International Cooperation in Horizon 2020

EU and Japan

2016-10-13

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Excellent Science

Horizon 2020 Pillar: Excellent Science

Programme: Research infrastructures

Call Title: E-Infrastructures

Call Identifier: H2020-EINFRA-2016-2017

Topic Title: Data and Distributed Computing e-infrastructures for Open Science

Topic Identifier: EINFRA-12-2017

Type of Action: RIA Research and Innovation action

Deadline(s): 29-03-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/einfra-12-2017.html

Specific Challenge: This topic covers two complementary areas of e-infrastructures very closely related with the objective to make research data discoverable, accessible, assessable, intelligible, useable, and wherever possible interoperable – c.f. **G8** principles on research data:

a. Secure and agile data and distributed computing e-infrastructures: fostering the integration of a secure, permanent, on-demand service-driven, privacy-compliant and sustainable e-infrastructure incorporating distributed databases, computing resources and software.

   The European data and computing e-infrastructure landscape remains very fragmented which is an obstacle for research collaboration at European and global levels and introduces additional complexity for achieving sustainable governance. The challenge is to integrate at European level the geographically and disciplinary dispersed resources to achieve economies of scale and efficiency gains in providing the best data and computing capacity and services to the research and education communities. This action is interrelated to INFRADEV-04-2016, "European Open Science Cloud for Research".

b. Access and preservation platforms for scientific information: supporting the integration and consolidation of e-infrastructure for reliable and permanent open access to digital scientific records, based on existing initiatives across Europe (institutional and thematic repositories, aggregators, etc.).

   The European infrastructures need to respond to the emerging requirements for seamless and reliable access to publications, research data and software. These requirements are complemented by the need for long term preservation and curation of scientific information to fully support data and computing intensive science. The challenge is to support the integration at European level of a robust and sustainable e-infrastructure, based on existing initiatives across Europe (institutional and thematic publishing platforms, aggregators, etc.) and services supporting European Open Access policies. An additional challenge is the building of capacity to link all kinds of digital research objects

in order to enable a more transparent evaluation of research and reproducibility of results, enabling trust and facilitating access by innovative business actors.

Scope: Grants awarded under this topic will be complementary between them. The respective options of Article 2, Article 31.6 and Article 41.4 of the Model Grant Agreement will be applied. The main purpose of the collaboration agreements referred to in Article 41.4 of the Model Grant Agreement is to work on potential synergies, overlaps and gaps in the overall service offering. In addition, links should also be established with projects selected under topic INFRADEV-04-2016, to collaborate, exploit potential synergies and ensure complementarity.

Proposals will address part (a) or (b), but not both. At least one proposal for each part will be selected:

a. Secure and agile data and distributed computing e-infrastructures (proposals should address all points below):

   1. integration of computing, software and storage resources exposing them through a dynamic registry and catalogue of services supporting European research and education communities in their tasks related with data and computing intensive science. This integration should be done by means of open and flexible architectures and include institutional, regional, national and European capabilities, packaging them in the optics of end-user needs
   2. seamless operation of highly scalable and agile data and computing platforms and services dedicated to analytics including hardware and software components, database, compilers, analytics software, supported to easy user entry points for the community of users
   3. reliably address the aspects of privacy, cybersecurity and information assurance supporting multiple compartments with private, public or industrial corpus of data, protected from unauthorized access by secure interfaces
   4. adoption of standards-based common interfaces, open source components enabling access and processing of underlying data collected/stored in different platforms and formats. Empowering users to customise application and services tailoring them to specific requirements, which will differ across disciplines, applications etc
   5. work closely with user communities (from different disciplines) to foster the use of digital infrastructures, promote the values of open science and support their data management plans. Engage and train users (researchers, educators and students) to contribute to the dynamic registry and catalogue of services improving quality of data, software and computing infrastructure that become available for re-use
   6. foster interoperability of pan-European thematic/community-driven e-infrastructures providing cost-effective and interoperable solutions for data management. The data and computing e-infrastructure should be able to interoperate with resources based on different technologies which are operated/owned by public and or private organisations
   7. support the preservation and curation of data and associated software so that the reproducibility and accuracy of the data can be verified
   8. enable seamless transition and e-infrastructure upgrades, exploiting economies of scale and promoting interoperability with similar infrastructures across and beyond Europe and operate user-friendly and comprehensive repositories of software components for research and educationThe Commission considers that proposals requesting a contribution from the EU of between EUR 10 and 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

b. Access and preservation platforms for scientific information (proposals will address all points below):

   1. Deployment and maintenance of service-driven knowledge e-infrastructure responding to general and specific requirements of researchers and research organisations for open access to research digital objects, their registration and preservation. This e-infrastructure will further develop the research capacity through a coordinated and participatory architecture linking institutional and thematic repositories across Europe. It will support publishing platforms by providing essential services for scientific information that can be used by humans and machines. Such target platforms can be generic, specific for a research field or specialised on quality assurance, discoverability, archiving etc. Essential functions of this service-driven approach will include helpdesks, training and guidance to support producers and users of scientific information, community building to support research data sharing and management, as well as implementation of Open Access policies in Europe. Relevant indicators on the take-up of open access in Europe including publications and data should be elaborated and reported regularly. The project will promote a limited set of biblio- and webometrics that reflect open access policies. It will collect bibliometric data on publications, citations, data citations, etc. on all Horizon 2020 scientific output (including on the Open Research Data Pilot) and produce both standard and on-demand statistics.

   2. Supporting global interoperability of open access data e-infrastructures and linking with similar initiatives across the globe to complement the physical access to research facilities with data access and to ensure that Europe plays a leading role in international collaborations.

The Commission considers that proposals requesting a contribution from the EU of between EUR 8 and 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. It is expected that one proposal will be selected.

Expected Impact:

a. the operation of a federated European data and distributed computing infrastructure for research and education communities will optimise the access to IT equipment and services and will put all European researchers and educators in equal footing to access essential resources to express their talent and creativity. Establishing partnerships with industrial and private partners the e-infrastructure will train people in research and academic organisations preventing lack of skilled and specialised infrastructure operators. It will avoid the locking-in to particular hardware or software platforms that would jeopardise the long-term planning for capacity upgrades. With such an operational infrastructure more scientific communities will use storage and computing infrastructures with state-of-the-art services for their research and education activities. The open nature of the infrastructure will allow scientists, educators and students to improve the service quality by interacting with data, software and computing resources. It will increase the incentives for scientific discovery and collaboration across disciplinary and geographical boundaries, putting Europe in the driving seat at global level. It will further develop the European economic innovation capacity and provide stability to the e-infrastructure.

b. a reliable operation of e-infrastructure services for access and preservation of scientific information will make the intellectual capital of Europe available to researchers, business and citizens at large. It will generate economic and scientific advances now and in the future as that capital is safely preserved for further exploitation by future generations. Open Access publications resulting from Horizon 2020 funded research are available and easily findable online. Data needed to validate published results is linked to the publications and publicly shared whenever possible. Accurate science metrics for Horizon 2020 can be produced with almost no effort. Most of the European institutional

repositories (at least 95%) as well as the principal thematic repositories are part of the same interoperable repository network.

Cross-cutting Priorities: International cooperation, Open Science

Industrial Leadership

Horizon 2020 Pillar: Industrial Leadership

Programme: Innovation in SMEs

Call Title: For a better innovation support to SMEs

Call Identifier: H2020-INNOSUP-2016-2017

Topic Title: A better access to industrial technologies developed overseas

Topic Identifier: INNOSUP-08-2017

Type of Action: CSA Coordination and support action

Deadline(s): 28-03-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/innosup-08-2017.html

Specific Challenge: According to the OECD, the US and **Japan** dominate R&D stocks for technologies ready for uptake by industry. 40% and 28% of the R&D stock held in OECD countries are located in the US and **Japan** respectively. Korea further contributes a significant share as a result of an active technology development policy followed for decades.

Technologies are however hardly accessible for European SMEs – while multinational companies face less challenges in this respect. Access to technologies overseas is hampered amongst others by a mismatch of institutions and methodologies for technologies transfer. The friction from differences in approaches to technology transfer becomes evident in the daily work of the Enterprise Europe Network in which overseas entities became members on a self-financing basis. These network partners adopt the network's working methods but face the challenge that direct interaction is hampered by the geographic distance, as a result, real hand-on cooperation with overseas partners in the Enterprise Europe Network remain limited.

Scope: A limited number of experimental projects between the network sector groups and overseas partners of the Enterprise Europe Network shall be supported by grants. The objective is to better capitalise the industrial R&D stock of overseas OECD countries in the context of sector groups of the Enterprise Europe Network in collaboration with clusters. The action should develop and test new service formats by taking up elements of the technology and knowledge transfer practices of the network partners in the US, **Japan** and Korea – and other countries as appropriate - to assist SMEs to tap the pool of industrial knowledge and technologies in these countries.

Project partners shall be partners in the Enterprise Europe Network; collaborating or supporting entities overseas do not have to be partners in the Enterprise Europe Network – cluster organisation in Europe shall be included as collaborating / supporting entities.

Expected Impact: The projects to be supported shall mainly achieve a structural impact by:

- Better integrating overseas partners in the sector groups of the Enterprise Europe Network, further developing the methods used by the Network for collaboration with overseas

partners, and thereby providing a lasting better access to the results of applied industrial research in the US, **Japan** and Korea for European SMEs.

- From the supported actions a significant number of European SMEs will get into contact with the developers of technologies ready for application overseas and possibly conclude cooperation agreements.

Cross-cutting Priorities: International cooperation

Horizon 2020 Pillar: Industrial Leadership

Programme: Leadership in enabling and industrial technologies (LEIT)

Call Title: Information and Communication Technologies Call

Call Identifier: H2020-ICT-2016-2017

Topic Title: Micro- and nanoelectronics technologies

Topic Identifier: ICT-31-2017

Type of Action: CSA Coordination and support action, IA Innovation action, RIA Research and Innovation action

Deadline(s): 25-04-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/ict-31-2017.html

Specific Challenge: While the state-of-the-art micro/nano-electronics technologies and their manufacturing are being further advanced towards market-readiness in the context of the ECSEL Joint Undertaking, it is essential to prepare for the future of the electronics industry the next wave of industry-relevant technologies to extend the limits (technological and/or economic) mainstream technologies will be facing in the medium term[1]. This is essential to maintain and increase Europe's longer-term capacity in the design and manufacturing of these technologies and to strengthen the competitiveness and market leadership of the many industries innovating through these technologies.

Scope:

a. Research and Innovation actions

The work must be in the scope of one of the following topics:

- the development of new approaches to scale functional performance of information processing and storage substantially beyond the state-of-the-art technologies with a focus on ultra-low power and high performance. Work may address materials, processes, device and component architectures, system micro-architectures (processor and memory), security, design, modelling, simulation and nano-characterization, and must consider integration, systemability and manufacturability. Technologies exploiting the quantum effects in solid-state devices are also relevant. Advanced explorative technology development at TRL 2-3 is called for.
- 3D sequential integration (at transistor scale) possibly mixed with 3D parallel integration (at circuit level) for system solutions to increase functionalities and capabilities. Work could address interconnects (intra-layer and vertical structures), design challenges (3D design kits and tools, power models and optimization), prototyping and test methods. Proposals at TRL 2-3 are called for.

In line with the strategy for EU international cooperation in H2020, cooperation is encouraged with countries that have substantial research in the area (e.g. **Japan**, South Korea, Taiwan and the USA).

In the particular case of **Japan** and Korea, the call is open to project twinning. Proposals for twinning with entities participating in projects funded by Research and Innovation programmes in **Japan** and Korea shall foresee budget provisions to exchange knowledge and experience and exploit synergies. Project twinning will be implemented on a bilateral basis by clustering of projects on nanoelectronics topics of mutual interest.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

b. Innovation action[2]

In Equipment Assessment Experiments, suppliers of innovative high-tech equipment install, assess and validate their prototypes or products that have left the R&D phase in environments that are very close to real-life conditions in cooperation with end-user. Proposals at TRL 6-7 are called for.

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

c. Coordination and Support actions

In view of promoting the attractiveness of careers in micro/nanoelectronics towards young people, a dedicated pan-European challenge event should be proposed to showcase the possibilities offered by state-of-the-art hardware technologies (similar to the European code week for software apps). The sustainability of this event should also be addressed.

The Commission considers that proposals requesting a contribution from the EU of about EUR 0.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Proposals should address the following impact criteria and provide metrics to measure and monitor success

a. Research and Innovation actions

The actions will aim at contributing to the future growth in Europe of the micro-/nanoelectronics and related industries.

- The proposals must describe how the proposed developments of new/enabling technologies will contribute to the target of doubling the economic value of semiconductor component production in Europe within the next 10 years as set by the Electronics Leaders Group in their strategic roadmap[3] and implementation plan[4].
- The proposals must outline a realistic roadmap for further progressing on the TRL range beyond the project timeframe and a concrete business perspective describing expected markets for the industrial partners and impact for European industry and society at large.

b. Innovation actions

- Proposals should clearly demonstrate the route from assessment to first use of the equipment. The user requirements of the equipment to be assessed should represent significant improvements to existing equipment in terms of capability, precision, efficiency or other characteristics opening new avenues of deployment.

c. Coordination and Support actions

- The actions will raise the awareness of young people for the potential offered by a technological career thereby attracting more students to the field.

- The proposed event should have ambitious targets in the number of participations (reach-out to thousands of students) and the scope of the activities (designs and prototypes) to be showcased.

Cross-cutting Priorities: International cooperation

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[1] Graphene is covered by the eponym FET Flagship initiative

[2] Access actions (including EuroPractice-type actions) are addressed under ICT-4

[3] https://ec.europa.eu/digital-agenda/en/electronics-roadmap-europe

[4] https://ec.europa.eu/digital-agenda/en/news/european-industrial-strategic-roadmap-micro-and-nano-electronic-components-and-systems-0

Societal Challenges

Horizon 2020 Pillar: Societal Challenges

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

Call Title: Greening the Economy

Call Identifier: H2020-SC5-2016-2017

Topic Title: Closing the water gap

Topic Identifier: SC5-33-2017

Type of Action: ERA-NET-Cofund ERA-NET Cofund

Deadline(s): 07-03-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-33-2017.html

Specific Challenge: Growing water demands, mismanagement of water use and climate change are increasing the stress on water supply, water bodies, and associated ecosystems and existing infrastructures, and emphasise the need to close the water cycle gap, by reconciling water supply and demand in both quantitative and qualitative terms. Research needs to be deployed in a number of scientific fields to improve the knowledge base on water resources availability and use and must be systematically combined with a socio-economic approach investigating the questions of adaptation strategies, participation, behaviour and commitment of stakeholders. This challenge is of European interest and will require a concerted action. To be more effective and increase the added value of related investments, the efforts and strategic research agendas of the many funding networks and organisations existing in Europe need to be integrated to establish transnational and trans-disciplinary research and innovation actions.

Scope: The action will support delivering on priorities identified in the Strategic Research and Innovation Agenda of the Water Joint Programming Initiative (JPI), by pooling together the necessary financial resources from the 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. The joint call should address research and innovation to support the implementation of EU water policy, in particular on the thematic area “Closing the Water Cycle Gap” of the Water JPI Strategic Research and Innovation Agenda, specifically the sub-themes of Enabling Sustainable Management of Water Resources; and Strengthening Socio-economic Approaches to Water Management. Water resources observation and modelling will be required to better understand hydrological processes and to analyse and forecast the effect of management options, in order to support improved decision-making to ensure the long-term viability of water resources and to enable the integrated management of water resources at the national, basin, and global scales. Observation and modelling should also help to mobilise investments into innovation water management and use solutions in line with the objective of creating a circular economy.

In line with the EU's strategy for international cooperation in research and innovation international cooperation with international partners is encouraged. Proposals should

include other joint activities including additional joint call(s) without EU co-funding. The proposal should demonstrate that these co-funded other activities exclude any overlaps with related ongoing actions co-funded by the EC. Cooperation and coordination with other ERA-NETs and/or JPIs to increase synergies on cross-cutting issues, where appropriate, is encouraged.

Participation of legal entities from international partner countries and/or regions is encouraged in the joint call as well as in other joint activities including additional joint calls without EU co-funding. Participants from countries which are not automatically eligible for funding[1] may nonetheless request a Union contribution (on the basis of the ERA-NET unit cost) for the co-ordination costs of additional activities.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 10 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: Projects are expected to lead to:

- improved use of scarce human and financial resources in the area of water research and innovation;
- reduced fragmentation of water research and innovation efforts across Europe;
- improved synergy, coordination and coherence between national and EU funding in the relevant research fields through transnational collaboration;
- improved implementation of research and innovation programmes in these fields through exchange of good practices;
- strengthened international leadership of European research in this area making the Water JPI, in collaboration with the European Commission, a privileged and attractive partner for global cooperation in research and innovation, in the context of the **Belmont Forum** and other international alliances;
- contribution to the implementation of the objectives of the JPI on Water;
- contribution to the implementation of the Sustainable Development Goals (SDGs), in particular SDG 6 'Ensure availability and sustainable management of water and sanitation for all' and SDG 13 'Take urgent action to combat climate change and its impacts', as well as the conclusions of the COP21 Paris Agreement[2].

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

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[1] http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm

[2] The Paris Agreement was adopted at the 21st Conference of the Parties (COP) of the United Nations Framework Convention on Climate Change, in Paris on 12 December 2015.

Horizon 2020 Pillar: Societal Challenges

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

Call Title: Greening the Economy

Call Identifier: H2020-SC5-2016-2017

Topic Title: Biodiversity scenarios

Topic Identifier: SC5-32-2017

Type of Action: ERA-NET-Cofund ERA-NET Cofund

Deadline(s): 07-03-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-32-2017.html

Specific Challenge: Evaluating and improving the sustainability of the management of biodiversity and ecosystem services is a major challenge of our time all over the world. Scenarios of biodiversity and ecosystem services have been a key component of forward-looking decision making as they contribute to

i. better understanding and synthesizing a broad range of observations,

ii. informing decision makers about future impacts of global changes such as climate change, land use change, resource overuse, invasive alien species or pollution,

iii. providing decision support by developing adaptive management strategies, and

iv. evaluating the implications of alternative social-economic development pathways and policy options.

Development of scenarios for biodiversity and ecosystem services, based on the understanding and modelling of their dynamics and the evaluation and reanalysis of past changes, is beginning to receive high priority in the research policy of the majority of countries worldwide. In this context, aligning research agendas and implementing them through international calls will promote synergies and optimal use of the available expertise and resources, avoiding duplication and ensuring robust outcomes of global relevance. To attain this, BiodivERsA is opening to third country partners and the **Belmont Forum** provides an excellent platform for international collaboration.

Scope: Proposals should pool the necessary financial resources from the participating national (and as needed local and regional) research programmes with a view to implementing a joint call for proposals with EU co-funding resulting in grants to third parties. The proposal should include other joint and follow-up activities, including possibly additional joint call(s) without EU co-funding. The proposal should demonstrate that these co-funded other activities exclude any overlaps with ongoing actions of this ERA-NET co-funded by the EC. Actions should build on the strategic roadmap of BiodivERsA ERA-NET Cofund and launch at least one international call on biodiversity and ecosystem services scenarios in collaboration with the

Belmont Forum specifically to promote trans-continental collaboration. Cooperation and coordination with other ERA-NETs and/or JPIs to increase synergies on cross-cutting issues, where appropriate, is encouraged.

Participation of legal entities from international partner countries and/or regions, particularly from countries participating in the **Belmont Forum**, is encouraged in the joint call as well as in other joint activities without EU co-funding. For the co-ordination costs of additional activities only, participants from countries which are not automatically eligible for funding[1] may nonetheless request a Union contribution (on the basis of the ERA-NET unit cost).

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

Expected Impact: Actions are expected to lead to:

- the alignment of research and innovation agendas in the area of scenario development for biodiversity and ecosystem services and co-ordinated streamlining of the implementation of at least one call;
- enhanced excellence and global relevance of research and innovation activities on biodiversity and ecosystem services, improving the relevance and value of advances made in developing socio-economic scenarios and models of global change impacts on the dynamics of biodiversity and ecosystem services for decision makers at multiple scales;
- increased visibility of European biodiversity scientific community and research outcomes at international level;
- strong and lasting alliance with the funding agencies of key international partners for research and innovation actions on biodiversity and ecosystem services (e.g Brazil, China, India, **Japan**, Mexico, South Africa, USA);
- link with possible assessments as those conducted, e.g., by the IPBES to induce a wider, worldwide and regional use of scenarios to better assess future, plausible trends of biodiversity and ecosystem services and explore the role that nature-based solutions may play;
- contribution to the implementation of the Sustainable Development Goals (SDGs), in particular SDG 15 'Protection, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss'.

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

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[1] http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm

Horizon 2020 Pillar: Societal Challenges

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

Call Title: Greening the Economy

Call Identifier: H2020-SC5-2016-2017

Topic Title: ERA-NET on Climate Services Roadmap: Cross-sector impact assessments (evaluation, comparison and integration)

Topic Identifier: SC5-30-2017

Type of Action: ERA-NET-Cofund ERA-NET Cofund

Deadline(s): 07-03-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc5-30-2017.html

Specific Challenge: Following the outcome of the European Workshop 'Towards a European Market of Climate Services' (18th March, 2014), a European Roadmap for Climate services has been prepared by an independent group of experts and presented in a subsequent European Conference on 17th March 2015. The Roadmap identifies a series of challenges and specific actions that need to be undertaken by various actors in Europe, in order to strengthen the European market of climate services. In the Horizon 2020 Work Programme of 2015 an ERA-NET Cofund action was already launched with the JPI Climate for developing scientific advances in support of climate services, involving mandated governmental research centres in the design of co-aligned actions. The challenge is to support the implementation of the Roadmap, building upon the layer of activities already launched, in order to support knowledge-based decision making, both in the public and private sector, to avoid risks and seize opportunities towards sustainable development. This requires cross-sectoral and robust impact assessments that nest climate change information into others socio-economic changes, as well as taken into account adaptation policies to reduce vulnerabilities and increase resilience in future.

Scope: The action will support the implementation of the roadmap for climate services and align actions of the various national entities of Member States and Associated Countries active in climate services and climate research by developing, evaluating, and integrating impact assessments, methodologies, and models while adding to the development of Shared Socioeconomic Pathways (SSP). It requires transdisciplinary research – co-designed with key stakeholders – across key economic/societal sectors, including food, water, energy, health, finance, investment, equity and security. This action should be implemented through a close cooperation with Member States grouped around the JPI Climate, should take into account relevant actions already carried out in the first Horizon 2020 programming cycle and within other relevant JPIs, and should benefit from cooperation with advanced programmes and projects on climate regional modelling and knowledge gaps, such as the one foreseen in this work programme for 2016 (SC5-2, SC5-3). Furthermore, in line with the strategy for EU international cooperation in research and innovation (COM(2012)497), it should open

cooperation at international level with other key initiatives such as the **Belmont Forum** or at regional level in Latin America and/or Africa.

The proposal should pool the necessary financial resources from the participating national (or regional) research programmes with a view to implementing a joint call for proposals with EU co-funding resulting in grants to third parties. The proposal may include, in addition, publicly-funded research performing organisations that will contribute with their own resources (in-kind contributions from their institutional funding). In this case the joint call should include a separate topic for the participating research performing organisations. They will carry out the transnational projects resulting from this topic themselves. Their participation in the ERA-NET Cofund action must be mandated by the national/regional authorities in charge (normally the responsible Ministry).

Proposals should include other joint activities including additional joint calls without EU co-funding, while demonstrating at the same time that activities exclude any contextual or financial overlaps with related ongoing actions co-funded by the EC. Cooperation and coordination with other ERA-NETs and/or JPIs to increase synergies on cross-cutting issues, where appropriate, is encouraged.

Participation of legal entities from international partner countries and/or regions, including from **Belmont Forum** members and/or Latin America or Africa, is encouraged in the joint call as well as in other joint activities including additional joint calls without EU co-funding. Participants from countries which are not automatically eligible for funding[1] may nonetheless request a Union contribution (on the basis of the ERA-NET unit cost) for the co-ordination costs of additional activities.

The Commission considers that a proposal requesting a contribution from the EU in the range of EUR 13 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 results of the projects launched through this ERA-NET are expected to:

- substantially increase the capability of quantifying the impacts of climate change at local/regional level in a cross sectoral risk-assessment framework including better quantification of uncertainties;
- increase the potential of using climate impact data in operational climate services;
- increase the integration of economic and impact model assessments in support of adaptation and mitigation decisions;
- align public funding on actions in support to the development of climate services within the JPI Climate member countries and beyond, including others relevant JPIs;
- support a network of key European research performing organizations;
- strengthen international leadership of European research, in particular its contribution to the Global Framework for Climate Services (WMO-GFCS), the Inter-Sectoral Impact Model Intercomparison Project (WCRP/ISI-MIP) and the Future Earth Programme, and eventually to IPCC assessments, UN-SDGs and the **Belmont Forum**;
- contribute to implementing the Sustainable Development Goals (SDGs), in particular SDG 13 'Take urgent action to combat climate change and its impacts', as well as the conclusions of the COP21 Paris Agreement.

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

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[1] http://ec.europa.eu/research/participants/docs/h2020-funding-guide/cross-cutting-issues/international-cooperation_en.htm

Horizon 2020 Pillar: Societal Challenges

Programme: Europe in a changing world - inclusive, innovative and reflective Societies

Call Title: ENGAGING TOGETHER GLOBALLY

Call Identifier: H2020-SC6-ENG-GLOBALLY-2016-2017

Topic Title: The **Asia-Pacific** as a strategic region for Europe

Topic Identifier: ENG-GLOBALLY-06-2017

Type of Action: RIA Research and Innovation action

Deadline(s): 02-02-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/eng-globally-06-2017.html

Specific Challenge: The **Asia-Pacific** is a large and diverse region, encompassing industrialised countries, Emerging Economies and developing countries. Perhaps due to this diversity, and save a few specific cases, the European Union has lacked a strategic approach towards the region, despite strong economic interests and heightened security concerns in the area. Several EU Member States have adopted an active bilateral approach towards key partners, but the European Union has mostly failed to speak with one voice in relevant fora. Nowadays the multiple and complex challenges shared by the two regions, ranging from climate change and sustainable development to conventional and non-conventional security challenges, are opening up new opportunities for the EU to become more involved in the region beyond economic cooperation although differences remain in areas like human rights or democratic governance. In order to re-think its role and strategy for the **Asia-Pacific**, and to fully tap the potential for action at European level, the European Union needs to be supported by sound research showing the concrete implications of further engaging with and in the region in a number of sectorial and geographic areas.

Scope: The research to address this challenge should in particular focus on the following key dimensions. It is expected to either comprehensively address one of these dimensions or to combine them. The research may also cover other issues relevant for addressing the specific challenge.

1. Regional integration in South-East **Asia** and its consequences for Europe

   South-East **Asia** has seen, since 1967, the most ambitious project of regional integration outside of Europe, pursued through the Association of Southeast **Asian** Nations (ASEAN). It has followed a different integration path to Europe, based on dialogue and non-interference rather than convergence and law. The region has an immense social, cultural and economic potential, but it still faces the challenge of developing a regional identity with both an internal dimension (how to nourish a sense of belonging) and an external dimension (how to engage with foreign powers, such as China, India, the United States, **Japan** and the EU). The process of nation-building in the ten ASEAN countries and other non-ASEAN countries is incomplete or nascent. It is also confronted with widespread

poverty, disruptive migration flows, inter-ethnic conflicts and even territorial disputes. For the EU to engage effectively in South-East **Asia** and manage the variety of countries and cultures present in the region, it is necessary to understand what 'region' means to the peoples of these countries within and beyond the ASEAN context. Research is thus necessary on the mobility of people, knowledge, ideologies, cultures, goods and capital within the region and their influence on the emergence of a South-East **Asian** identity which would help the EU and its Member States to forge coherent, adapted and culturally relevant foreign policies with all countries in the region.

To that effect, research should also underpin the implementation of the Joint Communication on EU-ASEAN relations in the different sectors and in particular in the field of sectorial cooperation.[1]

2. Governance in and of the **Pacific** as a challenge for Europe

One of the major strategic challenges in the **Asia**-**Pacific** region relates to the governance of the **Pacific** itself (including Overseas Countries and Territories). The **Pacific** Islands region represents a unique diversity of nation-state formations and regional and intergovernmental mechanisms, which is experiencing major challenges regarding the protection of its exceptional natural environment, threatened in particular by climate change. The small islands developing states (SIDS) of the **Pacific** therefore have a central role in the contestation over, competition for, and conservation of some of the world's key resources, far surpassing their modest size in terms of land mass and population. As the second largest donor of development assistance to the region, the EU's interests and activities in the **Pacific** are highly significant and hold important potential for the future. However, the region's new geopolitical currency is a willingness to seriously engage with emerging definitions of an equal, two-way partnership relation in **Pacific** terms that expands beyond the monetary dimension of cooperation. The EU is thus at a cross-road in its engagement with the **Pacific**. Research should examine the emerging governance structures in the region, in terms of sovereignty, state-making, policy autonomy and aid dependency, by paying close attention to issues such as trade and transport, fisheries management, climate change, biodiversity, social inclusion, democracy, blue/green growth and and political CFSP aspects. Research should also comparatively analyse the role and impact of external actors in the region, prominently focussing on the European Union and its Member States but also take account of the influence of, and the interplay with global (China, USA) and regional (Australia, New Zealand) powers in the region. Building on existing research, lessons should be drawn from the **Pacific** experience for devising new approaches, as well as on how Europe can effectively respond to the strategic challenge posed by the **Pacific**.

The participation of partners from third countries and regions in the targeted geographic areas in proposals submitted to this topic is strongly encouraged.

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 2.5 million for each dimension would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: Research under this topic is expected to provide a comprehensive overview of the strategic challenges that Europe faces in the various zones of the **Asia**-**Pacific** region, and on a range of relevant subjects. Based on this, it will inform different foreign policy actors, processes and initiatives at EU and Member State-level either with a sectorial or geographic focus, especially by providing essential insights on the legal, cultural and socio-economic aspects surrounding their implementation.

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

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[1] JOIN(2015)22 Joint Communication to the European Parliament and the Council - The EU and ASEAN: a partnership with a strategic purpose.

Horizon 2020 Pillar: Societal Challenges

Programme: Health, demographic change and wellbeing

Call Title: Personalised Medicine

Call Identifier: H2020-SC1-2016-2017

Topic Title: Global Alliance for Chronic Diseases (GACD) prevention and management of mental disorders

Topic Identifier: SC1-HCO-07-2017

Type of Action: RIA Research and Innovation action

Deadline(s): 11-04-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sc1-hco-07-2017.html

Specific Challenge: The Global Alliance for Chronic Diseases[1] (GACD) call will focus on implementation research proposals on child, adolescent and adult age onset mental disorders[2] including, but not limited to, dementia, depression, schizophrenia, bipolar disorders, alcohol- and drug-use disorders, etc., in low- and middle-income countries (LMIC) and/or in vulnerable populations[3] in **High Income Countries** (HIC).

Mental health is an integral part of health as underlined in the World Health Organisation (WHO) definition of health as a 'state of complete physical, mental and social well-being and not merely the absence of disease or infirmity'.

Mental disorders represent an ever-increasing burden, to all ages of the population, challenging mental health and health systems. Depression affects 350 million people in all communities across the world and represents the third leading contributor to the global disease burden[4]. Dementia affects 47.5 million people worldwide with 58% of people living with dementia in low- and middle-income countries[5]. Global costs associated with mental disorders were estimated to € 2.2 trillion in 2010 and are expected to rise to € 5.3 trillion by 2030[6].

Mental disorders place a heavy burden on individuals, families, communities and societies. They also increase the risk of co-morbidities and social exclusion. There are obstacles to achieving effective prevention, early identification and management of mental disorders and to ensuring patients' adherence to therapies. Effective management approaches exist but their implementation in LMIC and vulnerable groups in HIC is hampered by socioeconomic and contextual factors: gender; the stigma associated with mental disorders at work, in health care and communities; the role of traditional medicine in dealing with mental health including trauma; and barriers to accessing care. There is a need to strengthen the evidence base for the contextual scalability of interventions of promising or proven effectiveness for the promotion of mental health and the early identification and management of patients, taking into account the needs of different population groups across the life course.

Scope: Proposals must focus on mental disorders as defined by the WHO (see above), and must focus on implementation research in LMIC, and/or in vulnerable populations in HIC.

Proposals must build on interventions with promising or proven effectiveness (including cost-effectiveness) for the respective population groups under defined contextual circumstances. Gender-responsive interventions should be addressed, wherever relevant.

The aim should be to adapt and upscale the implementation of these intervention(s) in accessible, affordable and equitable ways in order to improve the prevention and management of mental disorders in the community in medical health care, psychosocial, and public health and other settings and fields. Interventions should meet conditions and requirements of the local health and social system context and address any other contextual factors identified as possible barriers. When economic factors prevent access to effective, low-cost appropriate medication and other management and treatment modalities, proactive policy and strategies should be encouraged to ensure the availability of such medication or other management/treatment modality or means should be found to overcome these barriers.

Each proposal should:

- Focus on implementation research addressing prevention, and/or early identification and/or management strategies derived from existing knowledge about effective interventions.
- Include a strategy to test the proposed model of intervention and to address the socioeconomic and contextual factors of relevance to the targeted region and community.
- Lead to better understanding of key barriers and facilitators at local, national and international level that affect the prevention and management of mental disorders.
- Include health economics assessments as an integral part of the proposed research, including considerations of scalability and equity.
- Propose a pathway to embed the intervention into policy and practice addressing:
    - A strategy to include policy makers and local authorities (possibly by being part of the consortium), as well as other relevant stakeholders such as community groups, patient groups, formal and informal carers and any other group, where ever relevant from the beginning of the project, which will contribute to the sustainability of the intervention, after the end of project.
    - Relevance of project outcomes/evidence for scaling up the intervention at local, national and international level and then scaled-up appropriateness with respect to the local social, cultural and economic context.
    - Aspects of stigmatisation and potential equity gaps e.g. due to gender or age.

Proposal must address one of or combinations of the following items:

- Structural interventions or evidence based policies designed to improve mental health outcomes;
- Early case detection and other secondary or tertiary prevention strategies as well as modalities of treatment, care and access to care which are amenable to scale-up. Prevention, early identification and treatment may include validated pharmacological, psychotherapeutic, psychosocial support and other approaches of relevance to mental disorders such as accessibility to and enhancing compliance with the intervention, also considering cultural context. Wherever relevant, comorbidities and their impacts on prevention and treatment strategies should be taken into account;
- Ways to empower people with mental health problems as well as professional and informal care-givers like families according to the context are also relevant;
- Exploring the scale-up of family/community engagement in patient treatment and care, without pre-empting their living.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 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: (one of or combinations of)

- Advance prevention strategies and implementation of mental health interventions, alleviating global burden of mental disorders;
- Establish the contextual effectiveness of mental health intervention(s), including at health systems level;
- Improve tailored prevention and treatment; Develop affordable management and treatment modalities for mental disorders and expand access to care;
- Inform health service providers, policy and decision makers on effective scaling up of mental health interventions at local, national and regional levels, including affordability aspects for users and health providers;
- Reduce health inequalities and inequities, including due consideration of gender and age issues where relevant, in the prevention, treatment and care of mental disorders at both local and global levels;
- Maximise the use of existing relevant programmes and platforms (e.g. research, data, and delivery platforms);
- Contribute to the United Nations' Sustainable Development Goals 3[7], the Global Action Against Dementia and the First World Health Organisation (WHO) Ministerial Conference on Dementia[8], the WHO Mental Health Action Plan 2013-2020[9], and/or the 2015 European Council Conclusions on dementia[10].

The GACD aims to coordinate research on chronic diseases at global level in order to enhance knowledge exchange across individual projects, and to better understand the impact of socio-economic, cultural, geopolitical and policy on research findings, so as to appropriately adapt health interventions to different geographical, economic and cultural settings. Research under GACD involves regular exchange of research findings and information across participating projects by means of cross-project working groups and annual joint meetings. Wherever feasible, projects should harmonise and standardise their data collection and exchange data.

Applicants must budget for annual costs of having two team members participate in one annual face-to-face meeting of the Global Research Network (location to vary annually). Attendance at this meeting is mandatory for 2 team members, with at least one participant from the LMIC team where relevant. Teams are strongly encouraged to include one junior team member in each annual meeting.

Cross-cutting Priorities: International cooperation, Gender

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

[2] Mental and behavioural disorders (FOO-F99) of WHO's International Statistical Classification of Diseases and Related Health Problems 10th Revision (lCD-l 0): http://apps.who.int/classifications/icd10/browse/2016/en#/V

3] Applicants must demonstrate that the proposed population under investigation in HIC is considered as vulnerable.

[4] WHO Fact sheet nr 369, 2012

[5] WHO Fact sheet nr 362, 2015

[6] Bloom, D.E., Cafiero, E.T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L.R., Fathima, S., Feigl, A.B., Gaziano, T., Mowafi, M., Pandya, A., Prettner, K., Rosenberg, L., Seligman, B., Stein, A.Z., & Weinstein, C. (2011).The Global Economic Burden of Noncommunicable Diseases. Geneva: World Economic Forum.

[7] http://www.who.int/topics/sustainable-development-goals/targets/en

[8] http://www.who.int/mediacentre/events/meetings/2015/global-action-against-dementia/en

[9] WHO Mental Health Action Plan 2013-2020, in particular Objective 2, global target 2 or Objective 3, global target 3: http://www.who.int/mental_health/action_plan_2013/en;

[10] 2015 European Council Conclusions on dementia: 'Living with dementia: improving care policies and practices': http://www.consilium.europa.eu/en/meetings/epsco/2015/12/st14968_en15_pdf

Horizon 2020 Pillar: Societal Challenges

Programme: Smart, green and integrated transport

Call Title: 2016-2017 Green Vehicles

Call Identifier: H2020-GV-2016-2017

Topic Title: Production of next generation battery cells in Europe for transport applications

Topic Identifier: GV-13-2017

Type of Action: RIA Research and Innovation action

Deadline(s): 01-02-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/gv-13-2017.html

Specific Challenge: The objective of the topic is to support the future development of a production base for next generation Lithium battery cells or post-lithium battery cells in Europe that would be able to compete with present world leaders of the sector. World leaders have started producing batteries and cells of the lithium-ion family since the nineties for mass consumer electronics such as personal computers and mobile phones, giving them the opportunity to acquire experience in mass production, optimize their technologies and create product diversification. Europe is strong in providing the raw electrochemical materials and the production equipment, however experience and knowledge on production at mass scale is missing. Small scale production of lithium cells is taking place for niche applications, but lack of mass markets such as consumer electronics makes mass production for automotive applications unlikely due to high entry barriers but also to less performing electrochemical formulations.

To develop its production base, Europe should develop more competitive chemistries and start-up-scaling production lines and progressively acquire the necessary knowledge and experience to further optimise battery technology.

At the same time, Li-ion technology is evolving rapidly. Several lithium cell variants exist (Lithium Nickel Cobalt Manganese, Lithium Nickel Cobalt Aluminium, Lithium Iron Phosphate, etc.) or are under intensive investigation (e. g. Lithium Sulphur, Lithium Silicon, Lithium Polymer and also a combination of several variants). For the time being none of the variants under investigation that would have a significant impact on batteries energy density (and electric vehicles range) and cost is clearly emerging as the most promising one. In addition, none of these variants reached sufficient maturity to envisage any large scale industrial exploitation. Significant investment in R&D in this area is still required.

Developing mass production of cells based on today's conventional Li-ion technologies would not give Europe an advantage to compete with world leaders in the field because Europe would lag behind in chemistries and manufacturing processes. **Asian** manufacturers benefit from high economies of scale because of existing mass production infrastructure and thus have the possibilities to commercially hinder new competitors from entering the market. However, Europe is strong in packaging and electronics for batteries.

It is now time to integrate battery cell production technologies into research activities. This initiative is intended to coordinate running national initiatives and prepare for stronger European research and innovation activities to be launched in the coming years. Such activities would support the objectives of the Strategic Transport Research and Innovation Agenda within the Energy Union policy.

Scope: The scope of the topic covers production processes for future variants of lithium cells such as advanced lithium-ion not excluding the so-called post-lithium-ion technologies. Developing manufacturing processes specific to a given technology that has not yet reached the necessary level of maturity would be premature and risky. Therefore the topic focusses on the two following areas which could be applied to broader transport modes and even for stationary energy storage applications:

- To evaluate the most promising next generation of Li-ion or post-Li-ion-systems (in comparison with the best-in-class Li-ion-System) that could reach the market in the very near future and clearly identify potential challenges in the manufacturing process that would give Europe a competitive advantage when mastering the most promising improved Li-ion or post-Li-ion chemistry. The project partnership should form a forum of the different players: transport vehicles and vessels manufacturers, Tier 1 suppliers, equipment suppliers and research institutes.
- Develop new production technologies within the different manufacturing stages provided that they are generic enough to show reduced dependency on a specific chemistry to support industrial partners in the area of manufacturing and to increase the knowledge base of production technologies.

Examples of generic technologies might be:

- Battery technologies with Li-anode, bipolar batteries, all-solid-state battery technologies (e.g. ceramics, polymers, post graphite technologies …)
- Electrode coating independent of solvents or solvent free
- New processing techniques (mixing, milling of powders, new dyeing techniques, DryCoating, etc.)
- Technologies that allow integration of in-situ quality monitoring
- Methods of ultrafast handling and monitoring of electrodes (e.g. assessment of electrode quality to minimize scrap)
- Data processing, standardised interfaces according to industry 4.0
- Flexible assembly lines that can accommodate to different cell formats.
- Improvement of coating width and speed, double sided simultaneous coating (of electrode sheets)
- Coatings not needing clean rooms

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 5 million each would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact:

- To allow Europe to recover competitiveness without targeting a specific technology in the production of future battery cells for transport and energy applications
- Increase production related knowledge and develop technologies for modular battery cell production lines in order to improve quality and decrease cost of battery cells that are ready to be deployed

- Contribute to sustainable production by either reducing scrap directly or recycling measures
- The results of the research could also benefit battery cell manufacture in Europe for other sectors such as stationary storage and storage for long-distance transport
- The battery concepts should improve energy, power and safety in comparison to current technical standard.

Horizon 2020 Pillar: Societal Challenges

Programme: Smart, green and integrated transport

Call Title: 2016-2017 Green Vehicles

Call Identifier: H2020-GV-2016-2017

Topic Title: Electrified urban commercial vehicles integration with fast charging infrastructure

Topic Identifier: GV-08-2017

Type of Action: IA Innovation action

Deadline(s): 01-02-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/gv-08-2017.html

Specific Challenge: Electrification of different types of transportation and delivery typically in urban and suburban areas (including buses, vans, medium trucks, and specialist vehicles such as trucks for refuse collection) is a privileged path to reduce their energy consumption and emissions. At the same time, achieving the same range capabilities using large over-night charged batteries would undermine their payload capacity and vehicle performance (e.g. acceleration and hill climbing ability). It is therefore necessary to integrate either a range extender or solutions for the fast transfer of significant energy volumes, be it at terminals, loading/de-loading stops or in-route. However, large magnitude power transfer directly from the grid can be costly and introduce disturbances into the grid. Furthermore, large power flows in relation to the total energy capacity of the involved energy storage systems may be harmful to the energy storage systems. Therefore, the different options of rapid charging at stops and terminus need to be assessed and compared with respect to cost and their impact on the power grid. The overall challenge is to design integrated, energy efficient low emission vehicles taking into account the powertrain, energy storage and the charging infrastructure needed to cover the intended missions, without compromising on vehicle performance or comfort and safety of the vehicle driver and occupants or increasing the final costs to the users/customers.

Scope: Actions should address the development of vehicle drive train concepts and energy storage (battery and super-capacitor) which can deliver the required vehicle performance and are able to operate in a pure electric mode with high energy recovery capacity. This will ensure zero emissions and low noise pollution either on the whole mission or in designated low-emission zones, while permitting in the second case highly efficient, low environmental impact internal combustion engine operation without range restrictions in other areas. Such technologies can be applied to one or both of the following vehicle types:

- Electrified medium duty trucks for urban and peri-urban applications (freight delivery, refuse collection, etc.) capable of time efficient operation.

- Electrified high capacity (at least 12 m) buses for urban use, capable of following normal timetables and when needed to effectively charge and drive at bus stops with multiple bus lines.

For both above applications, where appropriate, development and integration in the vehicles, of power transfer solutions for ultrafast (‹ 30 seconds), superfast (‹ 5 minutes) and/or fast (‹ 30-50 minutes) wireless and contact-based electric energy transfer technologies, demonstrating how the system level efficiency and economic impacts can be achieved, including amortisation of infrastructure.

To ensure the acceptability of such systems into the market, negative effects on battery life and the grid, and measures to mitigate them should also be developed and integrated in the global system, as well as standardisation and health and safety implications.

Extension of these concepts to lighter vehicles should be taken into account wherever appropriate to enhance opportunities for exploitation.

An interaction with interested European cities to provide input on needs and implementation plans will be performed targeting market readiness by 2023.

Proposals could foresee cooperation with entities participating in projects funded by **Japan** and US to exchange knowledge and experience and exploit synergies in the field of fast charging and its impact on infrastructure in view of establishing future international standards.

The Commission considers that proposals requesting a contribution from the EU of between EUR 5 and 15 million each depending on the number of developed vehicles and charging technologies would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: All actions will contribute to climate action and sustainable development objectives by achieving the following targets.

For electrified medium duty trucks for urban use:

- Energy efficiency improvements up to 70% in comparison with equivalent category conventional vehicles are targeted, with full electric driving ranges of at least 50 km (including energy recuperation and superfast charging at delivery stops).
- Low noise operation (‹72 dB) allowing e.g. off peak delivery.
- Polluting emissions below Euro VI with a Conformity Factor of 1.2 in real driving when in range extended mode.

For electrified high capacity buses for urban use:

- Bus energy efficiency improvements similar to dual mode medium duty trucks, with an average speed compatible with normal bus operation, depending on whether charging take place only at end terminals or at bus stops.
- Polluting emissions below Euro VI with a Conformity Factor of 1.2 in real driving when in range extended mode.
- Reduced operating costs competitive with conventional low emissions buses or trucks.

For fast charging infrastructure:

- Power transfer capability above 100kW
- Transfer efficiencies above 90% for static contactless systems

Cross-cutting Priorities: Contractual public-private partnership; EGVI; International cooperation

Horizon 2020 Pillar: Societal Challenges

Programme: Smart, green and integrated transport

Call Title: 2016-2017 Mobility for Growth

Call Identifier: H2020-MG-2016-2017

Topic Title: Identification of gaps, barriers and needs in the aviation research

Topic Identifier: MG-1-5-2016-2017

Type of Action: CSA Coordination and support action

Deadline(s): 01-02-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/mg-1-5-2016-2017.html

Specific Challenge: The Advisory Council for Aviation Research and Innovation in Europe (ACARE) has developed in 2012 a new Strategic Research and Innovation Agenda that describes the actions needed to meet the highly ambitious goals set by Flightpath 2050. In order to ensure the achievement of these goals, regular assessment of progress, gaps and barriers is necessary and strong collaboration between all European stakeholders is required.

In 2017 attention will also be paid to collaborations with non-European stakeholders where relevant, in order to solve common challenges, leverage resources, mitigate risks and establish long-term relationships.

Scope: The actions should address one of the two following areas:

1. Provide on an annual basis a review of the state of the art of research and innovation including international benchmarking, identify gaps in the research landscape, bottlenecks to innovation (regulation, financing) and formulate recommendations to address those. The actions should address one or several of the following research domains of the ACARE Strategic Research and Innovation Agenda:
   - Mobility
   - Competitiveness
   - Environment and energy
   - Safety and security

   A close cooperation with the relevant ACARE Working Groups and involvement of all main relevant stakeholders should be ensured. The actions should take into consideration R&D synergies with other sectors (e.g. batteries, composites, product lifecycle management). Special attention should be paid on the economic, environmental and mobility aspects of the long distance traveling.
2. Set up an open platform between EU and relevant third countries to reach out to research and innovation stakeholders (industry, research establishments and academia) and

aviation research and innovation funding authorities in order to facilitate and increase collaboration along common research and innovation roadmaps. Proposers should take into account achievements of past and on-going cooperation initiatives such as the H2020 coordinated calls with Canada, China and **Japan**, and previous support actions[1]. Proposals can include organisation of workshops and studies to identify win-win opportunities, areas of common interest, barriers and solutions for improved cooperation in research and technology development as well as recommendations for future actions. Proposers should demonstrate relevant background in aviation research cooperation with third countries.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 2 million each 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 actions will support to reach the goals set by the aviation sector in a more efficient and optimal way thorough assessment of the progress towards Flightpath 2050 goals[2], identification of future needs, gaps and barriers, and make recommendations for further actions. The actions will result also in providing solutions for improved research infrastructure for the European aviation sector adapted to the needs for achieving the long term goals. The actions will support also a more efficient use of the available research capabilities in Europe through creating new links between the stakeholders of EU Member States, Associated Countries and third Countries, stimulating the creation of transnational cooperation mechanisms in the aviation research.

Delegation Exception Footnote: The 2017 part of this activity is 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 Innovation and Networks Executive Agency (INEA) and will be implemented by the Commission services.

Cross-cutting Priorities: International cooperation

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[1] Seventh Framework Programme support actions with Canada(CANNAPE), Brazil - Latin America (Coopair-LA), **Japan** (SUNJET), China (e.g. Aerochina, GRAIN2), South Africa (AeroAfrica-EU), Ukraine (AeroUkraine) and United States of America (CooperateUS) & EU-US Memorandum of Cooperation on civil aviation research in addition to the multinational aviation research forum (IFARs).

[2] http://www.acare4europe.org/sria/flightpath-2050-goals

Horizon 2020 Pillar: Societal Challenges

Programme: Smart, green and integrated transport

Call Title: 2016-2017 Mobility for Growth

Call Identifier: H2020-MG-2016-2017

Topic Title: Protection of all road users in crashes

Topic Identifier: MG-3.2-2017

Type of Action: RIA Research and Innovation action

Deadline(s): 26-01-2017, 19-10-2017 (two-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/mg-3.2-2017.html

Specific Challenge: The continued introduction of active safety systems has the potential to reduce accidents. Nevertheless, the risk of collision and particular crash situations will still remain. An approach will be needed that will ensure improved crash safety in those circumstances. A number of societal trends add to this challenge such as the ageing population, an increase in the number of powered and non-powered two-wheelers and the introduction of green, light, sub-compact cars.

An important step forward will be to develop fully integrated safety systems and deploy them so that they provide better protection for all road users. Emerging new vehicle types and the possible use of Cooperative Intelligent Transport Systems (C-ITS) would need to be considered. The application of advanced safety features and the development of personal safety equipment can also be seen as ways to reduce fatalities and injuries to pedestrians, cyclists and riders of Powered Two Wheelers (PTWs). In addition, simulation tools (including new virtual human body models) will need to be developed to assess new safety systems and determine their effectiveness and potential impact.

With respect to competitiveness, user protection has been an area where European industry has exhibited technology leadership, but this is now being increasingly challenged worldwide.

Scope: Proposals should focus on one or several of the following aspects:

- Vehicle based systems such as: solutions for improved crash compatibility; optimisation of restraint systems by including pre-crash information; and methods and requirements to assess safety performance in traffic of extremely low-mass vehicles.
- Personal protection such as: development and testing of focused personal safety equipment for various road user categories, to warn them adequately and/or protect them in the most safety critical situations; and integrated assessment methods for the overall safety of road users and solutions that enhance their protection.
- Crash simulation such as: computationally efficient and robust crash simulation tools; implementation of virtual testing; and development of virtual human body models of road users and situations not currently available.

Proposed actions should focus on fully integrated safety systems.

Consideration should be taken of gender aspects such as body structure and stature and other demographic factors such as the disabled (persons of reduced mobility), ageing, obesity, etc.

Participation of SMEs with proven experience in these areas is encouraged.

Links with Member State initiatives in this area are encouraged.

In line with the strategy for EU international cooperation in research and innovation[1], international cooperation is encouraged, in particular with **Industrialised Countries** (i.e. US, **Japan**, Canada, Australia) and emerging economies (primarily China, India, Brazil). Proposals should foresee twinning with entities participating in projects funded by US DOT[2] to exchange knowledge and experience and exploit synergies.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 9 million each would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected Impact: By providing an integrated approach to safety systems, actions are expected to make a direct contribution to the reduction of fatalities and severity of injuries, as well as the number of injured persons. They will deliver measures that will make the 'triangle' of European road users, vehicles and infrastructure safer. In this way, actions are expected to contribute to important savings in the health system linked with the reduction of accidents and injuries.

Proposers are expected to demonstrate how the project results will have a significant impact on road safety casualties and injuries and how they will make an effective contribution to the standardisation of products and testing techniques.

A credible strategy is expected to demonstrate the future full scale manufacturing of critical products developed in the project in Europe.

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

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[1] COM(2012)497

[2] United States Departement of Transportation (http://www.dot.gov).

Societal Challenges, Industrial Leadership

Horizon 2020 Pillar: Societal Challenges, Industrial Leadership

Programme: Food security, sustainable agriculture and forestry, marine and maritime and inland water research, Climate action, environment, resource efficiency and raw materials, Leadership in enabling and industrial technologies (LEIT)

Call Title: Sustainable Food Security – Resilient and resource-efficient value chains

Call Identifier: H2020-SFS-2016-2017

Topic Title: Supporting international cooperation activities on agriculture soil contribution to climate change mitigation and adaptation

Topic Identifier: SFS-50-2017

Type of Action: CSA Coordination and support action

Deadline(s): 14-02-2017 (single-stage)

Participant Portal Weblink:
http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/sfs-50-2017.html

Specific Challenge: Climate change is among one of the threats for the future capacity of agriculture to cope with increased demands on food production. This challenge can be addressed, among other options, by changes in land and soil management at the farm level. There is a strong direct link between the soil management and a significant contribution of agriculture sector to climate change mitigation and adaptation (i.e. outcome of the COP21, 4 per 1000 initiative, links to SDGs). There is a strong need to develop synergies on research in this area at EU and global level. The results of this activity should contribute to climate change mitigation and adaptation debate and consider the ongoing work on Sustainable Development Goals implementation.

Scope: Proposals should cover the topic of soil carbon sequestration and its links with climate change mitigation from the perspective of agricultural sector. Other areas to be tackled should include land (use) management within the scope of this topic. Participation of initiatives such as the **Global Research Alliance** (GRA), the Joint Programming Initiative on Sustainable Agriculture, Food Security and Climate Change (FACCE) or the 4 per 1000 initiative is encouraged.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 2.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Expected Impact:

- Improved understanding of agricultural soil carbon sequestration in different pedo-climatic conditions.

- International Research Community on agricultural soil strengthened
- Provide the basis for a more structured approach towards the issue, for instance with the establishment of on International Research Consortium (IRC).

Cross-cutting Priorities: International cooperation