the growing means of networked interactions, in the massive exchange of information and data, and in the varied schedules of systems lifecycles that generate highly dynamic behaviours. The increase of encrypted flows over the Internet should lead to adopt new techniques for detection of suspicious cyber activities and traffic patterns, and for classification of flows, while keeping privacy and confidentiality. Another relevant challenge is to use machine learning and analytics for cybersecurity.

Scope:

Proposals are invited against at least one of the following two subtopics:

- a. Cyber-attacks management - advanced assurance and protection

Innovative, integrated and holistic approaches in order to minimize attack surfaces through appropriate configuration of system elements, trusted and verifiable computation systems and environments, secure runtime environments, as well as assurance, advanced verification tools and secure-by-design methods. This may entail a whole series of activities, including behavioural, social and human aspects in the engineering process until developed systems and processes address the planned security/privacy/accountability properties.

Proposals should explore how recent progress in artificial intelligence, in deep learning and in other related technologies can be used to provide breakthroughs in the fight against cyber-attacks (e.g. recognition of malicious activities on the network). Deep learning applications may also be used for cyber threat intelligence in anticipation of cyberattacks to identify malicious activity trends in the cyber space and correlate with attackers' information, tools and techniques.

Proposals may also cover secure execution environments not only including the execution platforms themselves plus the operating systems, but also the mechanisms (e.g. security supporting services, authentication/access control mechanisms) that ensure an adequate level of security, privacy and accountability in the execution of all processes.

Proposals are encouraged to provide mechanisms for informing the users on their security/privacy levels, for providing warnings and assisting them in handling security and privacy related incidents.

b. Cyber-attacks management – advanced response and recovery

Innovative capabilities to dynamically support human operators (e.g. Incident Response professionals), in controlling response and recovery actions, including information visualization. The capabilities should include the assessment how attacks propagate in a particular infrastructure and/or across interconnected infrastructures (e.g. attack-defence graphs) and what the best measures are to withstand and recover from a threat/attack, including the convergence with measures beyond cyber that can be needed (e.g. security policies).

Proposals should address the use of -and the contribution to- appropriate threat intelligence sources as well as the share of information with relevant parties (e.g. industry cooperation groups, Computer Security Incident Response Teams - CSIRTs).

Proposals should explore forensics, penetration testing, investigation and attack attribution services -local or remote- to achieve proper identification and better protection against future attacks and zero-day vulnerabilities. Approaches can include the combination of massive data and logs collection from various sources (e.g. network traffic, dark web) to facilitate investigation on security alerts and to find suspicious files trajectories in order to have the most appropriate response. Efficient utilization of both structured data (e.g. logs) and unstructured data (e.g. data coming from social networks such as pictures, tweets, discussions on forums) should be addressed.

Applicants should also consider the efficient handling (e.g. classification, anomaly detection) of encrypted network traffic and in particular where data stays encrypted, while keeping compliance with end user's privacy requirements.

Proposals need to consider dynamic, evidence based security and privacy risk assessment methodologies and management tools targeting emerging/advanced technologies (e.g. IoT, virtualised and service-oriented systems/networks).

Proposals are encouraged to provide mechanisms for informing the users on their security/privacy levels, for providing warnings and assisting them in handling security and privacy related incidents.

The outcome of the proposal is expected to lead to development up to Technology Readiness level (TRL) 6; please see Annex G of the General Annexes.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 5 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

For grants awarded under this topic for Innovation Action the Commission or Agency may object to a transfer of ownership or the exclusive licensing of results to a third party established in a **third country** not associated to Horizon 2020. The respective option of Article 30.3 of the Model Grant Agreement will be applied.

Expected Impact:

Short/medium term

- Enhanced protection against novel advanced threats.
- Advanced technologies and services to manage complex cyber-attacks and to reduce the impact of breaches.
- The technological and operational enablers of co-operation in response and recovery will contribute to the development of the CSIRT Network across the EU, which is one of the key targets of the NIS Directive.

Long term

- Robust, transversal and scalable ICT infrastructures resilient to cyber-attacks that can underpin relevant domain specific ICT systems (e.g. for energy) providing them with sustainable cybersecurity, digital privacy and accountability.

Cross-cutting Priorities: Socio-economic science and humanities, Contractual Public-Private Partnerships (cPPPs), Cybersec

Horizon 2020 Pillar:	Industrial Leadership
Programme:	Information and Communication Technologies
Call Title:	Cybersecurity
Call Identifier:	h2020-su-ict-2018-2020
Topic Title:	Quantum Key Distribution testbed
Topic Identifier:	SU-ICT-04-2019
Type of Action:	IA Innovation action
Deadline(s):	28-08-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ict-04-2019.html>

Specific Challenges: Europe's economic activities and Europe's single market is dependent on well-functioning underlying digital infrastructures, services and data integrity, not the least for critical infrastructures like energy, transport, health, finance, etc. Current security of the digital infrastructures and services will soon be under threat of no longer providing long-term security. Confidentiality of data and communications, authentication, as well as the long-term integrity of stored data have to be guaranteed, even in the advent of quantum computers. Introducing Quantum Key Distribution (QKD) in the underlying infrastructure has the potential to maintain end-to-end security in the long-term.

Scope: Building an experimental platform to test and validate the concept of end-to-end security, providing quantum key distribution as a service. Proposals should develop an open, robust, reliable and fully monitored metropolitan area testbed network (ring or mesh configuration). The aim is to integrate equipment, components, protocols and network technologies with QKD systems and current digital security and communication networks. Where necessary, R&D activities can be addressed. The testbed should be modular, to test different components, configurations and approaches from multiple suppliers and benchmark the different approaches against overall performance. The proposed solutions should demonstrate resistance against known hacking techniques, including quantum hacking techniques. The testbed should make use as much as possible of existing network infrastructure (fibres and/or satellites), provide a quantum key exchange rate compatible with concrete application requirements over metropolitan distances (i.e. of at least 40km). The proposed testbed should demonstrate

different applications and use cases of QKD (including for authentication), optimizing end-to-end security rather than the security of individual elements.

Proposals should include an assessment of the applications and parts of the infrastructure for which the integration of QKD is economically justified, as well as an assessment of the minimal acceptable key rate for each application and its total cost of ownership.

Proposals should bring together relevant stakeholders such as telecommunication equipment manufacturers, users, network operators, QKD equipment providers, digital security professionals and scientists.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

For grants awarded under this topic the Commission may object to a transfer of ownership or the exclusive licensing of results to a third party established in a **third country** not associated to Horizon 2020. The respective option of Article 30.3 of the Model Grant Agreement will be applied.

Expected Impact:

- Demonstrating the feasibility of quantum communication networks.
- Validation of quantum network technologies, architectures, protocols, including broader cryptographic services based on QKD infrastructure.
- Interoperability of quantum and classical networks, as well as multi-vendor interoperability.
- Development of standards for QKD components, equipment and protocols.

Cross-cutting Priorities: Contractual Public-Private Partnerships (cPPPs), Cybersec

Horizon 2020 Pillar:	Industrial Leadership
Programme:	Information and Communication Technologies
Call Title:	Cybersecurity
Call Identifier:	h2020-su-ict-2018-2020
Topic Title:	Building blocks for resilience in evolving ICT systems
Topic Identifier:	SU-ICT-02-2020
Type of Action:	RIA Research and Innovation action
Deadline(s):	19-11-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-ict-02-2020.html>

Specific Challenges: Algorithms, software and hardware systems must be designed having security, privacy, data protection and accountability in mind from their design phase in a measurable manner. Relevant challenges include: (a) to develop mechanisms that measure the performance of ICT systems with regards to cybersecurity and privacy and (b) to enhance control and trust of the consumer of digital products and services with innovative tools aiming to ensure the accountability of the security and privacy levels in the algorithms, in the software, and ultimately in the ICT systems, products and services across the supply chain.

Scope:

Proposals are invited against at least one of the following three subtopics:

a. Cybersecurity/privacy audit, certification and standardisation

Innovative approaches to

- (i) design and develop automated security validation and testing, exploiting the knowledge of architecture, code, and development environments (e.g. white box)
- (ii) design and develop automated security verification at code level, focusing on scalable taint analysis, information-flow analysis, control-flow integrity, security policy, and considering the relation to secure development lifecycles,
- (iii) develop mechanisms, key performance indicators and measures that ease the process of certification at the level of services and

- (iv) develop mechanisms to better audit and analyse open source and/or open license software, and ICT systems with respect to cybersecurity and digital privacy.

b. Trusted supply chains of ICT systems

Innovative approaches to

- (i) develop advanced, evidence based, dynamic methods and tools for better forecasting, detecting and preventing propagated vulnerabilities,
- (ii) estimate both dynamically and accurately supply chain cyber security and privacy risks,
- (iii) design and develop security, privacy and accountability measures and mitigation strategies for all entities involved in the supply chain,
- (iv) design and develop techniques, methods and tools to better audit complex algorithms (e.g. search engines), interconnected ICT components/systems
- (v) devise methods to develop resilient systems out of potentially insecure components and
- (vi) devise security assurance methodologies and metrics to define security claims for composed systems and certification methods, allowing harmonisation and mutual recognition based on evidence and not only on trust.

The trusted supply chain for ICT systems/components should be considered by proposals in its entirety, in particular by addressing the IoT ecosystems/devices that are part of the supply chain.

c. Designing and developing privacy-friendly and secure software and hardware

Innovative approaches to establish methods and tools for

- (i) security and privacy requirements engineering (including dynamic threat modelling/ attack trees, attack ontologies, dynamic taxonomies and dynamic, evidence based risk analysis),
- (ii) embedded algorithmic accountability (in order to monitor the security, privacy and transparency of the algorithms/software/systems/services),
- (iii) system-wide consistency including connection between models, security/privacy/accountability objectives, policies, and functional implementations,
- (iv) metrics to assess a secure, reliable and privacy-friendly development,
- (v) secure, privacy-friendly and accountability-enabled programming languages (including machine languages), hardware design languages, development frameworks, as well as secure compilation and execution,
- (vi) novel, secure and privacy-friendly IoT architectures enabling consistent trustworthy and accountable authentication,

authorization and accounting services across all IoT devices/ecosystems with enhancement of Public Key Infrastructures (PKIs) aiming to support PKI services (e.g. registration, revocation) for IoT devices.

For each of the sub-topics above, the outcome of the proposals is expected to lead to development up to Technology Readiness level (TRL) 5.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 5 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

For grants awarded under this topic for Research and Innovation Action the Commission or Agency may object to a transfer of ownership or the exclusive licensing of results to a third party established in a **third country** not associated to Horizon 2020. The respective option of Article 30.3 of the Model Grant Agreement will be applied.

Expected Impact:

Short/medium term

- Improved market opportunities for the EU vendors of security components.
- Increased trust both by developers using/integrating the ICT components and by the end-users of IT systems and services.
- Protect the privacy of citizens and trustworthiness of ICT .
- Acceleration of the development and implementation of certification processes.

Long term

- Advanced cybersecurity products and services will be developed improving trust in the Digital Single Market.
- The use of more harmonized certification schemes will increase the business cases for cybersecurity services as they will become more reliable.
- Validation platforms will provide assessments with less effort compared with nowadays and assure a better compliance with relevant regulations and standards.

Cross-cutting Priorities: Contractual Public-Private Partnerships (cPPPs), Cybersec

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:	Mobilising Research Excellence in EU Outermost Regions (OR)
Topic Identifier:	SwafS-22-2018
Type of Action:	CSA Coordination and support action
Deadline(s):	10-04-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-22-2018.html>

Specific Challenges: The EU currently has nine Outermost Regions (ORs), which are an integral part of its territory: Guadeloupe, French Guiana, Martinique, Saint Martin, Réunion, Mayotte (France); the Canary Islands (Spain); and the Azores and Madeira (Portugal). Article 349 of the Treaty on the Functioning of the European Union (TFEU) recognises that the Outermost Regions differ from the rest of the EU in a number of ways that constrain their economic and social development: their remoteness, their insularity, their small size, their adverse topographical and climatic conditions and their dependence on a limited number of local industries. Under European law this Article allows the adoption of specific measures appropriate for the real situations of the ORs. As well as specific constraints, the ORs also have unique potential and assets which can benefit the Union. They provide a European presence in strategic areas of the world, and have exceptional geographical and geological characteristics which make them useful laboratories for research and innovation in scientific domains relevant of the future such as biodiversity, terrestrial and marine ecosystems, pharmacology, renewable energies, and the space sciences.

However, participation in Horizon 2020 is inhibited by the fragmentation of the research community in the OR due to the geographic isolation but also lack of commitment of research institutions and missing connectivity with excellent partners in Europe and internationally beyond the traditional links with the European mainland of the same country. Therefore, the potential for excellent research activities based on the above described assets remains largely unexploited. ORs of different countries face similar problems and assets but do not co-operate sufficiently among each other and with

European and international partners. Geographical remoteness is an obstacle for visibility and integration into the global and international research communities. In particular improved linkages with neighbouring international co-operation partners outside the EU would facilitate the international dimension of Horizon 2020 in line with the 'Open to the World' strategic goal.

Scope: Proposals should aim to support the OR in preparing their research and innovation actors to participate in the Research Framework Programmes through:

- a mapping of their research and innovation fields of expertise including complementarities with their neighbouring countries' and regions expertise and capacities;
- a mapping of potential partners in the EU and **third countries**, in particular those in proximity with OR;
- an inventory of their needs to increase their research and innovation capacity;
- an identification of the means to maintain and attract researchers in the OR and to foster the OR R&I ecosystems, as and further development of their smart specialisation strategies.

The above information could also be used to define OR's friendly topics in the future Framework Programme.

Proposals are also expected to include:

- organisation of events with potential identified partners;
- workshops and networking of research and business innovation partners in view of forming consortia for project proposals;
- awareness raising actions targeting the EU and international research community on the OR expertise and capacities.

The Commission considers that a proven track record of on-the-field experience in OR R&I systems will be an asset and contribute positively to the impact of the project.

The duration of the project should be up to three years.

The Commission considers that proposals requesting a contribution up to EUR four million would allow this specific challenge to be addressed appropriately.

Expected Impact:

- Increasing the participation of the outermost regions (OR) in the Framework Programmes.
- Reinforce the visibility and recognition of the OR research and innovation expertise and capacities.
- Set up of consortia to prepare research proposals, including European and/or **third country** researchers.

- Facilitate the identification of future research issues and challenges/missions that are relevant for the needs and innovation potentials of OR and their smart specialisation priorities
- Develop concepts for considering ORs specificities in the future Framework Programme, in line with Article 349 TFEU.
- Strengthened links with European and international research centres.
- Improvement of research capacities in the OR and their participation in research projects.
- Emergence of sustainable R&I ecosystems in the OR.
- In order to ensure maximum impact of the initiative, participants are expected to build on their a proven track record of on-the-field experience in OR R&Is systems

Delegation Exception Footnote: This activity directly aimed at supporting the development and implementation of evidence base for R&I policies and supporting various groups of stakeholders is excluded from the delegation to REA and will be implemented by the Commission services.

Cross-cutting Priorities: International cooperation

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:

1. 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;
2. in the bilateral and multilateral STI implementation activities, including access to grants and the evaluation process;
3. 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: International cooperation, Gender, 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:	International network to promote cultural heritage innovation and diplomacy
Topic Identifier:	SC5-19-2018
Type of Action:	CSA Coordination and support action
Deadline(s):	27-02-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-19-2018.html>

Specific Challenges: Over the years, Europe has developed world-renowned knowledge, expertise, practices, skills and technologies to protect, conserve, manage, enhance and leverage value from its rich and diverse cultural heritage. Cultural heritage not only provides people with a sense of identity and belonging, it also brings a large innovation potential to a number of economic sectors such as tourism, cultural industries, urban planning, regional planning, arts and design. It can also contribute to improving the EU's relations with other regions. Nevertheless, in some countries cultural heritage is still an underestimated resource and/or is at risk or under threat for various reasons (e.g. lack of awareness, economic crisis, conflicts, natural and anthropogenic hazards, mass tourism, etc.).

Scope: Actions should establish an international network that will capitalise on EU expertise to leverage the value of European cultural heritage assets, promote heritage-led innovation for sustainable development and provide expertise and assistance, particularly where cultural heritage is at risk. The network should include researchers, policy-makers, businesses (including SMEs), societal and cultural institutions, including NGOs and CSOs, public and private organisations, investors, experts, innovators and citizens. Through a process of continuous dialogue, interaction and sharing of experiences, including with appropriate UN agencies, the network should:

- identify, review, document and promote successful heritage-led initiatives, knowledge, innovative solutions, new governance, finance and

business models, innovative regulative frameworks, tools, technologies (e.g. Earth observation data – EU Copernicus, drones, satellite navigation and positioning, nanomaterials, ICT etc.) and approaches for monitoring, protecting, preserving and managing cultural heritage, and promoting its innovation potential for sustainable development, especially where cultural heritage is at risk; to further capitalize on the works of the 2018 European Year of Cultural Heritage, the network should explore possibilities for further pursuance of the innovation relevant outcomes generated during this year;

- identify specific domains and priorities where further research and innovation is needed, accounting also for the gender dimension;
- analyse potential regulatory, economic, social and technical barriers and propose concrete ways to overcome them at the EU and international levels;
- develop guidelines, tools and methodologies to leverage cultural heritage potential for diplomacy to improve EU relations with other parts of the world;
- conduct capacity building to foster collective management, responsibility and ownership of heritage and awareness raising activities among public authorities, stakeholders and society, particularly in countries where heritage is at risk, about the potential of cultural heritage as an investment opportunity with multiple benefits for the economy, society and the environment, rather than as a cost factor.

The network should involve institutions, organisations and relevant stakeholders from a broad range of EU Member States and Associated countries. In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with EU Neighbourhood countries and with countries in which cultural heritage assets are under threat.

The network should envisage resources for clustering with other projects relevant to cultural heritage funded under previous, current and future Horizon 2020 calls within Societal Challenge 5 in order to take due account of their outcomes. It should also create synergies with other relevant ongoing initiatives such as the JPI Cultural Heritage.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 2.5 million 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:

- more extensive protection and preservation of cultural heritage, and optimal use of its innovation potential for sustainable development;
- the emergence of a global market for heritage-led sustainable innovation, through EU-wide evidence and increased awareness among investors, practitioners and the public;

- enhanced capacity of **third countries** to manage, enhance and safeguard cultural heritage, particularly where it is at risk, through provision of EU knowhow and assistance;
- improved cross-fertilisation between the corresponding EU and UN policies and actions relevant to cultural heritage;
- increased support to the new EU Strategy for International Cultural Relations and more effective EU external relations through cultural heritage diplomacy.

Delegation Exception Footnote: This activity directly aimed at supporting the development and implementation of evidence base for R&I policies and supporting various groups of stakeholders and the promotion of coherent and effective cooperation with **third countries** is excluded from the delegation to EASME and will be implemented by the Commission services.

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

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):	27-02-2018 (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]).

Actions should include a task to cluster with other relevant projects in the field funded by Horizon 2020, in support of the EIP on Raw Materials.

Actions should address only one of the following sub-topics^[2]:

- a. Voluntary scheme for certification of treatment facilities for key types of wastes (2018): Actions should develop and launch a voluntary scheme for certification – including verification – of treatment facilities for key types of waste/recyclates containing significant amounts of critical raw materials (e.g. electronic waste and/or waste batteries). The scheme should integrate measurable and verifiable minimum quality standards and a verification procedure based on traceability through the supply chain from collection to end-processing. Participation of relevant stakeholders – including waste holders, dealers, brokers and operators of treatment facilities – from the conception phase of the scheme should be ensured. Full compliance with applicable WTO rules and with the rules and principles of the Basel Convention should be ensured, and existing certification schemes for waste should be taken into account.

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

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

- b. Resource efficiency in wood processing, recovery and recycling (2018): Actions should identify, assess and document existing practices in a representative set of EU Member States/Associated Countries and possibly **third countries**, and create a network to widely disseminate and transfer good practices covering both issues: resource-efficient wood

processing and wood waste recycling. Resource-efficient wood processing in the woodworking sector should improve companies' operational performance and hence the EU sector's overall competitiveness. Quality-oriented and cost-efficient wood waste collection systems, sorting and recycling, and design solutions should facilitate increased wood recycling together with increased product quality and market acceptance of recovered wood in new products. Involvement of relevant stakeholders across value chains is necessary, including wood processing industries, research & innovation institutes, woodworking products end-users, municipalities and other parties dealing with wood waste collection, sorting and recycling. Actions should also assess trade-offs between wood waste use for material and energy. This assessment should be based on life cycle analysis and all sustainability pillars, and consider impacts on sustainable forest operations and ecosystems integrity (for all major EU forest regions) and impacts of intra-EU trade^[3]. Proposals should include the participation of industrial SMEs, as far as possible.

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:

sub-topic a)

- achieving the objectives and the implementation of both the Raw Materials Initiative^[5] and the EIP on Raw Materials, in particular in terms of strengthening the enforcement of the Waste Shipment Regulation and improving access to critical raw materials (CRMs);
- increased recovery rates in the EU as regards key types of waste/recyclates containing significant amounts of CRMs;
- in the longer term, reduced EU dependency on imports of CRMs;
- creating added value and new jobs in metallurgy, equipment manufacturing and/or downstream industries;
- improving the environmental (control of emissions, residues, effluents), health and safety performance of operations throughout the whole life cycle;

sub-topic b)

- achieving the objectives and the implementation of the EU Forest Strategy^[6], Circular Economy Action Plan and the EIP on Raw Materials on resource-efficient use of resources;
- improving knowledge and conditions for efficient wood processing when compared to the state of the art, resulting in increased competitiveness of the EU woodworking industries;

- increased wood waste recycling across the EU (including from furniture, construction and demolition, packaging, household) and increased acceptance in the use of secondary wood;
- better informed decision-making at EU, national and local levels in the private and public sectors on wood recycling and resource efficiency; and improved knowledge of EU stakeholders about proposed solutions, including authorities involved in wood recycling;
- in the medium and long term, creating added value and new jobs and increasing the overall competitiveness of the EU woodworking industries and related value-chains through an uptake of resource-, water- and energy-efficient solutions;

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

Cross-cutting Priorities: International cooperation, Open Innovation, 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] For example, country grouping applied by Forest Europe or other equivalent methodology

^[5] http://ec.europa.eu/growth/sectors/raw-materials/policy-strategy/index_en.htm

^[6] COM(2013)659

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

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]).

Actions should include a task to cluster with other relevant projects in the field funded by Horizon 2020, in support of the EIP on Raw Materials.

Actions should address only one of the following sub-topics^[2]:

- 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:

sub-topic c)

- achieving the objectives of both the Raw Materials Initiative^[5] 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: International cooperation, Open Innovation, 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

^[5] http://ec.europa.eu/growth/sectors/raw-materials/policy-strategy/index_en.htm

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

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:	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:	Taking lessons from the practices of interdisciplinarity in Europe
Topic Identifier:	GOVERNANCE-15-2018
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-15-2018.html>

Specific Challenges: “Social sciences and humanities research will be fully integrated into each of the priorities of Horizon 2020 and each of the specific objectives and will contribute to the evidence base for policy making at international, Union, national, regional and local level. In relation to societal challenges, social sciences and humanities (SSH) will be mainstreamed as an essential element of the activities needed to tackle each of the societal challenges to enhance their impact”.

This statement in the Horizon 2020 regulation opens the way to an ambitious policy of SSH integration and its measurement and impact. Beyond the actual practices of “SSH integration” within Horizon 2020 already monitored by the European Commission this Coordination and Support Action should look at integration/interdisciplinarity practices within and outside of Horizon 2020 both between SSH and other sciences as well as between the diverse disciplines within the social sciences and humanities, in Europe and, where relevant at national or local level. The challenge is to learn and further build on these practices.

Scope: Interdisciplinarity for this topic means interdisciplinarity between SSH and other sciences as well as interdisciplinarity between the diverse disciplines within the social sciences, humanities and the arts. Furthermore, the European Commission supports a genuine integration of SSH, meaning that the SSH are not an “add-on” to other sciences but are fully mobilised, like other sciences, in building collectively the relevant scientific interdisciplinary questions for answering Europe’s societal challenges. Finally, the

Commission recognises that interdisciplinarity between SSH and other sciences is only one among several scientific approaches (i.e. mono-disciplinarity and other kinds of interdisciplinarity) and therefore that the policy to support “SSH integration” needs to be justified and selective.

The scope of this topic is thus neither concentrated on the epistemology of interdisciplinarity, nor on the ad hoc contribution of SSH to other sciences, but is rather meant for SSH experts, in close cooperation with experts from other sciences, to take a leading role in analysing the actual practices and potential of interdisciplinarity in Europe, inside and outside Horizon 2020, as well as their outputs and impacts.

Proposals should be able to scan a wide array of practices and indicators of interdisciplinarity between SSH and non-SSH sciences in Europe, whether at national level or at bilateral or multilateral level, including **third countries** where relevant. They should analyse best practices but also instances of failed attempts at such interdisciplinarity. On this basis, they should try to give better socio-institutional accounts of various types of interdisciplinarity and their outputs and impacts. They should analyse the conditions for supporting meaningful interdisciplinarity between SSH and other sciences, including through evaluations of programmes and projects and researchers’ career development, and suggest whether new kinds of tools or institutional solutions could become, in a feedback loop, relevant within the Framework Programme or outside it. Based on empirical evidence of existing or nascent interdisciplinary cooperation between SSH and other sciences, proposals should also assess the potential for interdisciplinarity for responding to the different societal challenges that Europe needs to tackle, in areas like health, food and agriculture, energy and climate change, technological innovation, security or any other relevant emerging area. They should thus point to established, nascent or potential areas where interdisciplinarity between SSH and other sciences could be more adequately supported.

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. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: The action will contribute to developing a policy for integration/interdisciplinarity between SSH and other sciences at European level based on empirical experiences of this kind of interdisciplinarity. It will also allow the identification of areas or issues which show potential for genuine interdisciplinary cooperation between SSH and other sciences, which would deserve to be supported in the future in order to meet Europe’s societal challenges.

Delegation Exception Footnote: This activity directly aimed at supporting the development and implementation of evidence base for R&I policies and supporting various groups of stakeholders is excluded from the delegation to the Research Executive Agency and will be implemented by the Commission services.

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

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:	Drivers and contexts of violent extremism in the broader MENA region and the Balkans
Topic Identifier:	SU-GOVERNANCE-10-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	14-03-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/su-governance-10-2019.html>

Specific Challenges: Parts of the broader Middle East and North Africa (MENA) region and of the Balkans have been experiencing ethnic, religious and territorial conflicts and civil wars as well as a rise in violent extremism fuelled or justified also by religious interpretations. More empirical and interdisciplinary research is needed to understand the various historical, geopolitical, socioeconomic, ideological, cultural, psychological, and demographic factors that drive these conflicts and violent extremism in these regions. The various ways in which these phenomena impact Europe also need closer scrutiny.

Scope: Proposals should produce country and regional analyses of the interplay between religion, politics and identity. This should include country and regional comparisons. Religious extremism in particular should be addressed from angles such as drivers, narratives, authority figures and formal leadership. Radical interpretations and appropriations of religion to justify violent extremism as well as their impact on individual rights (including women's rights and gender issues more broadly) should be studied. Links to recent developments with an impact on Europe - such as the issue of foreign fighters and the role of diasporas and community leaders - should be assessed.

Concrete proposals should be made on which preventive measures are effective and should be stepped up. In particular, research should examine to what extent this is the case with measures such as strengthening moderate voices among religious and other communities, fostering education and

inclusion as tools for reconciliation, promoting online media literacy and countering radical propaganda. Proposals should involve relevant actors (e.g. policymakers, religious leaders, representatives of civil society) to ensure mutual learning and take-up of results.

The Commission considers that proposals requesting a contribution from the EU in the order of 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 action will improve the knowledge base on violent extremism in the broader MENA region and the Balkans. It will ensure a step-up in mutual learning between the EU and **third countries** in light of common challenges.

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

Horizon 2020 Pillar:	Societal Challenges
Programme:	Europe in a changing world – Inclusive, innovative and reflective societies
Call Title:	Migration
Call Identifier:	h2020-sc6-migration-2018-2019-2020
Topic Title:	Understanding migration mobility patterns: elaborating mid and long-term migration scenarios
Topic Identifier:	MIGRATION-01-2019
Type of Action:	RIA Research and Innovation action
Deadline(s):	14-03-2019 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/migration-01-2019.html>

Specific Challenges: Global migration is growing in scope, complexity and diversity, which requires better preparedness and responses. A deeper understanding of the drivers of migration and of their interrelation with people’s propensity to migrate is needed as well as projections and scenarios that are essential for appropriate planning and effective policymaking.

Scope: Patterns, motivations and modalities of migration should be explored, with a focus on new geographies and temporalities. This may include among others the changing nature of flows and factors such as international demand for and supply of labour, sector policies in countries of origin and destination, aging population in industrialised countries, demographic trends in countries of origin, migration propensity, transnational networks, the impact of corruption, shifting representations of Europe, temporary migration and return (both voluntary and forced) and forced movements linked to conflicts, environment-related threats, other relevant geopolitical factors, international development and regional policies, as well as livelihood opportunities (e.g. inequalities, income levels, poor job opportunities, working conditions, traditional gender roles). The movement of **third country** nationals among the various regions of the EU should also be analysed. Proposals should capture population estimates and synthesise solid data on gross international migration flows, including towards Europe, in order to identify emerging trends and anticipate future patterns. Proposals should address the gender dimension of international migration and large-scale movements of migrants, including minors unaccompanied and with their families. Proposals should also reappraise assumptions about migration and identify key uncertainties.

The involvement of refugee and migrant scholars and scientists from relevant backgrounds and disciplines is strongly encouraged.

The Commission considers that proposals requesting a contribution from the EU in the order of 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 action will enhance the knowledge base on migration-related flows, drivers, attitudes and behaviours in qualitative and quantitative terms. Scenarios and projections will inform evidence-based governance and regulatory frameworks at international and EU levels as well as relevant sector policies in EU Member States, e.g. social, health, education and labour market related policies and the impact on welfare policies and public social security systems. The action will also improve statistical data and methods in cooperation with national statistical institutes, relevant organisations and Eurostat.

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

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:	Supporting microbiome coordination and the International Bioeconomy Forum
Topic Identifier:	SFS-32-2018
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/sfs-32-2018.html>

Specific Challenges: Knowledge of the potential of microbial systems, or microbiomes, throughout the food chains, is seen as a promising means to ensuring the sustainability of our food system. Although a number of relevant European programmes and initiatives are currently running or are being launched, they are largely fragmented, implying a stringent need for coordinated action. This need for joint action at the European level can also be regarded in the broader picture of microbiome-related actions at the international level. A forum for regular, strategic international cooperation at multi-partner level could focus on building policy coherence and exploiting synergies between countries and regions. To this end, the European Commission launched in October 2016 the International Bioeconomy Forum (IBF), a flexible multilateral platform whereby European and global R&I partners would gather to discuss and act on common challenges in the bioeconomy, such as the microbiome. The bioeconomy has been incorporated in the strategic activities of a large number of countries in Europe and worldwide. Accordingly the IBF will be used as a platform to share ideas and experiences on bioeconomy policies, strategies and actions, fostering collaboration and joint activities that will promote innovation in key sectors.

Scope: Proposals should aim at a platform for collaboration and coordination across various microbiome-related research and innovation programmes, in Europe and worldwide, throughout the food systems and beyond, including both terrestrial and aquatic environments (e.g. linkages among microbiome related work in plants, animals, soils, marine and human health)^[1]. They should map

the state of play in the different Member States, associated countries and **third countries** participating in the IBF, and propose strategic research agendas for future Microbiome activities addressing emerging technologies and political priorities. In line with the objectives of the EU strategy for international cooperation in research and innovation^[2], proposals should also aim at supporting similar activities within other IBF working groups. Participation of relevant partners from **third countries** and international organisations is strongly encouraged.

The Commission considers that proposals requesting a contribution from the EU in the range of 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: In line with the EU Bioeconomy Strategy, in the short/medium term proposals will:

- Improve coherence and reduce the overlap between national and EU funding in microbiome research; reinforce collaborations and knowledge exchange with international networks to promote coherence and applicability of microbiomes; help establish an internationally agreed microbiome definition, best practices and standards, consistent protocols and pipelines.
- Improve the international cooperation framework of bioeconomy research programmes, thus creating the basis for the development of joint international research programmes and facilitate the alignment of international research agendas.
- Exchange knowledge across the scientific and political community and ensure an efficient use of the available resources, while raising awareness of the bioeconomy at an international level.

In the long-term, proposals will impact on global challenges relevant to the bioeconomy world-wide through multilateral co-operation and broader international efforts towards the achievement of some ambitious Sustainable Development Goals (SDGs).

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

^[1] Relevant topics presented in the Work Programme are: SC1-BHC-03-2018 Exploiting research results and potential of the human microbiome for personalised prediction and prevention of disease, LC-SFS-03-2018 Microbiome applications for sustainable food systems, SFS-11-2018-2019 Anti-microbials and livestock production, [.....

^[2] <http://ec.europa.eu/research/iscp/index.cfm?pg=strategy>

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/GEOS, 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.

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://gooscean.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:	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 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:

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 ICPeMed initiative; furthermore:

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.

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:	ERA-NET to support the Joint Programming in Neurodegenerative Diseases strategic plan (JPND)
Topic Identifier:	SC1-HCO-04-2018
Type of Action:	ERA-NET-Cofund ERA-NET Cofund
Deadline(s):	18-04-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-hco-04-2018.html>

Specific Challenges: The EU Joint Programming Initiative on Neurodegenerative Diseases Research, in particular Alzheimer's (JPND), was established in 2009 as the pilot of the Member State-led Joint Programming Initiatives and enables the participating EU Member States to work together on the challenge of age-related neurodegenerative diseases. JPND allows the establishment, alignment and building on of national research programmes to increase the effectiveness and impact of research efforts.

Building on earlier successes of the JPND Research Strategy in scaling-up and establishing synergies with Horizon 2020, there is a need to continue previous efforts to consolidate the JPND successes in defragmentation, better coordination and alignment amongst the countries participating in the JPND.

Scope: Proposals should pool the necessary financial resources from participating national or regional research programmes in the area of neurodegenerative diseases research by implementing a transnational joint call for proposals resulting in grants to third parties with EU co-funding, with a view to scale-up the implementation of the JPND Research Strategy. Proposers are requested to also implement other joint activities, including training and additional joint calls without EU co-funding.

Proposals should also promote the strategic alignment of research activities related to neurodegenerative diseases across Europe, such as developing and aligning national research plans and strategies, making data bases more accessible and interoperable, harmonisation of measurements and

methodologies, networking of already existing structures and studies, training etc.

Proposals should demonstrate the expected impact on national and transnational programmes as well as the leverage effect on European research and competitiveness, and should plan the development of key indicators for supporting this.

Participation of legal entities from **third countries** is encouraged in the joint call as well as in other joint activities including additional joint calls without EU co-funding. 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.

The specific focus of the joint call will be further developed by the beneficiaries of this action.

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

- Funding of research proposals on a topic identified by the JPND implementation plan or by their action groups, which needs to be addressed at European level and which is complementary to topics of the EC work programmes.
- Leverage transnational excellent research with EU-added value in the area of neurodegenerative diseases.
- Increased commitment of participating countries to the implementation of the JPND Strategic Research Agenda.
- Establishment and alignment of national and regional plans and initiatives on neurodegenerative diseases.
- Strengthened exchange and better interoperability between existing European infrastructures and data bases.
- Enhancement and/or better exploitation of national or EC-supported activities.

Cross-cutting Priorities: ERA-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:

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 ICPeMed initiative; furthermore:

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.

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:	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: ERA-NET, Clean Energy

^[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

Spreading Excellence and Widening Participation

Horizon 2020 Pillar:	Spreading Excellence and Widening Participation
Programme:	Spreading Excellence and Widening Participation
Call Title:	WIDESPREAD
Call Identifier:	h2020-widespread-2018-2020
Topic Title:	Support to JPI Urban Europe
Topic Identifier:	WIDESPREAD-02-2018
Type of Action:	CSA Coordination and support action
Deadline(s):	15-11-2018 (single-stage)

Participant Portal Weblink:

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/widespread-02-2018.html>

Specific Challenges: In tackling societal challenges in the area of sustainable urbanisation, fragmented national research and innovation programmes represent an obstacle for European collaboration. In some countries, the situation has led to an underrepresentation of such countries in transnational collaboration. The different national research and innovation systems, approaches and instruments in these countries also add to the challenge. Furthermore, urban policy-making is often hampered by the limited cross-sector cooperation which does not allow a strong policy support that is based on scientific evidence.

Following the implementation of the actions foreseen by the Commission's Communication on Joint Programming to tackle Europe's major societal challenges of 2008, the Competitiveness Council has launched altogether ten Joint Programming Initiatives so far, among which is the Joint Programming Initiative 'Urban Europe - Global Urban Challenges, Joint European Solutions' (JPI Urban Europe)^[1]. The initiative enhances the knowledge and capacities to support urban transition towards sustainability in Europe and beyond. In doing so, it develops innovative solutions and reduces the fragmentation of urban-related research and innovation funding as well as builds critical mass and visibility. Several Council Conclusions on Joint Programming^[2] invite the Commission to support JPIs via Coordination and Support Actions.

The development of the JPI Urban Europe is driven by a strong group of countries but as to the overall country participation, the initiative is seeking to widen the participation. Although efforts are taken by the JPI Urban Europe in this sense, the results can only be expected in a longer-term as this challenge is of the structural nature.

The use of the European Structural and Investment Funds (ESI Funds) is seen as an essential element to strengthen the implementation of new urban solutions and concepts in Europe. The Urban Agenda^[3] sets out a policy agenda for this and for EU urban policy in the wider sense. Many smart specialisation strategies include urban and smart cities related priorities and chart out the use of ERDF funding to develop and test new solutions for them. The Urban Innovative Actions identify and test innovative solutions for sustainable urban development.^[4] Also the JPI Urban Europe aims to create, validate and demonstrate knowledge and solutions. The ESI Funds could provide for both investments and implementation support. The challenge is how to create synergies, complementarities and coherence as well as alignment between the activities of the JPI Urban Europe and other existing resources such as the ESI Funds.

The outreach and opening of the JPI Urban Europe to **third country** partners is increasingly raising interest among the latter. Building on this momentum, the challenge is to further enhance the opening of the JPI to international cooperation and thus contribute to creating a coherent European Research Area that is open to international cooperation in the field of sustainable urban development. The challenge is how to consolidate the alignment of national, EU and international research and innovation programmes, which is one of the key objectives of Joint Programming Initiatives. In that regard, there is also a need to support the post-2015 sustainable development agenda, in particular the Sustainable Development Goal on sustainable cities and urban settlements^[5], building on related international activities taking place at United Nations level.

Scope: Proposals should aim to implement a solid opening-up strategy of the JPI Urban Europe, for enlarging participation of more European partner countries getting involved in the JPI initiative, including from Widening countries, and to further enhancing the commitment and broader participation of countries. Proposals should build on the coordination action ‘EXPAND – Enhancing co-creation in JPI Urban Europe through widening Member State and stakeholder participation’^[6] that is expected to establish a Stakeholder Involvement Platform for the widening of participation and capacity building in terms of countries, regions, stakeholders and urban actors. In that regard, proposals should ensure the sustainability of the Stakeholder Involvement Platform. Proposals should engage a wide variety of countries in the activities of the JPI Urban Europe with the support of existing complementary resources such as the ESI Funds. In doing so, the proposal should build on the pilot activities implemented^[7] and establish further test beds for new instruments and for scaling up innovative solutions. Proposals should further professionalise the JPI Urban Europe programme management and further diversify various instruments for creating scientific evidence, innovations and the impact. Proposals should support the strategic processes of the JPI Urban Europe beyond 2020 and also establish mechanisms for the implementation of the future internationalisation strategy of the JPI Urban Europe^[8] that is under preparation. In doing so, proposals should investigate activities to align with and support the post-2015 sustainable development agenda, in particular,

the Sustainable Development Goal on sustainable cities and urban settlements.

All participants in proposals must be legal entities which finance or manage publicly funded national or regional programmes in the urban-related research and innovation domains or which are institutions mandated to represent the country/region in JPI Urban Europe activities.

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

Expected Impact:

- Increased scale and scientific quality of urban-related research and innovation activities as well as the overall coherence, complementarity and efficiency of the use of European research and innovation resources in this area including from Widening countries. In this context, relevant geographical spread is expected (medium to long term impact);
- Further professionalised programme management and more diversified instruments supporting implementation of the JPI Urban Europe Strategic Research and Innovation Agenda corresponding to the conditions of all types of countries as well as the JPI Urban Europe strategy development beyond 2020 (short to medium term impact);
- Increased synergies, complementarities and alignment between the strategies, activities and related resources of the JPI Urban Europe and other existing resources such as the ESI Funds, mostly present in Widening countries (medium term impact);
- More efficient valorisation and take-up of research findings both in terms of policy and innovation, including test beds for piloting new urban solutions (short to medium term impact);
- Improved exchange of know-how on urban R&I solutions across the EU, including Widening countries, and at global level (short to medium term impact);
- Strengthened role of the JPI Urban Europe for underpinning knowledge and scientific evidence for supporting the implementation of related EU policies, also in the context of the post-2015 sustainable development agenda (medium to long term impact);
- Enhanced positioning of the JPI Urban Europe as a privileged and attractive partner for global cooperation in the urban-related research and innovation (medium to long term impact).

Delegation Exception Footnote: This activity directly aimed at supporting public-public partnerships with Member States and associated countries is excluded from the delegation to REA and will be implemented by the Commission services.

^[1] Council Conclusions of 8 December 2011

^[2] Council Conclusions of 12 October 2010, of 26 November 2010 and of 8 December 2011

^[3] See: http://ec.europa.eu/regional_policy/en/policy/themes/urban-development/agenda/

^[4] See: <http://www.uia-initiative.eu/en>

^[5] <http://www.undp.org/content/undp/en/home/sustainable-development-goals/goal-11-sustainable-cities-and-communities.html>

^[6] Grant Agreement number 726744 awarded under Horizon 2020 - part 15. Spreading Excellence and Widening Participation

^[7] This task has to develop further the outcomes of the two pilot actions initiated in connection with the ERA-NET Cofund 'Smart Cities and Communities' and the Coordination action 'EXPAND – Enhancing co-creation in JPI Urban Europe through widening Member State and stakeholder participation'

^[8] Provided that the internationalisation strategy of the JPI Urban Europe will be adopted by 2019