



International Cooperation in Horizon 2020

EU and India

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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 coordination 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:	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 Mobility for Growth
Call Identifier:	H2020-MG-2016-2017
Topic Title:	Future research needs and priorities in the area of transport
Topic Identifier:	MG-8-7-2017
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-8-7-2017.html>

Specific Challenge: There is a need for transport-related research activities to address new challenges as these emerge from new technological developments, identified megatrends and new policy imperatives, which all together are expected to significantly alter the current framework in which the transport sector operates.

There is already considerable knowledge produced by several studies, research activities and reports with a forward looking perspective in the area of transport but also in transport-related fields in areas like energy, climate change and digitalisation. Furthermore, global forward looking exercises which analyse megatrends (ageing, migration, urbanisation, climate change, etc) and explore scenarios also provide valuable inputs with respect to transport, related technologies and the evolution of mobility demand.

The European transport industry is a major player at a global level, seeking to maintain and improve its competitive position in a period of rapid technological changes, new business models and new political requirements (e.g post-COP 21). Transport industries are shaping their research agendas for the future which however normally, address issues that are particularly relevant for their Specific Challenge and objectives. A more integrated approach that could help bring these research agendas under a coherent framework for the benefit of European citizens and the European economy as a whole is necessary and requires an effort at European level and across all transport modes.

With a view to identifying the major research needs and priorities in the transport sector, including infrastructure, over the next decade, this topic seeks to provide a comprehensive analysis of the knowledge produced so far in the areas mentioned above and contribute to the creation of a coherent research agenda.

Scope: In order to meet this challenge, proposals should address all following aspects:

- Collection and analysis of transport relevant studies and reports carried out at European and international level (e.g EU, OECD, etc) as well as by main European stakeholders of the transport sector.

- Collection and analysis of similar forward looking projects at a global level including in the main and emerging competitors of the EU in the field of transport (e.g USA, Japan, **BRIC** countries, etc).
- Assessment of the impact of main political imperatives (such as the recent COP 21 and the need for drastic reduction of emissions as well as reduction of air and noise pollution) on the transport sector and in particular on its needs for technological developments and rapid adaptation.
- Assessment of the impact of main megatrends (ageing, urbanisation, migration etc) on transport research needs, with particular emphasis on possible recent developments/data available.
- Synthesis of the various analyses and outcomes mentioned above.
- Identification of main transport research needs and priorities in all transport modes and cross-modal in order to reconcile economic efficiency, competitiveness, sustainability, user convenience and inclusiveness.

The expected duration of the action is between 6-12 months.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.3 and 0.5 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: The work is expected to provide a comprehensive picture and integrated analysis of existing forward-looking knowledge in the transport sector. This analysis should serve as an input for the elaboration of a transport research agenda in the medium term, with long term impact on the competitiveness of the European Transport sector and on the achievement of EU policy goals.

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 Innovation and Networks Executive Agency (INEA) and will be implemented by the Commission services.

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

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 Department of Transportation (<http://www.dot.gov>).