



International Cooperation in Horizon 2020

EU and Korea

Table of Contents

Industrial Leadership	3
Societal Challenges.....	8
Societal Challenges, Industrial Leadership	20

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

.....

- [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:	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

.....

[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

.....

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

[2] Mental and behavioural disorders (F00-F99) of WHO's International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10): <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 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

.....
[1] COM(2012)497

[2] United States Department 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 an International Research Consortium (IRC).

Cross-cutting Priorities: International cooperation