



Opportunities for Researchers from the Socio-economic Sciences and Humanities (SSH) in Horizon 2020

Analysis of SSH-relevant Topics
Work Programmes 2016/17



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Introduction

This document is designed to help potential proposers find SSH-related topics across the different parts of Horizon 2020 in Work Programmes 2016 -17.

SSH in H2020

Horizon 2020 aims at fully integrating Socio-economic Sciences and Humanities (SSH) in each of its pillars and specific objectives. SSH is therefore a cross-cutting issue and embedded in the whole framework programme. While SSH research aspects are particularly present in the societal challenge 'Europe in a changing world: Inclusive, innovative and reflective societies', they are also present in all other challenges and in other parts of Horizon 2020.

H2020 requires applicants to submit proposals and build consortia that transcend disciplinary and sectorial boundaries, bringing together scholars from SSH and from life and physical sciences, technology, engineering and mathematics (STEM) as well as researchers and practitioners across these fields.

The SSH encompass a wide range of disciplines such as sociology and economics, psychology and political science, history and cultural sciences, law and ethics. Contributions from these research and activity fields are needed under Horizon 2020 to generate new knowledge, support evidence-based policymaking, develop key competences and produce interdisciplinary solutions to both societal and technological issues.

SSH-flagged topics across H2020

To assist SSH researchers in identifying funding opportunities, the European Commission (EC) has established a search engine within its online [Participant Portal](#). Certain topics with substantial SSH aspects have been “flagged” by the EC as [SSH-relevant topics](#) and the search engine offers the possibility to directly search for these SSH “flagged” topics. It also allows for keyword and full-text searches.

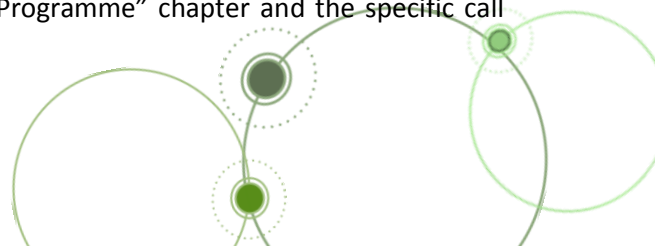
This document compiles the “SSH-flagged topics” and is based on an analysis of SSH relevant topics carried out in the unit of the EC Directorate-General for Research and Innovation that is responsible for Socio-economic Sciences and Humanities.

This document serves as a guideline and is meant to demonstrate the wealth of possibilities for scientists in Socio-economic Sciences and Humanities within Horizon 2020 and includes:

- SSH-DEDICATED TOPICS: topics where SSH aspects dominate the text,
- SSH-RELEVANT TOPICS: topics with substantial relevance to the SSH community. In this topics, SSH aspects are indicated in **bold text**,
- TOPICS WITH MINOR SSH RELEVANCE: short information is provided (title and link to the Participant Portal)

Researchers are strongly encouraged to screen the Work Programmes themselves, in order not to lose out on research opportunities offered to their specific interest. In any case, the Work Programmes need to be read in more detail to be aware about the overall approach of the Theme, the context of the topics, rules for participation and other specific requirements. At the same time, the topic texts may include footnotes with more information, which could not be included in the compiled topic texts within this document.

Of special importance are the “type of action” and the eligibility criteria connected to it. These and any other relevant information can be found in the specific “Work Programme” chapter and the specific call



document. All the relevant documents can be downloaded from the Participant Portal. The specific links are provided for topic in the respective chapters.

The structure of the document is determined by the degree of SSH integration in the different Horizon 2020 programme parts. Instead of following the numerical order of the different parts in Horizon 2020 (*I. Excellent science, II. Industrial leadership, III. Societal challenges, IV. Non-nuclear direct actions of the Joint Research Centre*), this report starts with the part that includes “top down” topics and the highest amount of SSH research dimensions, the *societal challenges*. It continues with the “Leadership in enabling and industrial technologies” of the *Industrial leadership* part. In the following chapter, SSH aspects in *Excellent science* are presented (mostly “bottom up” opportunities). Last but not least, the SSH-relevant topics in “Science with and for society” and in the new Work Programme “Cross-cutting activities (Focus Areas)” are included.

SSH Opportunities in ERA-Initiatives

Topics that clearly address research funding agencies and not researchers, such as ERA-Net topics, are not included.

To support researchers in finding European funding opportunities in ERA-calls, Net4Society performs a regular monitoring and publishes up-to-date information on SSH-relevant calls of ERA-Nets, Joint Programming Initiatives, Joint Technology Initiatives or Article 185 Initiatives.

Open calls are available online on the Net4Society website under www.net4society.eu/public/408.php

The second Horizon 2020 Work Programme is bi-annual and covers the years 2016 and 2017. This document includes information on topics for both years. An update for 2017 topic will be published at the end of 2016.

DISCLAIMER

Information on calls might be subject to change. Researchers need to consult the Participant Portal for receiving the latest information on calls.

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Societal Challenge 1

Health, Demographic Change and Wellbeing

SC1-PM-04–2016

Networking and optimising the use of population and patient cohorts at EU level

Specific challenge

Population cohorts are invaluable resources to obtain detailed description of individual biological variations in connection with a variety of environmental, pathogenic, occupational, societal, and lifestyle determinants that influence the onset and evolution of diseases. Europe currently has some of the most valuable population and patient cohorts, including well annotated clinical trial cohorts. However, the lack of integration of these cohorts hampers the optimal exploitation of these resources, essential to underpin and facilitate the development of stratified and personalised medicine.

Scope

Proposals should aim at maximizing the exploitation of cohorts by bringing together national and/or European cohorts with common scientific interests (e.g. across diseases, children, mothers, elderly, birth, gender, etc.), and by taking advantage of new technologies (e.g. ICT, **social platforms**, etc.) and new type of data (e.g. geographical, genetic, eHealth records, etc.). Based on those cohorts using a comprehensive integration strategy to facilitate hypothesis-driven research, data sharing, harmonisation and analysis, **proposals should provide expanded resources and knowledge on health and disease determinants**, onset and course of diseases (including aspects of co-morbidity and/or co-infections), clinical, **public health and socio-economic research**. Synergies with relevant existing European infrastructures and additional collaborations with relevant international initiatives are encouraged. Proposals should also engage with relevant international/national/regional authorities to ensure that findings are implemented and translated into health policy. 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.

Expected impact

Expected impacts include one of or a combination of the following point(s):

- Make major conceptual, methodological and analytical contributions towards integrative cohorts and their efficient exploitation.
- Contribute to providing novel information on health maintenance, onset and course of diseases, or population stratification, with a view to tailor diagnosis or to optimise prevention and treatment.
- **Provide the evidence base for the development of policy strategies for prevention, early diagnosis, therapies, health economics as well as addressing health inequalities. Wherever relevant, evidence for economic evaluation of interventions should also be included.**
- Optimise the use of population cohorts in defining/improving clinical practice and public health policy.

Type of action	Research and Innovation action
Deadline	13 April 2016
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3051-sc1-pm-04-2016.html



Call - Personalised Medicine

SC1-PM-07–2017

Promoting mental health and well-being in the young

Specific challenge

Mental well-being is integral to population health and well-being and contributes to the functioning of individuals, families, communities and the social and economic prosperity of society. Mental and **behavioural disorders** including addictive behaviour place immense burdens on individuals, families and society; they **also increase the risk of** co-morbidities and **social exclusion**. Childhood and adolescence are crucial periods for laying the foundations for healthy development and mental well-being. **There is compelling evidence that promotion of mental well-being** and prevention interventions, when implemented effectively, can reduce risk factors for mental disorders, enhance protective factors for good mental and physical health and **lead to lasting positive effects on a range of educational, social and economic outcomes for young people**. Medical and **psychological factors, family and social factors (including working conditions)** as well as digital environments are **some of the different determinants impacting the health and well-being of the young**. Resilience to adversity will enhance their ability to cope. There is a need for more robust evidence on resilience factors and on effective interventions promoting mental well-being. Developing these in the young offers the possibility of a positive influence on child development in critical/sensitive periods (childhood, adolescence, transition to young adulthood), thanks to early neuroplasticity.

Scope

Proposals should develop population-oriented primary prevention interventions to promote mental well-being of young people and assess them for their effectiveness. **The interventions should build on but may go beyond existing state-of-the art knowledge on biological, psychological and social determinants of mental well-being such as societal, cultural, work life, lifestyle, epidemiological, economic and environmental perspectives. The proposals should aim at increasing resilience and mitigating the impact of biological, psychosocial and environmental risk factors.** The target group should include young up to 25 years (or a subgroup thereof), which is an age limit often used as many severe disorders start in this period.

The research design should be developed by means of a multidisciplinary approach and involve the young themselves and other relevant stakeholders. Innovative approaches in involving the young and gathering their inputs for the design of the intervention should be considered. The interventions should use a holistic approach, taking gender and health inequality aspects into account, in increasing resilience and empowering the young. The interventions to be developed should reflect the diversity of the different countries and regions in Europe and beyond. The research should pay particular attention to ethical issues. **The interventions should be assessed for mental well-being outcomes as well as the economic and social benefits and impact on reducing inequalities.** These analyses of impact and effectiveness should be presented in quantitative as well as qualitative terms, in a gender disaggregated way where relevant. The results should be disseminated throughout Europe and beyond in order that the evidence generated is fully exploited.

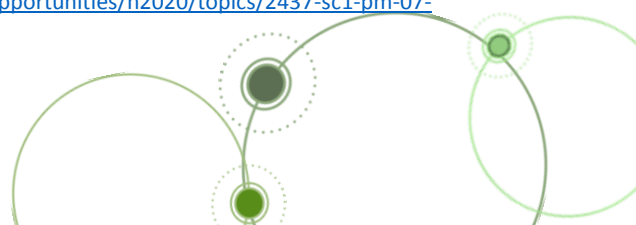
The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Short or medium term impact, likely during the lifetime of the project:

- Improved mental well-being in the targeted group of young people.
- **The innovative interventions** will create a strong evidence base for mental well-being promotion programmes in Europe, **contributing to greater health equity and improved societal benefits.**
- Longer term impact, likely beyond the lifetime of the project:
- Improved mental well-being in youth should contribute to reducing school and college/university dropout in the short term, strengthening personal confidence and cognitive function, improving educational efforts and enhancing employability.
- Preventative strategies are established which have a real effect of reducing the occurrence of mental disorders and co-morbidities associated with mental disorders later in life.

Type of action	Research and Innovation action
Deadline	1st stage - 4 October 2016 2nd stage - 11 April 2017
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2437-sc1-pm-07-2017.html



SC1-PM-10–2017

Comparing the effectiveness of existing healthcare interventions in the adult population

Specific challenge

Effective health care and prevention may be improved by additional evidence as to the most effective health interventions. Growing numbers of patients affected by chronic diseases also call for efficiently managing co-morbidities.

Scope

Proposals should compare the use of currently available preventative or therapeutic (pharmacological as well as non-pharmacological) healthcare interventions in adults. While there is no restriction on the diseases or interventions to be the focus of proposals, **preference will be given to proposals focusing on interventions with high public health relevance and socio-economic impact, i.e. interventions** addressing conditions that are particularly frequent, may lead to co-morbidities, **have a high negative impact on the quality of life of the individual** and/or are associated with significant costs or where savings can be achieved. **A cost effectiveness analysis must be included.** Given the focus on existing interventions, proposals will aim to contribute to improve interventions, take decisions about the discontinuation of interventions that are less effective or less cost-effective than others, and **make recommendations on the most effective and cost-effective approaches.** A comprehensive array of clinical and safety parameters, as well as health and socio-economic outcomes (e.g. quality of life, patient mortality, morbidity, costs, and performance of the health systems) for chosen populations should be assessed. Agreed core outcome sets (COS) should be used as endpoints in conditions where they already exist, in other cases efforts should be made to agree on such COS. Randomised controlled trials, pragmatic trials, observational studies, large scale databases and meta-analyses may be considered for this topic. **Where relevant the study population should address gender as well as socio-economic differentials in health and/or any other factors that affect health equity.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 6 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

This topic is to provide the required evidence base for:

- more effective and safer interventions at individual and population level;
- enhanced compliance with healthcare interventions in the adult population;
- the use of health technology assessment methodology in this target group.

In particular:

- Improvement of individual patient outcomes and health outcome predictability through tailoring of interventions.
- Improvement of guideline development for prevention or treatment of diseases and the management of comorbidities.
- Provision of more accurate information to patients, caregivers and prescribers.

Type of action	Research and Innovation action
Deadline	1st stage - 4 October 2016 2nd stage - 11 April 2017
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2435-sc1-pm-10-2017.html



Call - Personalised Medicine

SC1-PM-14–2016

EU-Japan cooperation on Novel ICT Robotics based solutions for active and healthy ageing at home or in care facilities

Specific challenge

Citizens in ageing European and Japanese populations wish to stay in their homes for as long as possible. They are however **at risk of age related impairments such as poor health, cognitive impairment, frailty and social exclusion with considerable negative consequences for their independence, quality of life**, that of those who care for them, and for the sustainability of health and care systems.

Scope

The call will address joint research and innovation proposals for developing and demonstrating advanced ICT Robotics based solutions for extending active and healthy ageing in daily life.

Proposals should build on advances in this domain, and should combine multi-disciplinary research involving behavioural, sociological, health and other relevant disciplines.

Characteristics of the solutions developed should be their modularity, cost-effectiveness, reliability, flexibility in being able to meet a range of needs and societal expectations, applicability to realistic settings, safety and acceptability to end-users. Gender and ethical issues should be paid due attention.

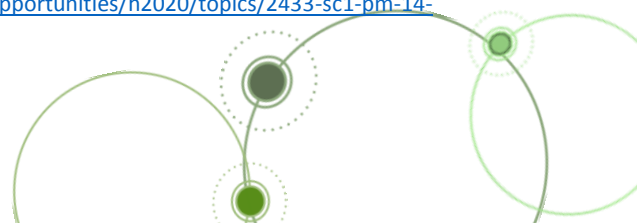
- 1. In order to support older people in ordinary daily life at home and in care facilities, proposed solutions should be driven by the needs, interests and lifestyles of older people through personalised and self-adaptable human-robot interaction. The proposed solutions should also provide a sense of stability and comfort, and reduce the burden on caregivers in time and labour costs.**
2. The proposed solutions should further develop and build upon open platforms and Internet of Things approaches. There should be a system integration approach between robotics devices, intelligent living environments, which can support novel service delivery models, including the integration of robots, home (indoor) sensor networks, and handling of big data and IoT data in the cloud.
- 3. The proposed work should develop novel service models** for facilitating prolonged independent living and support prevention of care/efficient delivery of care in accordance with the proposed applications and services (such as maintenance of cognitive function or well-being etc.) and **improvements in social situation (living assistance and reduction of isolation and loneliness etc.)** and empowering older people to make the most of their remaining faculties (engaging in housework and hobbies etc.) and reducing the burden on caregivers.
- 4. The proposed application fields should demonstrate how solutions can be designed to allow for adaptation towards different histories and cultures across the EU and Japan and a variety of individual perception and preferences and cognitive capabilities.**
5. There should be realistic test sites in both the EU and Japan with sufficient users involved to validate the expected benefits and impact.
- 6. In order for the ICT robotics service to be accepted in real life, it is necessary to ensure Ethical, Legal, and Social Issues (ELSI). Appropriate consideration on ELSI is required in both the EU and Japan.**
7. In order to spread services, extensive use of generalized infrastructures such as a cloud system and open sources are required.
8. Without limiting the use of specific applications or hardware systems, platform approaches are required to ensure interoperability as well as contributions to appropriate ongoing or new standardization work.

The European Commission considers that proposals requesting a contribution from the EU of 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.

Expected impact

- To extend the independence and autonomy of older persons in need of care for example through reduction of admissions and days spent in care institutions, and prolongation of time spent living in own home when ageing with emerging functional and/or mental impairments.
- **To provide high quality service corresponding to the needs in daily lives of older persons.**
- **To improve quality of life of older persons and their carers.**
- To reduce caregivers burden due to work sharing with robots and supplement/complement human resources in care service provision allowing consecutive services such as 24-hour ones.
- Improvement of efficiency in care provision.
- Global leadership in advanced solutions supporting active and healthy ageing

Type of action	Research and Innovation action
Deadline	12 April 2016
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2433-sc1-pm-14-2016.html



Call - Personalised Medicine

SC1-PM-15-2017

Personalised coaching for well-being and care of people as they age

Specific challenge

The activity aims at developing and validating radically new ICT based concepts and approaches for empowering and motivating people in need of guidance and care due to age related conditions, in cooperation with their carers where relevant, and to help them improve and maintain their independence, functional capacity, health status as well as preserving their physical, **cognitive, mental and social well-being**.

Scope

Proposals should develop a proof of concept of radically new solutions for a personalised "virtual coach", building upon intelligent ICT environments, access to relevant physiological and behavioural data, new forms of accessible interaction based on tangible user interaction concepts, open platforms and emotional computing. Usability and ease of user interaction should be essential design elements of the "coach".

The "coach" should provide personalised advice, guidance and follow-up for key age related issues in daily life which impact the person's ability to remain active and independent, for example diet, physical activity, risk avoidance, preventive measures, **lifestyle and activity management, leisure, social participation and overall wellness. The goal should be to preserve physical, cognitive, mental and social well-being for as long as possible** and to facilitate interaction with carers (where relevant).

Solutions should build on and apply multi-disciplinary research and include intelligent algorithms beyond state-of-the-art capable of reasoning, autonomous learning and **adaptation to personal needs, emotional and behavioural patterns, conditions and preferences as well as the users' living environment and their social connections.** Solutions should be integrated seamlessly in existing every-day activities and provide desired information in fast and efficient manner. Attention theft by ICT (consuming too much of the user's time) should be avoided.

Proposals should address relevant ethics and gender aspects and should also assess related legal and regulatory questions such as ownership of data, data protection/privacy, liability and consumer protection. It is crucial that users are involved and drive the innovation at all stages of design and development, including user acceptability, satisfaction and impact in realistic settings.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 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.

Expected impact

The proposal should present methodologies and metrics as appropriate for measuring its progress towards the expected impact in:

- Usefulness and effectiveness of personalized recommendations and follow-up in terms of the **goals of preserving physical, cognitive, mental and social well-being for as long as possible;**
- **Validation of non-obtrusive technology for physical, cognitive, social and mental well-being;**
- Evidence of user-centred design and innovation, new intuitive ways of human-computer interaction, and **user acceptance;**
- **Potential cost-effectiveness due to enhanced self-care, life-style and care management.**

Type of action	Research and Innovation action
Deadline	31 January 2017
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3069-sc1-pm-15-2017.html



Call - Personalised Medicine

SC1-PM-17-2017

Personalised computer models and in-silico systems for well-being

Specific challenge

There is continuous progress in systems medicine, multi-scale modelling and patient-specific modelling aspects. But these opportunities have been inconstantly explored for the entire chain of health and disease. Thus, there are very few in well-being, prevention or rehabilitation while these areas are crucial for reducing healthcare needs, building sustainable healthcare and for assuring a healthy and motivated workforce. More, **innovative methods are needed for better understanding and analysing** brain, neurobiological and the gut-brain axis and the stress-related disorders or whole body data (e.g. where the development of multiscale and high spatiotemporal resolution imaging methods are critical) and **their interactions with social, environmental, lifestyle, occupational, economic etc. factors that promote well-being and health**. Well-being is a consequence of resilience to challenges and illness and of better prevention adapted to predispositions and behaviours (including gender), of better consideration given to the functional troubles, of better recovery and rehabilitation after illness.

Scope

Proposals should aim at the development of new integrative dynamic computer-models and simulation systems of acceptable validity, with the potential to being reused, build on open service platforms and with application in well-being, health and disease. **The projects have to support computer modelling and simulations able to aggregate various information sets** e.g. molecular, biochemical, medical imaging, **social, lifestyle, economic, occupational**, microbiome, environmental, developmental, **psychological**, gender etc. into robust predictors for resilience in coping with and overcoming challenges and stresses and for recovery after challenges and illness. They will process and apply individual/patient-specific information in a multi-scale approach required for integrating information at a certain biological level within a wider context (at least one biological level from molecule to entire body). **Proposals will focus on multi-disciplinary research in medicine, SSH and ICT and should take advantage** when relevant of **existing large databases** in clinical medicine, biomedical or occupational research, environmental sciences, **Social Sciences and Humanities (SSH)**, so enabling and facilitating the accumulation and relinking of complex and heterogeneous data collections. The models integrated in these multi-scale and multi-disciplinary approaches will have their predictive capability validated by state-of-the-art clinical and/or laboratorial studies and/or against large health registries. Whenever relevant, proposals will integrate data collected over time in order to inform on individual trajectories with periods of well-being and periods of illness and on the heterogeneity of resilience and recovery that can be different during the individual lifetime.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 6 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

- Benefit for health and well-being: new personalised interventions for increasing resilience and recovery.
- Advancements in medical computer-modelling and simulation that takes into account time and spatial scales.
- Supporting predictive and preventive approaches in medicine, neurosciences and life sciences.
- **Improving knowledge about well-being and association with life circumstances.**

Type of action	Research and Innovation action
Deadline	14 March 2017
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3061-sc1-pm-17-2017.html



Call - Personalised Medicine

SC1-PM-21-2016

Implementation research for scaling-up of evidence based innovations and good practice in Europe and low- and middle-income countries

Specific challenge

Research evidence and technological and process improvements during the past decades present a large opportunity for improving the functioning and sustainability of health systems. However, the uptake of well-researched and proven interventions addressing current challenges is still slow. Implementation research on scaling up evidence-based innovations and good practices intervention should facilitate the transferability of these practices across the borders of Europe and beyond.

Scope

Based on the concept of implementation research, proposals should seek to replicate and scale up a comprehensive intervention in the field of health systems that is innovative and well-researched, supported by sufficient documented evidence. This scaling up can take place within Europe as well as outside it, notably in low- and middle-income countries (LMIC). The topic does not cover micro-level interventions, e.g. to promote a specific therapeutic regimen for a single disease.

The selected intervention to be scaled up should be one that has proven to make health systems and health services more responsive, person-centred, safe, effective, and efficient. **Its stated impact should be broad, addressing economic and social benefits and its effect on reducing inequalities. The research should identify the facilitators of and barriers to scaling-up, including context-specific factors and differing social and health systems environments in Europe or in LMIC.**

Proposals should be multidisciplinary and relevant gender aspects should be taken into account. They also should reflect and take advantage of the regional diversity across Europe and/or the diversity of LMIC settings. Relevant stakeholders and end-users of research should be identified and involved throughout the project lifetime. Innovative approaches towards gathering their inputs for the scaling up process should be considered, notably of patients when relevant.

The organisational and resource requirements (data, personnel and financing) necessary for the implementation of the intervention must be tracked and evaluated in detail. The research and system-wide scientific monitoring should allow future users (researchers, healthcare providers, policy makers, and the public) to review the step-by-step, partial outcomes of the intervention, thus facilitating a wider adoption of these practices. **The appropriate contextual, financial and political-economy analysis should be provided.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 6 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

- A larger group of citizens benefits from the studied health system intervention. **The intervention should lead to improving the functioning and sustainability of health systems, and greater health equity and additional societal benefits.**
- A validated framework and strategy for a large-scale implementation of an effective and safe evidence-based health systems intervention will be available to healthcare providers and policy makers that will facilitate the transferability of these practices.
- **In the medium and long-term, the health systems will be more effective, efficient and equitable; health services are more responsive to the needs of users.**

Type of action	Research and Innovation action
Deadline	13 April 2016
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3056-sc1-pm-21-2016.html



Call - Personalised Medicine

SC1-HCO-05–2016

Coordinating personalised medicine research

Specific challenge

By providing the right intervention to the right person at the right time, personalised medicine can improve quality of life and contribute to more sustainable healthcare at Member State level. It may drive new and faster development processes and products, providing European life sciences industries with a competitive edge that can secure growth and jobs. Today, development is uneven across and within sectors, regions and Member States due to fragmented activities, insufficient communication and lack of commonly accepted solutions and standards.

Scope

Support the development and operations of a European platform for collaboration between funders of personalised medicine research, possibly based on the International Consortium model. The platform should coordinate research and innovation efforts across borders, regions and countries. **It should foster an interdisciplinary approach to personalised medicine** by actively involving relevant interested parties. **It should develop policies, guidelines, etc. aiming to speed up the development and implementation of personalised medicine (addressing policy-related, economic, and socio-cultural factors).** The platform should aim to create synergies with ongoing activities at European and national level (e.g. research infrastructures, ERA-NETs, personalised medicine pilot projects, EIT Health KIC). It should moreover explore the best use of funds in the implementation of personalised medicine. It should actively disseminate information and best-practice examples and contribute to awareness raising in the medical professions (accelerating the reshaping of academic curricula) and among the general public. The proposal should explore scenarios for long-term sustainability. The Commission considers that proposals requesting a contribution from the EU of around EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

- Improved coordination across and within regional, national and pan-European research funding programmes and initiatives.
- Faster development of personalised medicine approaches through the development of frameworks for research priorities, policies and guidelines aimed at accelerating research and implementation efforts.
- Development of a framework for linking established research efforts, platforms, infrastructures such as biobanks or databases, building synergies between ongoing activities.
- Increased information exchange between sectors and scientific disciplines.
- Increased public awareness and understanding of personalised medicine approaches among the public and the medical professions.
- Improved use of funds in the implementation of personalised medicine.

Type of action	Coordination and support action
Deadline	13 April 2016
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2449-sc1-hco-05-2016.html



Call - Personalised Medicine

SC1-HCO-12-2016

Digital health literacy

Specific challenge

Citizens' digital health literacy is an essential element for successful eHealth deployment. However, **citizens often do not have the necessary skills to understand and appraise online health information and apply their knowledge to make health decisions.** Digitally health literate citizens are empowered to play a more active role in their health management (improved self-management) and will be better informed about health issues. **Digital health literacy can also help improve prevention and adherence to a healthy lifestyle, improve the use of pharmaceutical products enhance the safe and proper use of medicines, strengthen the patient involvement and empowerment, and finally improve health outcomes.**

Scope

Proposals should provide support for the improvement of digital health literacy of citizens. In particular, **proposals should design open access online courses ("MOOCs") for different population cohorts including children and the elderly and other high-risk patient groups, supporting an interactive learning environment. These courses should ensure user-friendliness and involve citizens to co-design, test and implement learning modules** that would help them improve their digital health literacy skills. **The courses should be designed tailored to users' needs** based on a strong understanding and projections of key factors, drivers, barriers and trends of the future that affect digital health literacy, be targeted specifically to citizens with low levels of digital health literacy **and take into account and quantifying demographic, social, cultural and gender differences and address critical and/or interactive skills and competencies, as well as support peer learning.** The work should also articulate a roadmap roll-out, simulate system level changes and detail the most appropriate policy actions for ongoing enablement. The Commission considers that proposals requesting a contribution from the EU of up to EUR 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

- **Increased awareness of the opportunities of eHealth tools and enhanced skills on how to use ICT for health-related purposes in order to obtain better health outcomes and safer care;**
- A better understanding for citizens of online information on health-related topics and a better understanding of health, disease and their own capacity of intervention, including how to decrease the risks of self-medication and self-treatment;
- **Positive impact at the personal level (knowledge, motivation, self-confidence, stronger feelings of control), involvement and empowerment;**
- Strengthened evidence base on health outcomes, quality of life, safety of care, care efficiency gains from a more digitally health literate population;
- **Improved adherence to a healthy lifestyle, to a preventive approach and to more empowered lifestyle choices.**

Type of action	Coordination and support action
Deadline	16 February 2016
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2439-sc1-hco-12-2016.html



Call - Personalised Medicine

SC1-HCO-13-2016

Healthcare Workforce IT skills

Specific challenge

Healthcare systems require a robust supply of both highly proficient eHealth/IT professionals as well as an overall workforce that has a sufficient level of IT skills to make the optimum use of eHealth information technology. **There is a shortage in the EU of eHealth workers across the full spectrum of job roles, spanning clinical, social care, informatics, and administration. There is a dearth of structured education and training opportunities to address this shortage.**

Scope

Proposals should focus on mapping, quantifying and projecting the need, supply and demand of workforce skills and competencies to develop IT skills and training programmes for the healthcare workforce taking into account the EU-US collaboration underway in this area under the EU-US MoU eHealth Roadmap and other international cooperation in this area. The work should identify how key factors and trends will be investigated, the different scenarios the system and eHealth workforce face, quantify and model these futures as well as describe how the most robust policies to deliver the desired impacts and outcomes will be investigated. **They should also demonstrate knowledge of systematic workforce investigations including skills and competences existing curricula and training, identify gaps and propose solutions to bridge them.** A series of case studies in some of the areas where IT already has an impact on the provision of health services, will support the proposed solutions in the most critical areas for example in primary health care, monitoring of chronic diseases, high risk patient care and geriatrics. A familiarity with the ICT Skills' European eCompetence Framework for healthcare is also important. The Commission considers that proposals requesting a contribution from the EU of up to 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

- **Mapping of the current knowledge structure, identification and quantification of the main trends and gaps, catalysts and barriers in IT skills and training needs of the healthcare workforce for optimum use of eHealth solutions;**
- **Improved access to training programmes, including continuous professional development, and upgrading of skills for all types of actors in healthcare workforces;**
- **Assessment of the effectiveness of training strategies and requirements for provision of programmes in different scenarios;**
- Strengthened international collaboration in the area of healthcare professionals IT skills including contributions to the actions of the EU-US MoU eHealth Roadmap and better informed policy decisions.

Type of action	Coordination and support action
Deadline	16 February 2016
Call identifier	H2020-SC1-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2444-sc1-hco-13-2016.html



Topics with minor SSH relevance

SC1-PM-08-2017

New therapies for rare diseases

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2436-sc1-pm-08-2017.html>

SC1-PM-09-2016

New therapies for chronic diseases

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3060-sc1-pm-09-2016.html>

SC1-HCO-06-2016

Towards an ERA-NET for building sustainable and resilient health system models

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3058-sc1-hco-06-2016.html>

SC1-HCO-08-2017

Actions to bridge the divide in European health research and innovation

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3064-sc1-hco-08-2017.html>

Topic to be developed during the course of 2016

SC1-PM-20-2017

Development of new methods and measures for improved economic evaluation and efficiency measures in the health sector

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3065-sc1-pm-20-2017.html>





Societal Challenge 2

Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-20-2017

Towards a science-based regionalisation of the Common Fisheries Policy

Specific challenge

The new Common Fisheries Policy (CFP) envisages a regionalised ecosystem-based approach relying on detailed measures proposed jointly by Member States under the umbrella of common principles and benchmarks set up in EU legislation. This will require choosing appropriate management units (fisheries, fishing gears, sea basins, fish stocks, stock assemblages, target fleets, geographical units, etc.) and combining in an innovative manner management instruments and **new governance mechanisms** adapted to specific regional needs. Implementing this new approach to fisheries management is already a serious challenge for fisheries in European Atlantic waters. For Mediterranean fisheries, the challenge of regionalisation is exacerbated by the legal situation (narrow bands of EU waters with larger areas outside national jurisdictions), generally poor state of fish stocks (or lack of knowledge thereof), narrow continental shelves and the high number of small fishing vessels.

Scope

Future approaches to fisheries management must take much closer account of regional fisheries practices, the specificities of regional ecosystems, and of the diverse "multi-actor" interests as a basis for implementing an ecosystem-based approach, without disregarding the likely interconnections with large marine ecosystems. On a regional basis, **projects should identify potential biological, technical, economic, administrative, social and societal barriers to achieving the CFP's fisheries management objectives**, through regionalisation instituted by Article 18 of the new Regulation (EU) No 1380/2013. **Projects should identify potential social and economic imbalances arising from changes allowing the fishing industry and fisheries managers to adapt to new knowledge and new governance arrangements.** Highlighting strengths and weaknesses of the emerging regionalisation process and structures, research projects should also develop and propose ways of resolving or circumventing barriers that have been identified and the means to evaluate how effective these ways are, especially in the Mediterranean Sea. Projects should consider work being carried-out in regional seas conventions (RSCs) and explore how RSCs and regional fisheries management structures can work better together.

In line with the objective of the EU Strategy for international cooperation in research and innovation (COM (2012) 497), proposals addressing the Mediterranean should contribute to implement the Research and Innovation Initiative for Blue Jobs and Growth in the Mediterranean Area (The BLUEMED Initiative).

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 million would allow this challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Projects funded under this topic will by default participate in the Pilot on Open Research Data in Horizon 2020, with the option to opt-out, as described in the introduction.

Expected impact

To improve regional implementation of the CFP and make progress on meeting the objective of maximum sustainable yield, proposals should:

- **Improve the biological, economic, technical, social and environmental knowledge base for regionalised management decisions** taking into account the relevant specific issues when dealing with Mediterranean fisheries.
- Share the project's results with relevant stakeholders and **promote uptake by relevant end-users to improve social and societal acceptance of fisheries management measures.**
- Ensure that conservation measures are agreed at the regional level.
- Improve the professional skills and competences of those working and being trained to work within the blue economy.

Type of action	Research and Innovation action
Deadline	1 st stage - 17 February 2016 2 nd stage - 13 September 2016
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5129-sfs-03-2016.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-26-2016

Legumes - transition paths to sustainable legume-based farming systems and agri-feed and food chains

Specific challenge

Thanks to their nitrogen-fixing properties, leguminous plants contribute to soil fertility and have a positive impact on the environment. Additionally, legumes are a critical source of plant-based proteins and amino acids for people around the globe, as well as for livestock. In both areas, fertilisers and protein crops, the EU has developed strong dependencies. On one hand, nitrogen fertiliser consumption in the EU27 is about 10 million tonnes per year with an import share of 20-26% over the past four years. The production of nitrogen fertilisers is highly dependent on natural gas and the EU imported 62% of its overall gas energy needs in 2006-2010. On the other hand, 70% of protein-rich raw materials consumed in the EU are imported (42 million tonnes in 2009). Compared with other major agricultural regions in the world, the EU dedicates a relatively small area to legume crops and this has even decreased in recent decades. With regard to the potential ecosystem services delivered by legumes, there has been an increasing demand to **strengthen the role of legumes in farming systems and agri-food/feed chains to meet agronomic, environmental and economic objectives.**

Scope

Activities will be aimed at developing sustainable legume-based farming systems and agri-feed and food chains in the EU. Projects will use case studies based on representative networks of farms which integrate legumes in their cropping systems and grasslands to explore the potential of legume production and the development of value chains for food and feed, taking into account complementarities between or within regions. Proposals will cover the diversity of available legume species and pedo-climatic conditions across Europe. The impacts of the potential development of legumes on other crops and on the delivery of eco-system services at regional, EU and global levels will be assessed. **Proposals will analyse path dependency and lock-ins constraining the development of legumes in the EU in relation to the various actors and issues involved (e.g. farms, cooperatives, the feed industry, the food chain, supply chains, institutions, policies and trade agreements).** Projects are expected to cover both conventional and organic sectors. They will develop transition paths that aim to lift identified constraints on sustainable legume-based agri-feed and food chains. **Activities will involve transdisciplinary research, including input from social sciences and the humanities, to engage actors in developing the production and use of legumes, including market aspects.** Proposals should fall under the concept of the 'multi-actor approach' and ensure adequate involvement of the farming sector.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

- development of sustainable legume-based cropping and grassland systems and agri-food and feed chains;
- increased the competitiveness of legume crops from farm to agri-food and feed chains;
- reduced environmental impacts of agricultural activities (e.g. greenhouse gas emissions and water pollution);
- integrated scientific support for relevant EU policies (Common Agricultural Policy, Water Framework Directive, climate change objectives); and
- **strengthening of transdisciplinary research and long-lasting implementation of the results through the implementation of the multi-actor approach.**

Type of action	Research and Innovation action	
Deadline	1 st stage - 17 February 2016	2 nd stage - 13 September 2016
Call identifier	H2020-SFS-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5134-sfs-26-2016.html	



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-29-2017

Socio-eco-economics – socio-economics in ecological approaches

Specific challenge

Ecological or ecosystem-based approaches have emerged as an alternative to farming based on chemical inputs. Farming systems implementing such approaches (eco-functional intensification) are often defined as "low-input", but they generally require more knowledge and labour per hectare than those based on chemical inputs. **To deliver agricultural products for the market and public goods for the society, there is a need for a better understanding of the socio-economic and policy factors that hinder or enhance the development of such systems by identifying the trends and drivers encouraging the involvement of farmers, actors in the value chain, consumers, educators and policy makers.**

Scope

Based on case studies and representative farm typologies, **proposals will involve drawing up an economic, environmental and social comparison of identified production systems** implementing ecological approaches and conventional farms in the same sectors of production. A wide range of systems will be considered, e.g. organic and other low chemical input systems, systems implementing biological control, and diversified *versus* specialised systems. Various sectors will be covered, e.g. arable crops, livestock, vegetables and fruits, vineyards, agro-forestry, mixed farming integrating crop and livestock systems and/or multipurpose breeds. Different strategies will be compared, e.g. pursuing economies of scale in the conventional systems *versus* the economies of scope proposed for some ecological approaches. **Economic performance and delivery of public goods will be evaluated** on the basis of different indicators at farm, farm-group and territorial levels. **Specific emphasis will be placed on analysis of the labour productivity in terms of the amount and value of private and public goods produced. Incomes in the different systems will be analysed on the basis of market and public payments. Issues related to gender differences and demographic characteristics and patterns in farming communities should be investigated if relevant.**

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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 integrated capacity and method to assess the sustainability of different agro-ecological approaches;
- **increases in productivity, delivery of public goods and job creation** through improved agro-ecological approaches and market and policy incentives; and
- **strengthened transdisciplinary research and integrated scientific support for relevant EU policies and priorities** (Common Agricultural Policy, Water Framework Directive, climate change objectives, jobs, etc.).

Type of action	Research and Innovation action
Deadline	1st stage - 14 February 2017 2nd stage - 13 September 2017
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6053-sfs-29-2017.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-31-2016

Farming for tomorrow - developing an enabling environment for resilient and sustainable agricultural systems

Specific challenge

The European farming sector is facing constant economic, environmental and social challenges in rapidly changing economic and policy environments. It is increasingly affected by factors external to farming which make it more vulnerable to external shocks. As a consequence, it has undergone considerable changes in recent decades: farm size and investment have increased steadily to maintain farming income. In some sectors (e.g. livestock), production is becoming more concentrated in specialised regions, potentially increasing pressure on the environment. Risks in agriculture have increased as a result *inter alia* of the abolition of price policies, globalisation, more frequent extreme weather events in a changing and more variable climate, and pest and disease outbreaks/epidemic diseases. These and other factors have a strong bearing on the farm demographics of farmers and the attractiveness of the sector. Generation renewal in agriculture plays a crucial role in maintaining viable food production and contributing to the sustainability of the sector and rural areas generally. For example, a rapid decline of farming communities in many areas in Europe is expected to compromise the long-term provision of public goods. There is a need to analyse these issues thoroughly in order to **understand long-term dynamics in the sector and develop an environment conducive to the delivery of private and public goods.**

Scope

Activities should provide a thorough investigation of the main factors driving farm demographics along with their implications for the agricultural sector, rural development, the environment and the provision of public goods. **Proposals should develop long-term projections and modelling and measure the impact and effectiveness of relevant policies.** Work should identify further measures to facilitate entry to the sector. **The impact of consumer preferences on the farming sector is also to be taken into account.** Investigations will cover a wide range of sub-sectors (including commodities and value-added products). Investigations will also aim at understanding farmers' risk management strategies and behaviours as regards the adoption and use of risk-management tools, their behaviours in market-crisis situations, the conditions and availability of information necessary for the effective management of risks at farm level and the role of policy tools. Gender-related aspects will be investigated as relevant. Research will extend to strategies at meso/macro levels to cope with the risks associated with an increased occurrence of extreme weather events.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

The project results are expected to:

- **improve the delivery of the policy framework to agricultural activity** thus fostering its sustainability. Particular attention will be paid to the delivery of the EU's Common Agricultural Policy (CAP);
- provide farmers with better risk-management tools; and
- improve the resilience of the agricultural sector in coping with the risks it faces.

Type of action	Research and Innovation action	
Deadline	1 st stage - 17 February 2016	2 nd stage - 13 September 2016
Call identifier	H2020-SFS-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5137-sfs-31-2016.html	



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-33-2016

Understanding food value chain and network dynamics

Specific challenge

Food chains play a key role in the EU economy and society: ensuring food and nutrition security, contributing to local and global economies, providing jobs and having a significant impact on the environment. The proper functioning and sustainability of food chains depend on the viability of each link. Therefore there is a need to understand metrics and dynamics at each level, especially within and across the food value chains, and their capacity to foster the sustainability and resilience of the food system. Economic theories on the interaction of chain partners and the implications for private and social welfare have existed for some time, backed-up by case-studies (predominantly qualitative). However, **the challenge remains of providing quantitative and model-based underpinning of economic behaviour in the food chain. The use of unfair contractual practices within the chain and its detrimental effect on the chain's economic sustainability need to be better understood so that we can identify and analyse such practices and quantify their impact. Information asymmetries can undermine proper price-setting and bargaining power**, thus generally eroding agricultural revenue margins and farmers' willingness/capacity to invest and add value. The resilience, adaptive capacity and sustainability of food chains need to be analysed in a dynamic setting, whereby **the strategic behaviour of chain agents and their interaction can be captured and their economic, social and environmental impacts assessed.**

Scope

A holistic approach supported by new advances in theory, modelling and data gathering is needed to capture and understand the dynamics and interactions in food systems (from providers of farm inputs to consumers). The work will seek to capture drivers that influence chains' sustainability and their performance. An analysis is needed to map a wide range of (short and local food chains included as well as global value chains) food value chains across the EU and various sectors to give a thorough insight in upstream and downstream chain flows and interactions between chains. **Special attention is required with respect to chain organisation, price transmission, information exchange, the behaviour of chain members, cost structure (including freight), organisation of logistics, institutional and organisational arrangements, marketing standards, balance of power, unfair trading practices, and the distribution of risk and added value along the entire food chain.** Internal and external drivers influencing these factors should also be investigated. **Proposals should map policies and regulatory requirements targeted at different chain levels (including consumption and internal market), so that interactions between them can be identified and their impact on chain performance in terms of resilience, integrity and sustainability can be understood. Changes in (global and local) demand, emerging dietary and consumption patterns, and how they impact on the organisation, adaptability and sustainability of food chains and vice versa is to be addressed.** A foresight exercise should contribute to the formulation of potential future scenarios. The above-mentioned aspects should be analysed in a dynamic framework and contrasted with static conditions, in order to assess and improve resilience and sustainability. Finally, research should unravel the link between the complexity and diversity of the food systems and their efficiency, resilience and sustainability.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 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

The project results are expected to:

- provide an assessment of all dimensions of the sustainability of food chains and their contribution to jobs and growth, both territorially and at EU level;
- improve capacity to model the sustainability and resilience of food chains;
- enhance capacity to assess the functioning of value chains, upstream and downstream chain flows, and price transmission along the chain;
- improve knowledge on food chains and their underlying drivers;
- increase capacity to map the occurrence of unfair practices in the food chain and develop approaches to assess their (economic, environmental, social etc.) impact;
- clarify the development of added value and profit margins in food value chains and how these are distributed at each level;
- increase understanding of how consumers' demand and consumption patterns affect the organisation of food chains (and vice versa), and their sustainability and resilience; and
- improve the capacity of relevant policies and food chain stakeholders to improve food chain sustainability and resilience.

Type of action	Research and Innovation action	
Deadline	1 st stage - 17 February 2016	2 nd stage - 13 September 2016
Call identifier	H2020-SFS-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5143-sfs-33-2016.html	



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-34-2017

Innovative agri-food chains: unlocking the potential for competitiveness and sustainability

Specific challenge

The sustainability of food systems is challenged by various interrelated factors, such as the changing socio-economic and political context, the scarcity of natural resources, environmental degradation and climate change. **These challenges cannot be met by individual action, but require multi-stakeholder action and coordinated initiatives along the value chain.** A new holistic, systemic approach to the design of processes within agro-food chains is needed to unlock their full potential and deliver economic, social and environmental benefits.

Scope

The research will provide in-depth insight into linkages and interactions between agri-food chain stakeholders, including understanding of their perception and behaviour with respect to sustainability objectives and cooperation, potentially resulting in the design of new processes leading to new business models and better performing value chains. A holistic approach to improving mutual understanding and cooperation between value chain stakeholders (identifying incentives and barriers, and strategies and tools, e.g. technologies to overcome them) is to be explored, helping to create favourable conditions for cooperation, co-creation and innovation within value chains. **The concept of social innovation and ways of measuring it throughout the value chain should be explored, taking into account the engagement of society. A plethora of policies and regulatory requirements influencing food production and consumption should be explored, and their implications as regards creating favourable overall conditions for cooperation and innovation along the food chain.** Proposals should fall under the concept of the multi-actor approach.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 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

The project results are expected to:

- enhance the capacity of actors within agri-food chains to **design new processes leading to new business models and more efficient, equitable, sustainable and better performing value chains**;
- enhance the innovation potential of the European agri-food chains in terms of adapting to change and increase their competitiveness, sustainability and resilience;
- strengthen farmers' position in value chains through innovative approaches that enhance transparency, information flow and management capacity; and
- limit the negative impacts of agri-food chains on the environment, climate and health.

Type of action	Research and Innovation action
Deadline	1st stage - 14 February 2017 2nd stage - 13 September 2017
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5149-sfs-34-2017.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-35-2017

Innovative solutions for sustainable food packaging

Specific challenge

In recent decades, there has been much research into innovative food packaging technologies and solutions (e.g. active, intelligent, recyclable, easy-to-use, organic, antibacterial). This includes research aimed at reducing the environmental footprint of packaging material, increasing the shelf-life of food and developing food spoilage indicators, improving product design, optimising process efficiency, and reducing the need for chemical preservatives while maintaining the nutritional and sensorial properties of food. In spite of the progress made, much remains to be done to overcome the barriers to market uptake of many promising technologies.

Scope

Proposals should clearly address the problems associated with the scaling-up and commercialisation of eco-innovative solutions to packaging in a **developing framework of social, economic and environmental conditions**. Activities should aim to produce plans and arrangements or designs for new, modified or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, pilot projects, large-scale product validation and market replication. Proposals may, if necessary, include limited research and development activities. **If there are clear market failures or cultural or behavioural barriers to overcome, proposals may comprise activities such as validating the benefits for users/buyers, validating technical and economic performance at system level**, validating standards, and activities to prepare market uptake, **ensure consumer acceptance** and optimise access to and the dissemination of results. **Work is expected to benefit from contribution of social sciences** and a gender approach. Participation of all relevant stakeholders in the food production and supply chains is encouraged. Demonstration activities will require the involvement of packaging and food processing companies, retailers and civil society organisations to bridge the gap between ideas that have been developed and their practical implementation.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 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

With a view to supporting the transition from a linear to a circular economy, proposals should show how some, or all, of the following impacts will be achieved:

- wider and faster deployment of innovative, user-driven, packaging solutions resulting from greater industry and **consumer acceptance**, and higher visibility of innovative solutions, overcoming the barriers to market uptake.
- reduced waste in both food and packaging materials, and its negative impacts on the environment (e.g. resource utilisation, greenhouse gas emissions, pollution).
- strengthening of the EU's position in manufacturing, improving competitiveness as well as opportunities for growth, diversification and job creation for the EU food and packaging sector in general, and SMEs in particular.
- **strengthening the European food value chain through continued support to product quality, contributing to consumer trust and increased consumption.**
- support for the transition from a linear to a circular economy.

Type of action	Innovation action
Deadline	14 February 2017
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6065-sfs-35-2017.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-37-2016

The impact of consumer practices in food safety: risks and mitigation strategies

Specific challenge

Food safety policy is constantly reviewed in the light of new scientific evidence. There have been significant advances in consumer protection brought about by food safety legislation in the farm-to-retail part of the food chain. Examples include controlling the occurrence of certain food-borne pathogens at farm and retail level using microbiological targets and criteria, or of contaminants and other harmful chemicals by setting maximum residue limits and levels. The retail-to-fork part of the food chain, in the private consumer setting, cannot be legislated but may benefit from science-based policy initiatives. As regards food handling, logistics and preparation, both in-retail and post-retail **consumer behaviour** can substantially contribute to the risk from, and exposure to, certain food-borne hazards. This is the case in particular to those which are not effectively or easily managed earlier in the food chain, or that arise as a result of consumer practices.

An improved, consumer-driven, food safety approach requires scientific data on the **impact of consumer practices** on the risks of food-borne hazards. It also needs innovative strategies, technologies and tools to help consumers manage these risks and their exposure to food-borne hazards, while taking account of food sustainability. This should, in return, reduce food-borne disease and exposure to food-borne hazards. At the same time, it should contribute to the sustainability of the food chain and to improving the holistic "farm-to-fork" food safety framework.

Scope

Proposals should cover food-borne hazards and risks where consumer actions can help reduce risk and/or exposure.

Proposals should identify and consider different consumer risk-groups, taking into account socio-economic backgrounds and culture-based food handling practices in the EU. Where relevant, proposals should address gender-specific aspects, and the gender dimension in the research content shall be taken into account. Proposals should develop, test and implement novel and innovative strategies, technologies and tools to help consumers mitigate risks from food-borne hazards.

Interdisciplinary and multi-actor approaches are required. **There should be input from the social sciences and humanities to engage with consumers in general.** Civil society, consumer associations, the food industry and market actors should also be involved. Innovative and strategic food safety policy models, aimed at addressing and supporting the role of the consumer in food safety, should be proposed and analysed. Proposals should fall under the concept of the 'multi-actor approach'.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 9.5 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

In order to reduce food-borne diseases and exposure to hazards, improve the sustainability of the food chain and improve the holistic "farm-to-fork" food safety framework, proposals should:

- help consumers mitigate risks from, and exposure to, food-borne hazards with the aim of reducing the occurrence of food-borne diseases;
- **scientifically characterise the contribution of in-retail and post-retail private consumer behaviour** (up to the point of consumption) to risks from, and exposure to, food-borne hazards, including due to logistical and food handling and food preparation practices;
- develop and stimulate market uptake using scientific evidence based approaches, tried-and-tested technologies and tools that enhance consumer-driven food safety;
- **strengthen interdisciplinary research approaches and foster an inclusive and participatory multi-actor approach for long-lasting implementation of the results obtained.**

Type of action	Research and Innovation action
Deadline	1 st stage - 17 February 2016 2 nd stage - 13 September 2016
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5139-sfs-37-2016.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-38-2016

Impulsivity and compulsivity and the link with nutrition, lifestyle and the socio-economic environment

Specific challenge

Impulsivity (including hyperactivity, attention deficit, unplanned reactions, aggressiveness and other antisocial behaviours) and compulsivity disorders (including addictive behaviour) lead to individuals no longer being able to integrate into their social environment. As such, these disorders are a growing threat to individuals, families and societies as a whole. **Antisocial and addictive behaviour can have a significant negative impact**, e.g. in schools, at work, in families, in homes for the elderly, in prisons and in public places.

Many factors that may influence such behaviours are still not fully understood. These include the risks and protective factors, the extent to which inherited factors and nutritional habits may play a role, and the impact of these factors on the gut-microbiota-brain axis.

Recent studies have suggested that a change in diet and lifestyle can result in a significant reduction in impulsive, compulsive, aggressive or other antisocial behaviours.

Scope

Proposals shall include new insights into the influence of diet, including sugar, fat and protein content and metabolism, vitamin and mineral balance, amino-acids and food additives, and their impact on the gut-microbiota-brain axis. **They shall also look at the influence of lifestyle, socio-economic environment and variations in food culture on these behavioural disorders in various population groups** (including children, teenagers and the elderly) and suggest possible solutions. In addition, consideration shall be given to the influence of these factors in the development of addictive behaviour. The gender dimension of these behavioural disorders must be taken into account and gender differences must be clearly investigated. **An innovative research approach, including linked social innovation aspects, is needed and many stakeholders from a variety of disciplines shall be involved.** This call does not envisage pharmaceutical treatment.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 12 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

In order to find ways to improve impulsive, compulsive, aggressive or other antisocial behaviours through a change in diet and lifestyle, proposals should show how some, or all, of the following impacts could be achieved:

- **Foster social innovation and public health by bridging knowledge gaps in the understanding of the influence of nutrition, lifestyle and the socio-economic environment, and their complex interdependencies, on the occurrence of impulsivity and compulsivity disorders.**
- Deliver a list of scientific evidence-based remedial actions for this challenge that can be used by policy makers, politicians, practitioners, stakeholder groups, employers and the families or individuals concerned.

Type of action	Research and Innovation action
Deadline	1 st stage - 17 February 2016 2 nd stage - 13 September 2016
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5140-sfs-38-2016.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-39-2017

How to tackle the childhood obesity epidemic?

Specific challenge

Childhood obesity is one of the most serious public health challenges of the 21st century and its prevalence has increased at an alarming rate in the last decades. The main problem is that overweight and obese children are likely to remain obese in adulthood and more likely to develop noncommunicable diseases like diabetes and cardiovascular diseases at a younger age. An integrated EU approach to help reduce the impact on health of poor nutrition, excess weight and obesity is a political objective. A wide range of factors interacting at various levels are known to be associated with obesity. Overweight and obesity, as well as their related diseases, are largely preventable. Starting from an early age, diet and lifestyle have a strong impact on health throughout life. Therefore, the prevention of childhood obesity needs to be given a high priority.

Scope

Within the context of improving the health of citizens and promoting sustainable economic growth, the main objective is to reduce childhood obesity and its comorbidities effectively. Proposals should focus primarily on specific target groups in the young (e.g., during pregnancy and foetal development, in infants, toddlers, most vulnerable groups in children, adolescents). **To better understand the complex interactions between the factors influencing obesity in individuals and populations, it is necessary to combine the approaches and expertise from different disciplines** (e.g. (epi)genetics, molecular biology, microbiome, gut-brain signalling, physiology, nutrition, physical activity sciences, information and communication technology, **social sciences and humanities, education**, environment, architectural and urban design, **psychology**). **Proposals should consider a range of geographic, socio-economic, behavioural and cultural factors.** Proposals should aim at innovative and efficient strategies, tools and/or programmes for promoting sustainable and healthy dietary behaviours and lifestyles. Proposals should reflect and build on existing initiatives and platforms and should provide a robust science-based impact assessment of the tools, strategies and/or programmes delivered for further consideration by policy makers. **Tackling this societal challenge requires both interdisciplinary and multi-actor approaches** engaging academics, policy makers, civil society and relevant industry and market actors. The gender dimension in the research content shall also be taken in account. In line with the strategy for EU international cooperation in research and innovation, international cooperation is encouraged, in particular with the US, Australia, New Zealand and Canada. Proposals should fall under the concept of the 'multi-actor approach'. The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 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

In the effort to tackle the childhood obesity epidemic, proposals should show how some, or all, of the following impacts will be achieved:

- **Provide an understanding of which factors are involved and how they influence the childhood obesity epidemic.**
- Provide innovative, efficient, effective, scientific evidence-based and ready-to-use tools, strategies and/or programmes to improve sustainable and healthy dietary behaviour and lifestyles in children.
- Transfer the generated knowledge and innovation to relevant stakeholders.
- Strengthen interdisciplinary research approaches and foster participatory and inclusive multi-actor approaches for long-lasting implementation of the results obtained.

Type of action	Research and Innovation action	
Deadline	1st stage - 14 February 2017	2nd stage - 13 September 2017
Call identifier	H2020-SFS-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6060-sfs-39-2017.html	



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-40-2017

Sweeteners and sweetness enhancers

Specific challenge

In recent decades, sweeteners and sweetness (flavour) enhancers (S&SEs) have become key ingredients in food produced and consumed in the EU, and exported to and from it. Because of their diversity (natural/artificial, geographical origin, processing, caloric content, etc.), S&SEs are used in different foodstuffs and food processes and in different dosages. However, information is lacking about new and emerging S&SEs throughout the agri-food chain, (e.g. their potential use in single or multiple food (ingredient) production chains, traceability, **production and/or processing (cost) efficiency**, safety and quality risks/benefits (for single or combined use), allergenicity and sustainability). The interaction of all these factors influences the role of S&SEs in a healthy diet and the fight against obesity. In addition, the toxicological impact of high doses, combined effects and the prolonged use of S&SEs are still unknown and the health-related aspects need further investigation.

Scope

Proposals should focus on health, obesity and safety aspects (including combined/prolonged use, metabolic effects and gut brain signalling, neuro-behaviour, and effects on the microbiota) associated with S&SEs. Activities indicated in the proposals should explore the sustainability of the whole value chain (ingredient sourcing, production/processing, **market opportunities for new and emerging S&SEs**). **They should investigate consumer perceptions and preferences giving proper consideration to the underlying physiological, psychological and socio-economic drivers. The approach should be interdisciplinary and should give careful and detailed consideration to the regulatory framework.** Proposals should also include dissemination to all stakeholders as well as the food industry, including small and medium-sized enterprises (SMEs). Where relevant, proposals should address gender-specific aspects and the gender dimension in the research content shall be taken into account. The Commission considers that proposals requesting a contribution from the EU of up to EUR 9 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Expected impact

With the objective of combating obesity, while improving sustainable food security in the EU, proposals should show how some, or all, of the following impacts will be achieved:

- Promote healthy diets and contribute to combating obesity while improving sustainable food security in the EU.
- Stimulate market uptake (with a specific focus on small and medium-sized enterprises) of new, healthy and sustainable S&SEs.
- **Strengthen the EU economy with a move towards more sustainable and future-oriented business practices.**
- Dissemination to EU food, health and food ingredient stakeholders, especially to food-related SMEs.
- Evidence-based policy inputs on health, environmental and food safety issues.

Type of action	Research and Innovation action
Deadline	1st stage - 14 February 2017 2nd stage - 13 September 2017
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6055-sfs-40-2017.html



Call - Sustainable Food Security

Resilient and resource-efficient value chains

SFS-48-2017

Resource-efficient urban agriculture for multiple benefits – contribution to the EU-China Urbanisation Partnership

Specific challenge

With increasing urbanisation, massive daily flows of agricultural products, water and energy coming from rural/remote areas to cities generate high amounts of heat, CO₂, waste water and other waste. In certain contexts, **urban agriculture has been shown to improve food security and to bring economic, environmental and social benefits to cities**. Given the diversity of urban agricultural systems emerging worldwide, there is a need to **demonstrate and assess how technological and social innovation in urban agriculture can help overcome the shortcomings of urban food systems** while providing cities with other ecosystem services (e.g. mitigating climate change, closing nutrient cycles) and improving the resilience of urban areas.

Scope

The proposals should develop innovative integrated urban farming systems that use resources (e.g. space, energy, water, nutrients) more efficiently and re-use or recycle heat, water, CO₂, waste or by-products from urban sources (e.g. industry, households) for horticultural production (e.g. fruits, vegetables, herbs, sprouts, mushrooms, algae, ornamental trees and plants). The production and use of renewable energies (e.g. solar/wind energy, biogas) in these farming systems will also be investigated. Activities should showcase several resource-efficient production systems in open or controlled environments, thereby providing a demonstration (at TRL 6-8) for the production of safe and high-quality products in different urban spaces (e.g. rooftop/vertical farming, individual/collective gardens, other unused spaces).

The work should be carried out at least in one European city and in one Chinese city. Breeding activities are not in the scope.

The work will support the development of innovative production systems both conventional and organic and their associated value chains in cooperation with relevant local actors and stakeholders, **and according to business models that target economic and social benefits**. Attention will be paid to land use issues in particular in relation to urban-rural interactions (e.g. urban sprawl dynamics). **Evaluation methods of multi-functional urban agriculture should be used to assess** the contribution of these systems and value chains to cities' food security, and **their economic, environmental and social impacts on the urban communities**. **A cost-benefit analysis of urban farming production systems and associated value chains** should compare these to other options (including peri-urban and rural agriculture). Policy recommendations and best-practices guides for sustainable urban farming systems should be produced and knowledge platforms promoted.

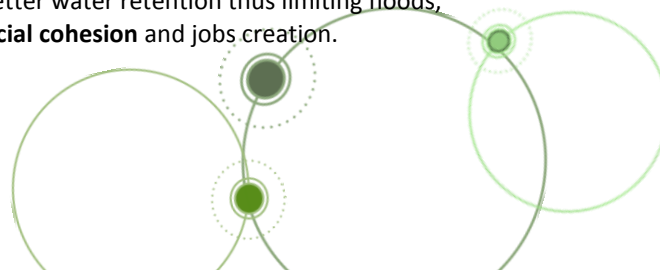
Proposals should fall under the concept of the 'multi-actor approach' targeting all relevant actors such as researchers/technology providers, public authorities, and private actors (e.g. restaurants, retailers, urban farmers, real estate businesses) and promote the engagement of urban communities. SME participation is encouraged.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts. Contributions for Chinese participants will come in addition and will be made available by China.

Expected impact

Applicants will gauge the expected impact of the project as regards:

- the creation of shorter supply chains for safe, high-quality food and other horticultural products that reduce European and Chinese cities' ecological footprint by limiting losses and energy in transport and contribute to their food security;
- resource-efficient low-carbon urban farming systems that:
 - consume low amounts of water, energy, fertilizers, pesticides and space;
 - use waste heat, CO₂, waste and rain water and other waste or by-products from urban source, contributing to the development of the circular economy;
 - minimize environmental impacts;
- **improved knowledge of various business models for urban farming, including a thorough understanding of their potential for development, performance and impact on urban food systems in economic, environmental and social terms, and success factors or reasons for failures;** and
- increased cooperation at international level, in particular involving exchanges of knowledge and best practices between the EU and China.
- In the longer term, the results should contribute to a more sustainable and resilient urban development, in particular via the provision of ecosystem services (e.g. reduced air pollution, better water retention thus limiting floods, biodiversity, carbon sinks, recreation, greener urban landscapes), **social cohesion** and jobs creation.



Call - Sustainable Food Security

Resilient and resource-efficient value chains

Type of action	Innovation action
Deadline	14 February 2017
Call identifier	H2020-SFS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6066-sfs-48-2017.html

Topics with minor SSH relevance

SFS-04-2017: New partnerships and tools to enhance European capacities for in-situ conservation

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5133-sfs-01-2016.html>

SFS-06-2016: Weeding - strategies, tools and technologies for sustainable weed management

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5146-sfs-02-2016.html>

SFS-30-2017: Closing loops at farm and regional levels to mitigate GHG emissions and environmental contamination - focus on carbon, nitrogen and phosphorus cycling in agro-ecosystems

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6056-sfs-30-2017.html>

SFS-42-2016: Promoting food and nutrition security and sustainable agriculture in Africa: the role of innovation

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5132-sfs-42-2016.html>

SFS-45-2016: Increase overall transparency of processed agri-food products

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5131-sfs-45-2016.html>

SFS-46-2017: Alternative production system to address anti-microbial drug usage, animal welfare and the impact on health

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5148-sfs-46-2017.html>



BG-06-2017

Interaction between people, oceans and seas: a strategic approach towards healthcare and well-being

Specific challenge

The interaction between people, oceans, seas and coasts is a broad domain with significant impacts on human health and well-being. However, it remains fragmented, poorly understood and underexploited. As coastal populations grow worldwide, not only due to permanent dwellers but also due to increasingly larger number of tourists, the determinants and impacts of this link between oceans and people become more relevant. On the one hand, the seas provide benefits namely through food, feed and positive impacts on overall wellness. On the other hand, the risks associated with the marine environment include chemical and physical pollutants of anthropogenic origin, harmful algal blooms, and countless marine microorganisms that lead to a still poorly assessed proportion of human morbidity and mortality. Therefore, the challenge is to **coordinate the existing multidisciplinary research knowledge and resources**, including distributed infrastructures, across Europe. This would make it easier to take advantage of the benefits and to better manage the risks of the interaction between oceans and people using an ecosystem-based approach and to formulate evidence-based policies that can benefit citizens as well as achieving good environmental status.

Scope

Proposals should include a plan for the creation of a multi-stakeholder forum that would make it possible to better understand the potential health benefits of marine and coastal ecosystems including in **economic terms**, anticipate new threats to public health more effectively, identify ways of improving ecosystem services that the marine environment can provide and contribute to reducing the burden of diseases caused by the interplay between marine-degraded environments and human behaviour. This forum is expected to **issue a strategic research agenda based on data covering the biological, cultural and socio-economic dimensions** of the interaction between oceans and human health that can ultimately impact morbidity and mortality in the general population. Data should encompass sex and gender differences in the populations studied. Data should be assessed through an active involvement of diverse stakeholders across Europe, including local marine communities, civil society, industry, and public authorities.

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

Projects funded under this topic will by default participate in the Pilot on Open Research Data in Horizon 2020, with the option to opt-out, as described in the introduction.

Expected impact

In order to support key EU policies, in particular those directly related to the marine and maritime sectors, such as the EU Blue Growth Agenda, the Blue Tourism Communication and the Marine Strategy Framework Directive, proposals are expected to:

- Create a multi-stakeholder forum that issues a strategic research agenda for oceans and human health, based on new scientific and/or technological evidence and best practices across different geographical locations and climates.
- Highlight novel, cost-effective solutions or interventions that enable effective policy making that aims to maximise health benefits and minimising risks derived from exposure to marine and coastal ecosystems.
- Actively involve local communities across different European maritime regions, comprising civil society, industry, public authorities in data supply, knowledge generation and solution implementation processes.
- Improve global cooperation around oceans and human health.
- Improve the professional skills and competences for those working and being trained to work within the blue economy.

Type of action	Coordination and support action
Deadline	14 February 2017
Call identifier	H2020-BG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5124-bg-06-2017.html



BG-08-2017

Innovative sustainable solutions for improving the safety and dietary properties of seafood

Specific challenge

The seafood production and processing industry contributes substantially to food security, employment and trade in regions where the activity takes place. To safeguard and strengthen this and make the activity more sustainable, seafood production should be market-driven and consumer-responsive, addressing challenges such as increasing consumer awareness of food quality and safety traceability and animal welfare. Ensuring the sustainability of the seafood processing industry involves not only innovative technologies that could mitigate environmental damage but also **securing its economic viability and taking account of the consumer imperatives behind them**. One way of ensuring the sustainable production and processing of nutritious and safe seafood products is through the demonstration and first application in the market of eco-innovative, sustainable processing solutions of marine and aquaculture-derived food products and nutrients.

Scope

Proposals should build on state-of-the-art research insights from EU and other funded projects in this field, with a specific focus on food safety (from harvesting to the final products). They should aim to **generate new knowledge to develop commercial solutions for improving the socio-economic and environmental sustainability of the seafood production and processing industry**, while also contributing to product quality and safety. Activities should directly aim to produce plans and arrangements or designs for new, altered or improved products, processes or services. For this purpose they may include prototyping, testing, demonstrating, piloting, and large-scale product validation, all with a view to paving the way for subsequent market replication and uptake by consumers. **Proposals may take into account impacts across different locations and population segments**, as well as the specificities of different types of seafood, also in terms of nutrition. **Work is expected to benefit from the contribution of social sciences wherever applicable**. Where relevant, proposals should address gender-specific aspects, and the gender dimension in the research content shall be taken into account. Aspects of traceability, authentication and certification of EU seafood products and labels of quality should be conveniently addressed. The participation of SMEs that will benefit from the intellectual property and/or from the commercial use of the project outcomes is encouraged.

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

Projects funded under this topic will by default participate in the Pilot on Open Research Data in Horizon 2020, with the option to opt-out, as described in the introduction.

Expected impact

To contribute to EU food safety common standards and legislation for seafood products and nutrients, proposals are expected to:

- Ensure that eco-innovative solutions for the sustainable production and processing of marine and aquaculture-derived food products and nutrients are used more widely, as a result of greater user acceptance, higher visibility of innovative solutions and the creation of scalable markets.
- Improve the competitiveness of the EU seafood sector, and increase opportunities for growth, diversification and job creation for the sector in general and SMEs in particular.
- Benefit consumers by allowing them to make better-informed seafood choices.
- Increase the availability of healthier seafood, which will improve consumers' diet and health.
- Improve the professional skills and competences of those working and being trained to work within the blue economy.

Type of action	Innovation action
Deadline	14 February 2017
Call identifier	H2020-BG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5128-bg-08-2017.html



BG-11-2017

The effect of climate change on Arctic permafrost and its socio-economic impact, with a focus on coastal areas

Specific challenge

Arctic permafrost contains twice as much carbon as the atmosphere, stored in the upper metres of the ground. Thawing of permafrost may trigger the release of this carbon and its transformation to greenhouse gases, reinforcing global warming (permafrost carbon feedback). Moreover, permafrost coasts make up 34% of the world's coasts. Increasing sea-level in combination with changing sea-ice cover and permafrost thawing expose these coastal areas to higher risks. Knowledge gaps exist in relation to the transfer of material - including organic matter - from land to sea and its fate, with the consequence that processes of accumulation and/or subsea permafrost degradation are not accounted for in global climate and Earth system models. The pressing challenge is to **understand the impact of permafrost thawing on climate change and its implications for the environment, for the indigenous populations and the local communities**. Finally, permafrost thawing affects the stability of built infrastructure.

Scope

Actions should assess the impact of permafrost thawing on Arctic (natural and human) coastal systems and its effect on the availability/accessibility of resources, the stability of infrastructure, the growth of potential new economic activities, as well as on pollution and health. **The research should employ a holistic and trans-disciplinary approach and in co-operation with stakeholders. It should consider the needs of and the impacts on indigenous populations, local communities and economic actors** operating in this vulnerable region in the sustainable development context. Actions should address key processes of environmental change and develop appropriate adaptation and mitigation responses with an emphasis on permafrost at the interface between land and water.

Proposals should develop relevant forms of communication for EU (and possible national) services to adequately disseminate results that could be used for policy action. **Trans-disciplinary and participatory approaches, including social sciences and humanities, in the process are considered necessary**. In line with the strategy for EU international cooperation in research and innovation, actions will contribute to implementing the Transatlantic Ocean Research Alliance. Due to the specific challenge of this topic, in addition to the minimum number of participants set out in the General Annexes, proposals should benefit from the inclusion of partners from the USA and from Canada. International cooperation with partners from other Arctic and non-Arctic third countries is also strongly encouraged.

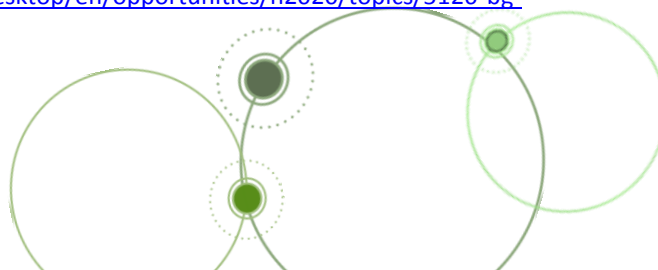
The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

Projects funded under this topic will by default participate in the Pilot on Open Research Data in Horizon 2020, with the option to opt-out, as described in the introduction.

Expected impact

- Improve the capacity to predict the impacts of permafrost thawing, both sub-sea and on land, identify and reduce uncertainties, and quantify key processes not currently or poorly represented in predictive models;
- Develop capacity to manage risks and to take advantage of opportunities emerging from Arctic changes;
- Promote the engagement of and interaction with residents of Arctic coastal communities and indigenous societies and **develop a legacy of collaborative community involvement with scientific, economic, and societal actors and stakeholders** on the development of Responsible Research and Innovation agendas that meet their concerns and expectations.
- Contribute to the ongoing and possible future OSPAR actions in Arctic water
- Improve the professional skills and competences for those working and being trained to work within this subject area.

Type of action	Research and Innovation action
Deadline	14 February 2017
Call identifier	H2020-BG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5126-bg-11-2017.html



Call - **Blue Growth**

Demonstrating an ocean of opportunities

Topics with minor SSH relevance

BG-07-2017: Blue green innovation for clean coasts and seas

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5125-bg-07-2017.html>

BG-13-2016: Support to the BLUEMED Initiative: Coordination of marine and maritime research and innovation activities in the Mediterranean

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5120-bg-13-2016.html>



RUR-01-2016

Consolidated policy framework and governance models for synergies in rural-urban linkages

Specific challenge

Increasing urbanisation and the transformation of rural economies and communities result in new types of rural-urban interaction and dependency, to which policies and governance approaches still have to fully adapt. Consolidated evidence is needed to assess the impact of such interaction on rural growth potential (in which there is an increasing interest worldwide) and understand, in concrete and operational terms, how linkages and dependencies between urban and rural activities affect the creation of added value and jobs. Recent studies have provided some evidence that well-functioning relationships between urban and rural areas can lead to higher growth rates in both. They may also **deliver more sustainable, integrated and inclusive forms of development**, building on local assets and natural resources to improve adaptation and resilience to global change. There is a need for thorough understanding and a consolidated conceptual framework is needed to tailor policy intervention at different scales so as to maximise rural job and growth creation on the basis of synergistic interaction.

Scope

Building on the EU typology of urban and rural areas and on the outcomes of previous studies on rural-urban linkages, proposals should consolidate a conceptual and policy framework adapted to the diversity of European needs, including a well-argued approach to defining functional areas. They should analyse **how European rural areas interact with other (in particular, urban) areas** in their region or beyond, **exploring endogenous conditions that enable them to interact and quantifying the importance of these connections for the rural economy and society**. Activities should involve case studies covering a diverse set of territorial contexts and scales of analysis describing practical linkages between rural and urban activities, mutual dependencies, competitive or synergistic relationships, the distribution of value-adding production steps between rural and urban areas and the institutional and policy context. Proposals should involve participatory research identifying concrete opportunities for greater synergies and cooperation between urban and rural activities and communities, bottlenecks impeding synergistic development and concrete solutions to remove these bottlenecks. **Activities should assess the effectiveness of a variety of existing or emerging governance approaches and instruments**, including those provided by the European structural and investment funds, **looking at official authorities but also at informal governance groups** (e.g. local action groups). **Concrete outputs could be a set of governance models and tools adapted to different types of situation. Such models should cater for better economic development** as well as for modernisation of service delivery.

Activities should look at economic, environmental and social linkages and dependencies in an integrated way and examine various territorial settings, covering various forms of territorial interaction beyond city-hinterland relationships, including networks of small market towns and other types of more distant, cross-border or international interaction.

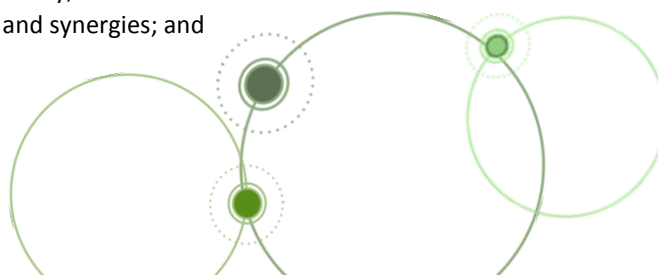
Projects should fall under the concept of the 'multi-actor approach', involving local development or economic development bodies in rural and urban areas or representatives of both rural and urban economic players. Activities should involve engagement with government bodies at the appropriate scale, and with businesses and society. Targeted communication activities and easy-to-use policy-oriented outputs and training material will ensure maximum uptake of the results during the lifetime of the project and beyond. Networking activities between case-study areas and other areas interested in rural-urban synergies and leading to longer-term cooperation may be envisaged. Some cooperation activities with projects financed under topic RUR-2-2017 could be included.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 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

Results are expected to improve policies for the management of rural-urban linkages through:

- consolidation of a policy-oriented conceptual framework allowing the **quantitative and qualitative description of a wide range of economic, environmental and social interactions** and the definition of functional areas;
- improved understanding of functional rural-urban linkages and how these translate into varying development patterns, helping to explain growth and employment performance and sustainability;
- identification of opportunities for greater cross-sectoral cooperation and synergies; and
- provision of:



Call - Rural Renaissance

Fostering innovation and business opportunities

- a set of successful and transferable governance models applicable to different types of situation and rural settings;
- appropriate policy recommendations to enhance the development of these governance models at various scales; and
- communication and training material to facilitate dissemination of projects outcomes and foster their uptake by a significant number of relevant authorities across Europe.

Better managed urban-rural relationships, improved governance and increased cross-sectoral cooperation will enable further growth and job creation in rural areas in the long term.

Type of action	Research and Innovation action	
Deadline	1st stage - 17 February 2016	2nd stage - 13 September 2016
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5105-rur-01-2016.html	



RUR-02-2017

Coastal-rural interactions: Enhancing synergies between land and sea-based activities

Specific challenge

At the interface of land and sea, coastal areas are environmentally fragile but also attractive areas with unexploited business opportunities. Land-based activities in coastal regions and even beyond, in upstream river-basins, influence the availability and quality of fresh water reaching the sea and, as a consequence, coastal and sea-based economic activities (including tourism) and the exploitation of marine resources. Equally, coastal development can have positive or negative effects on hinterland development, e.g. tourism-related pressure on land availability. Mainstream agro-environmental policies tend to fail when it comes to lowering nutrient load on the shorelines while rural economies do not always benefit from the economic development on the coast. There is a need to explore **how territorial governance approaches and cross-sectoral economic development approaches could deliver mutually beneficial impacts** for rural territories and coastal areas and seas which cannot be achieved in other ways, in particular as regards mitigating the impact of land-based activities on coastal water quality.

Scope

Combining environmental, agricultural and socio-economic research, proposals will identify and analyse interactions between land (coast and hinterland) and sea, identify the various components of local economies at the interface of land and sea and analyse their respective importance and short, medium and long-term development trends taking into account market, environmental and climate forecasts. The analysis should provide an inventory of the positive and negative externalities of different activities, including the effect they have on each other, and consider whether solutions exist to mitigate negative externalities and enhance positive externalities, listing motivations and barriers to change for the types of player involved. The analysis should highlight potential cross-sectoral interactions and innovation that could emerge from greater cooperation between sea-based and land-based businesses or organisations.

The analysis should cover a representative set of coastal areas or regions across Europe varying according to size and geographical, environmental, socio-economic, institutional and administrative conditions (regional, inter-regional, macro-region, cross-border). Interactive research approaches should be used to engage with local businesses and citizens and elaborate options for cooperation, networking and integrated governance seeking to enhance partnership. Activities could usefully build on a review of positive (and perhaps negative) examples from different areas, including **innovative business models** integrating land-based and sea-based production with simultaneous benefit for the local economy, local jobs and the environment both on the coast and in the hinterland. Proposals could seek to create long-lasting relationships within and between the case study areas benchmarked by the project in order to generate knowledge exchange. Concrete outputs would include a set of tools which could be used to foster synergistic relationships in different coastal areas of Europe, and concrete and operational governance models to be applied. The potential use of instruments provided by the European Structural and Investment funds for the period 2014-2020 should be explored. Communication and dissemination activities should be carefully targeted and planned to reach out to all potentially interested areas beyond those participating in the consortium. Training material and coaching activities may be envisaged. Some cooperation activities with projects financed under topic RUR-1-2016 could be included.

Proposals should fall under the concept of the 'multi-actor approach' and involve farmers groups and other land and sea-based businesses, and economic and local development bodies. Engaging with managing authorities of European structural and investment funds during the project would help increase implementation of the project outcomes.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

Results are expected to contribute to the long-term improvement of sea water quality combined with the creation of added value and jobs in coastal areas and hinterland through:

- **development of a transferable set of tools and indicators allowing the quantitative and qualitative description of a wide variety of economic, environmental and social land-sea interactions, thus improving understanding of economic and social interactions in coastal areas, serving a more evidence-based policy-making at local and regional level;**



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- a thorough understanding of the factors (barriers and motivators) influencing behaviour and solutions to enable joint actions;
- increased potential for job and added-value creation in coastal areas thanks to the identification of new business opportunities stemming from closer cooperation between land- and sea-based economic operators; and
- reduced negative externalities from land-based activities in the regional hinterland on sea-based activities thanks to better economic cooperation and integrated governance.

The project may lead to the creation of longer-term relationships between coastal areas serving as European flagships for rural-coastal synergies and ensuring longer and wider dissemination.

Type of action	Research and Innovation action	
Deadline	1st stage - 14 February 2017	2nd stage - 13 September 2017
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5112-rur-02-2017.html	



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RUR-03-2017

Towards 2030 - policies and decision tools for an integrated management of natural resources

Specific challenge

Policies influencing the management and use of natural resources at national and EU levels have evolved considerably in the past decades as underpinning objectives have widened to meet societal needs (food security, environment, energy, climate change, etc.). However, this process has been fragmented and incomplete. In addition the technology and information available to decision-makers have advanced significantly in this time. To ensure sustainable management of natural resources in the long term there is a **need for an integrated framework that addresses all society's objectives appropriately by incentivising actions / behaviours / investments contributing to desirable targets**. Appropriate decision-support tools are needed to help implement such an integrated and systemic approach.

Scope

Activities will take place on various geographic scales reflecting levels of policy / use relevance, from regional to EU levels. Investigations relating to both policy and decision tools will be fully participatory so as to ensure the involvement of the society at large. **Policy development will take account of all current and expected major societal needs as regards natural resources and their use in terms of products and other types of goods, services and functions**. Decision-support tools and models will help prioritise multiple resource uses (e.g. land, water) at various geographic scales (meso level and related regional strategies + national/EU level for general policies), taking advantage of existing databases and tools and what is possible on the basis of modern capabilities. Activities will cover agricultural and forestry land. While focusing on Europe, proposals are encouraged to draw on good examples from elsewhere.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 8 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

The project results are expected to:

- improve knowledge of land and water resource availability and use at various geographic scales;
- improve decision support tools for the management of land and water resources; and
- **provide a coherent and integrated policy framework** for the management of natural resources at regional / national / EU levels.

Type of action	Research and Innovation action	
Deadline	1 st stage - 14 February 2017	2 nd stage - 13 September 2017
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5111-rur-03-2017.html	



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RUR-04-2016

Water farms – improving farming and its impact on the supply of drinking water

Specific challenge

Agriculture is the biggest source of pesticides and nitrate pollution in European fresh waters. The quality of drinking water, which matters a lot to EU citizens, and the level and cost of treatment prior to consumption depend greatly on the quality of the ground-water and surface-water used to produce it. This is partly why the Water Framework Directive (WFD), linked to the Drinking Water Directive, puts such emphasis on the protection of ground-water and surface-water resources. The diffuse pollution of water sources from the pesticides and fertilisers used in farming systems has been addressed with varying degrees of success by current policy tools but clearly remains an obstacle to achieving the WFD objectives. Monitoring such pollution is also challenging because of the high number of registered pesticides, the cost of analyses and the need for samples to be taken during periods of application and use, and in various weather conditions. Additionally, the time dynamics of water resource systems entail a delay between action at the soil surface and reaction in the ground-water. Appropriate monitoring and decision-support tools are needed to help develop and implement governance models to preserve the quality of drinking water resources.

Scope

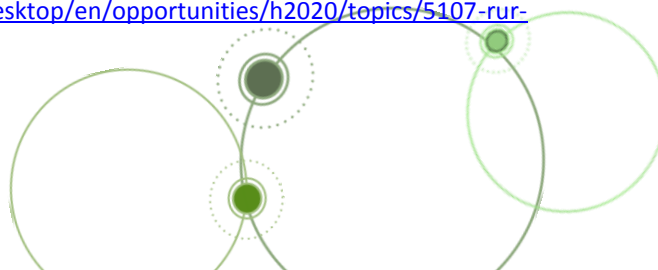
Proposals will entail a variety of case studies identifying good practices in the field of drinking-water management involving improved farming systems and land-use management; these will cover a variety of pedo-climatic conditions, vulnerable zones with different types of farming systems, contrasting legal frameworks, larger and smaller water collection areas, including rural and urban areas and only rural areas with a focus on small water supplies, which face the biggest problems in the EU and globally. The effectiveness of various measures in mitigating diffuse agricultural pollution will be analysed. **Work will include cost-efficiency analysis of mitigation measures and cost-benefit analysis for the society** and the actors concerned of identified preventive and curative options for the delivery of high-quality drinking water. Transition pathways from "paying for depolluting" to "rewarding farming systems delivering water quality" options shall be investigated, taking into account various temporal and spatial scaling issues. **Governance models**, including private spring-water companies and public water-supply bodies, **will be investigated. The project will deliver improved public policy instruments and decision support for the various alternatives**, including monitoring and control tools, taking into account the necessary cooperation and regional partnerships. Proposals will develop harmonised, transparent and understandable indicators to ensure reliable and comparable data in order to involve farmers and citizens. Proposals should fall under the concept of the 'multi-actor approach'.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

- good cooperation between stakeholders on pesticides, fertilisers and irrigation management practices capable of reducing point source and diffuse pollution in different contexts;
- harmonised datasets on pesticide and fertiliser contamination of the drinking-water resources;
- greater involvement of farmers and other citizens in the monitoring of water quality;
- water governance models that are more conducive to the adoption and long-term durability of efficient on-farm and land-use strategies; and
- integrated scientific support for relevant EU policies (e.g. Common Agricultural Policy, Water Framework Directive, sustainable use of pesticides).

Type of action	Research and Innovation action	
Deadline	1st stage - 17 February 2016	2nd stage - 13 September 2016
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5107-rur-04-2016.html	



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RUR-05-2017

Novel public policies, business models and mechanisms for the sustainable supply of and payment for forest ecosystem services

Specific challenge

Regional differences with respect to the forest management systems implemented and long production cycles characterise the forestry sector in the EU. Forests generally provide for a range of goods and services, some valued by existing markets (i.e. wood and non-wood products), others not. Of the latter, some are "public goods" (i.e. they are non-excludable (everyone benefits from them) and are not subject to consumption rivalry), such as carbon sequestration and landscape, while others are "common-pool resources" (i.e. they are non-excludable goods but subject to competition in use), such as recreation or water supply. The regulatory framework is divided into forest policies and forest-related policies (e.g. rural development, climate, biodiversity, and energy) which are not necessarily mutually reinforcing. The responsibility for forest policies ranges from EU level (monitoring, protection, land use, land use change and forestry (LULUCF) reporting, etc.) to Member State or federal state level (inventory, planning, management, etc.). If the policy or market fails – a recognised threat – the undesired outcome is suboptimal provision of ecosystem services. **The sustainable provision of ecosystem services therefore requires policy coordination, and the use of novel policies, business models and mechanisms**, while taking into account the production of wood and non-wood forest products. Several EU Member States, with the help of the European Commission, are currently mapping and assessing the state of forest (and other) ecosystems and their services in their respective national territories as part of the 'Mapping and Assessment of Ecosystems and their Services (MAES) exercise. There is now significant scope to capitalise on these efforts and for greater implementation of the knowledge they have generated in practice.

Scope

Proposals should aim to develop novel public policies, business models and mechanisms to "internalise" the proven socio-economic value of forest ecosystem services ("externalities") and contribute to their sustainable supply, with proper consideration given to the multifunctional role of EU forests. **Proposals should consider the holistic basket of economic, socio-cultural, recreational and environmental services**, from both the supply and demand side, and the trade-offs between them. They should aim to close the gap between academic work, associated policy recommendations, and practice on the ground, and help achieve public acceptability. The role of active forest management, which incurs reduced income and/or higher investment, needs to be emphasised. Specifically, there is a need to develop mechanisms for the payment of ecosystem services at the appropriate level of forest management and administration. The pilot testing of the proposed mechanisms, which may combine public policy tools with business models, is encouraged. **Proposals should include contributions from the social sciences and humanities**, fall under the concept of the "multi-actor approach" and seek public engagement with regard to the groups of stakeholders included in the consortia and the proposed business models/mechanisms.

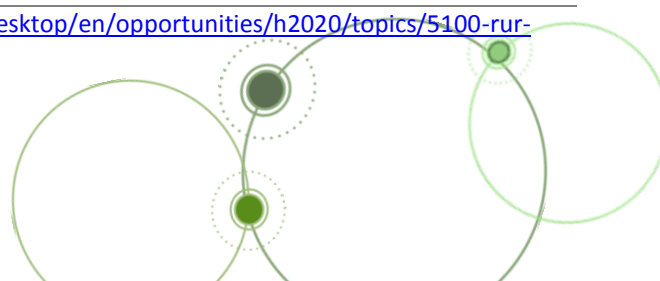
The Commission considers that proposals requesting a contribution from the EU of up to EUR 4 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission or selection of proposals requesting other amounts.

Expected impact

Proposals should show how some, or all, of the following impacts will be achieved:

- **Enhanced coordination in policy making together with the development of novel policies and business processes**, translated into increased incentives for forest owners/administrators to sustainably supply essential ecosystem services, such as carbon sequestration, biodiversity conservation, water regulation, soil and nutrient regulation, landscape and recreation, while maintaining production of wood and non-wood forest products.

Type of action	Innovation action
Deadline	14 February 2017
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5100-rur-05-2017.html



RUR-06-2016

Crop diversification systems for the delivery of food, feed, industrial products and ecosystems services - from farm benefits to value-chain organisation

Specific challenge

The temporal and spatial diversification of crops through rotation and associations allowing low-input agronomic practices are drivers for resource-efficient farming systems that can fulfil the need simultaneously to produce food, feed, industrial products (e.g. bioenergy, biomaterials, biochemicals) and other ecosystems services. These diversified and low-input farming systems will emerge if clear benefits to farmers and society are demonstrated and if the downstream value chains are properly organised.

Scope

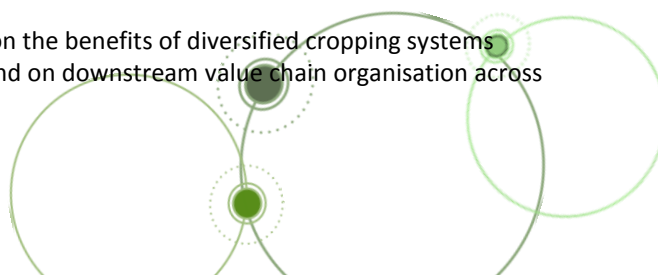
Proposals should involve field experiments of diversified cropping systems with different species, low-input agronomic practices in conventional and/or organic sectors, and locations in Europe over several years, in order to optimise the use of resources and increase overall farm yield and/or the land-equivalent ratio thanks to the synergistic effect of crop associations in time and space. Proposals should investigate crop diversification by growing different crop species on the same land in successive growing seasons (i.e. rotation) and within a growing season (i.e. multiple cropping), and growing different species in proximity in the same field (i.e. mixed, row and strip intercropping). Proposals should address all these options (rotations, multiple cropping and intercropping) using either only annual crops (scope A) or annual and perennial crops (scope B). Proposal should consider activities on improved machinery for low-input agronomic practices and harvesting. Breeding activities are excluded. **Technical, economic, social and environmental evaluations of the tested diversified systems should be carried out at farm level.** The proposals should also investigate, on the basis of existing case studies, how downstream value chains and the various actors and stakeholders involved (e.g. farmers, cooperatives, logistics providers, industry, consumers) can be impacted by the diversification of cropping systems. **Proposals should carry out technical, economic, social and environmental evaluations of the diversified systems at overall value chain level,** on the basis of case studies, quantifying the potential for food, feed and industrial products from harvested crops and residues/co-products. **Proposals should address technical, social, cultural and economic barriers** (e.g. logistics, volume of markets, transparency along the chain, payment for ecosystem services) and drivers. Proposals should analyse path dependencies and lock-ins affecting the various actors and produce roadmaps/recommendations for successful value chain organisation, with a focus on resource-efficiency along the chain. Proposals should fall under the concept of the 'multi-actor approach' engaging relevant actors such as farmers, cooperatives, logistics providers, industry and should include public engagement targeting consumers and civil society. SME participation is encouraged. Selected projects should liaise closely together and with complementary activities funded in response to topic SFS-02-2016 on 'mixtures and associations in cropping systems' and SFS-31-2016 on 'farming for tomorrow'.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 10 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts. At least, one project in scope A and one project in scope B will be funded (above the evaluation threshold).

Expected impact

The expected impact of the project will be assessed on the basis of:

- higher arable land productivity, and land-equivalent ratio for intercropping systems;
- **diversification and increase of farmers' revenues through access to new markets and reduced economic risk;**
- lower environmental impact of diversified cropping systems with reduced use of pesticides, chemical fertilisers, energy and water;
- improved delivery of ecosystem services, including biodiversity, soil fertility, pest and disease control, groundwater and surface water quality and carbon sequestration;
- organisation of resource-efficient downstream value chains with the involvement of relevant actors and decreased use of energy along the chains;
- market provision of food, feed and industrial products from harvested crops and residues/co-products produced from diversified cropping systems; and
- increased awareness and knowledge/data exchanges among actors on the benefits of diversified cropping systems (covering different pedo-climatic conditions, using different crops) and on downstream value chain organisation across



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Europe.

In the long term, this action will help to increase crop diversification and biodiversity in Europe, which is an objective of the common agricultural policy. It will also contribute to the sustainable development of the bioeconomy.

Type of action	Research and Innovation action
Deadline	1st stage - 17 February 2016 2nd stage - 13 September 2016
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5106-rur-06-2016.html



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RUR-07-2016

Resource-efficient and profitable industrial crops on marginal land

Specific challenge

Industrial crops can contribute to the diversification of farmers' income and to the supply of renewable raw materials for industrial applications fostering the bio-based economy and climate-change mitigation. To avoid land-use competition with food, it is important to promote the development of resource-efficient varieties that can grow on marginal land (i.e. areas facing natural constraints such as low soil productivity or extreme climatic conditions) while generating technical and economic benefits and limiting environmental impact.

Scope

Proposals should provide an up-to-date database of existing resource-efficient industrial crops (species and varieties) with their characteristics, needs, performance and end-use applications (e.g. fine or bulk chemicals, materials, energy). Proposals should test, validate and disseminate this tool with the involvement of end-users (e.g. farmers, industry). **Proposals should map marginal land in Europe that is most suitable for industrial crops, taking account of socio-economic (e.g. accessibility) and environmental considerations (e.g. conservation of biodiversity and continuity in the provision of ecosystem services)**, such as EU and national mapping and assessment of ecosystems and their services. Proposals should analyse best-practice cases of industrial crop cultivation and **address technical, social, cultural, environmental and economic barriers to and drivers of the use of marginal land for industrial cropping**. Proposals should produce policy recommendations and best-practices guides to promote the appropriate sourcing of renewable materials from marginal land at local/regional level.

Proposals should identify the most promising industrial crop species suited to cultivation on large areas of appropriate marginal land in Europe, and plan breeding programmes and field tests to advance genetics and low-input agronomic practices, thus **improving the technical, economic and environmental performance of these crops**.

Proposals should fall under the concept of the 'multi-actor approach' engaging relevant actors such as researchers, farmers, cooperatives, industrial players from various sectors (e.g. bioenergy, biochemical and biomaterial sectors) and civil society organisations. SME participation is encouraged. Dissemination and networking activities should focus on the promotion and use of the tools and guides that are developed (i.e. industrial crop database, mapping of most suitable marginal land, policy recommendations and guides at local/regional level).

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts.

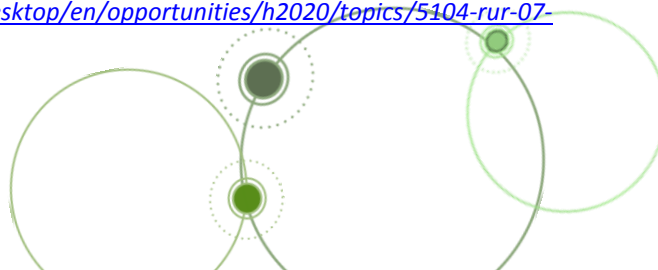
Expected impact

This action contributes to an increased sourcing of renewable materials from marginal land with the production of low-indirect land use change (i.e. avoiding displacement of agricultural production for food and feed or of forest production), low-input and economically profitable industrial crops for farmers. Applicants will measure the expected impact of the project on the basis of:

- increased awareness and knowledge/practice exchanges among actors across Europe on growing industrial crops on marginal land with different pedo-climatic conditions, using suitable crops and appropriate agronomic practices;
- improved agronomic practices with limited input use (e.g. pesticides, chemical fertilisers, energy and water) and improved genetics of industrial crops potentially best suited to marginal land in Europe; and
- **the diversification and increase of farmers' revenues through access to new markets.**

In the long term, the results will foster the development of the bio-based economy and contribute to achieving energy and climate targets.

Type of action	Research and Innovation action
Deadline	1 st stage - 17 February 2016 2 nd stage - 13 September 2016
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5404-rur-07-2016.html



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RUR-08-2016

Demonstration of integrated logistics centres for food and non-food applications

Specific challenge

Most agro-industries are surrounded by biomass such as agricultural/forestry residues and industrial crops, and produce by-products which could be used as raw materials for industrial and farming applications (e.g. biochemicals, biomaterials, bioenergy, organic fertilisers). These agro-industries work seasonally and could diversify their regular activity in non-productive periods by organising the logistics and pre-treatment of available local biomass, thus developing synergistic logistics centres for food and non-food uses. These centres will contribute to the efficient organisation of new biomass supply chains, while supporting rural development by creating logistical activities and jobs at local level.

Scope

Proposals should **demonstrate the technical and economic feasibility of integrated biomass logistics centres for food and non-food products** under real operational conditions (TRL:6-8), taking advantage of the seasonal nature of the activities of agro-industries. At least two demonstrations of logistics centres should be performed in different Member States/Associated Countries. Decisions as to demonstration locations should be based on **business models** identified via a thorough analysis of biomass availability around existing agro-industries and **market potential** for intermediate products or bio-commodities to be delivered by logistics centres, while identifying potential industrial actors down the value chain, especially at local/regional level.

The logistics centres should develop cost-effective and environment-friendly logistics (e.g. avoiding biomass losses and greenhouse gas emissions) for the collection/harvesting, transport, storage and possible pre-treatment (e.g. biomass densification) of surrounding available biomass such as agricultural/forestry residues and industrial crops, while using agro-industries' existing facilities/equipment to reduce overall logistics costs. Proposals should also investigate the possibility of treating agro-industry by-products (e.g. from crops or livestock) to produce bio-commodities or intermediate products for industrial and farming applications. **The environmental impact** (e.g. effect on soil compaction, soil fertility and organic content, effect on biodiversity, impact on road transport traffic), **economic impact** (e.g. economic viability and added value for farmers, forest holders and agro-industry) **and social impact of the integrated logistics will be assessed**. Recommendations and best-practice guidelines for successful integrated logistics centres will be produced. Selected projects should cooperate throughout the project life and join forces for dissemination activities.

Proposals should fall under the concept of the 'multi-actor approach' engaging relevant actors such as farmers/forest holders, cooperatives, logistics providers, industries and researchers. SME participation is encouraged.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude the submission and selection of proposals requesting other amounts

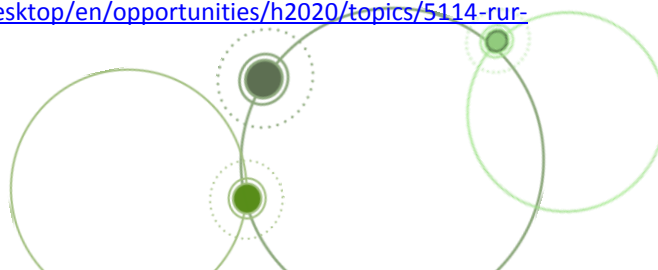
Expected impact

This action contributes to the creation of new sustainable value chains for non-food applications based on available biomass at local level, fostering the bioeconomy. Applicants will measure the expected impact of the project on the basis of:

- **improved technical, economic and environmental logistics** for the demonstrated centres;
- **improved knowledge of business models for logistics centres, including a thorough understanding of their potential for development, performance and interest in economic, environmental and social terms**, and success factors or reasons for failures; and
- the diversification and increase of farmers'/forest holders', agro-industries' revenues in rural areas.

In the longer term, the results will increase the attractiveness of rural areas around logistics centres for new industrial players which can benefit from industrial symbiosis.

Type of action	Innovation action
Deadline	17 February 2016
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5114-rur-08-2016.html



RUR-09-2017

Business models for modern rural economies

Dedicated Topic

Specific challenge

The modernisation of rural economies depends on the capacity of rural businesses to cooperate successfully to form efficient value chains which will deliver competitive products and services, high-quality and diverse jobs, and resilience to global economic and climate changes. The greater interest being shown in regional and local economies, resource-efficient and low carbon value chains or short supply chains provides opportunities to rethink and improve value chain organisation so as to turn specific assets into economic, environmental and social benefits, including through enhanced valorisation and optimisation of ecosystem services. There is a need to identify business models that have the most potential to empower rural communities to take advantage of these opportunities.

Scope

Building on the outcomes of past European projects on rural economic development and rural jobs, proposals will identify innovative business models that are developing in rural areas, have significant potential to create added value, social cohesion and jobs, and are likely to be upscaled to or replicated in other areas, taking into account the diversity of conditions in different areas. Proposals should undertake socio-economic analyses to identify, describe and benchmark different business models in terms of starting conditions, obstacles faced, enabling factors, financing mechanisms, generation of added value, jobs and other potential environmental and social benefits, gender issues, attractiveness to young workers, and the distribution of the value generated, exploring the concept of shared value. Particular attention should be paid to models that foster a more sustainable mobilisation of resources, improved cooperation between operators along the value chain and/or across traditional and developing sectors (e.g. via clusters/platforms), and lead to new products or services, and the recycling or up-cycling of materials. Proposals should consider food, bio-based value chains and other forms of rural business or service, in particular those based on digital technologies or valorisation and optimisation of ecosystem services. Proposals should produce practical and business-oriented tools, e.g. a collection of business cases, targeting new entrepreneurs who would like to set up businesses in rural areas and seek guidance and benchmarks on similar businesses to draw up their business plans. Proposals should fall under the concept of 'the multi-actor approach', engaging relevant actors such as businesses/entrepreneurs, business or economic development organisations and innovation support services, involved in development of these new business models. Communication and dissemination activities should be carefully planned and targeted to reach audiences likely to take up, replicate and adapt the business models identified.

Selected projects should cooperate closely to maximise impact across Europe (e.g. production of common tools for entrepreneurs and stakeholders, joint analysis and recommendations, joint dissemination plans).

The Commission considers that proposals requesting a contribution from the EU of up to EUR 4.5 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

This action contributes to the modernisation and sustainable growth of rural economies. Applicants will measure the expected short-term impact of the project on the basis of:

- improved tools for entrepreneurship in rural areas, in particular with a database of business cases and supportive environment (e.g. clusters/platforms, technical/scientific services and infrastructure, advisory services, funding opportunities); and
- improved knowledge of business models emerging in rural areas, including a thorough understanding of their potential for development, performance and interest in economic, environmental and social terms and success factors or reasons for failures.

In the longer term, the results will:

- increase the potential for rural economic diversification, added value and job creation in a variety of rural areas thanks to the dissemination of promising business cases;
- make rural economies and societies more resilient to global changes; and
- improve the delivery of ecosystem services resulting from innovative forms of valorisation.



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Type of action	Research and Innovation action	
Deadline	1st stage - 14 February 2017	2nd stage - 13 September 2017
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5108-rur-09-2017.html	



RUR-13-2017

Building a future science and education system fit to deliver to practice

Specific challenge

Transition towards more sustainable agriculture, forestry, food and bio-based value chains, equipped to face the challenges ahead, requires a renewal and strengthening of the technical and soft skills of all concerned. Along with ensuring delivery of peer-reviewed output from practice-oriented research, this will contribute to an efficient and interactive agricultural knowledge and innovation system (AKIS).

In 2010, 71% of European farm managers were operating on the basis of practical experience only. Education levels vary greatly depending on country, farm manager's age and gender, or farm structures, and this can hamper innovation. As the proportion of farmers with secondary and tertiary education rises, **education will play an increasing role in farmers' capacity to co-create and implement new techniques and practices, anticipate and adapt to legislative, policy, market and environmental changes, design innovative ways of marketing their products and take part in interactive innovation systems and networks.** New production processes and new types of supply chain in the wood, food and bio-based industry sectors also create a business demand for new skills. On the science side, there may be a shortage of researchers and capacities in fields of science of crucial importance for sustainable agriculture which are under-developed or unattractive in Europe.

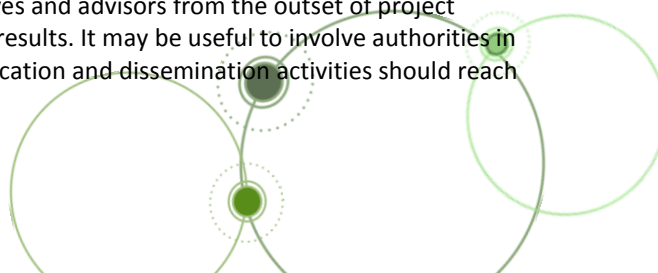
While basic research remains necessary, a crucial challenge is also to remove bottlenecks to the delivery of practice-oriented research to end-users. Current research evaluation systems are based mainly on scientific publications and give little incentive, appreciation or reward to scientists willing to invest in practice-oriented research. Some front-runners are engaging in new ways of rating such research activities that deserve to be assessed, applied to agriculture and may be upscaled to a wider range of research providers and funding bodies.

Scope

Proposals will involve the production of a challenge- and foresight-based inventory of skills that will be needed in agriculture, forestry and related value chains, covering primary producers, advisors, industry, businesses and scientists. **Proposals will review how current science, education and training systems in a wide and varied range of EU Member States (and possibly third countries) cater for these needs, seeking to draft roadmaps for the improvement of curricula, learning methods and long-term interaction between education, science and economic players.** Particular attention should be paid to soft (e.g. entrepreneurial, intermediation and communication) skills in particular for farmers, advisors and researchers, and technical skills related to new practices or processes and sustainability requirements in scientific fields of importance for the future. Needs should be differentiated in the light of the variety of farming systems, current trends in structural change, emerging business models in farming and subsequent value chains and geographical conditions. **Proposals should analyse how education and training systems could improve,** in particular by attracting more farmers and other players to engage in sufficient education and lifelong learning and by ensuring that these systems are fit for purpose and permanently updated. Piloting of new curricula and training methods in some of the participating institutions could be considered. The effectiveness of existing EU policy instruments on education and training in this area should also be assessed and improvements proposed. Proposals will take into account relevant EU initiatives to ensure potential synergies (e.g. Erasmus+, Marie Skłodowska-Curie actions, Knowledge and Innovation Community Food for Future, etc.).

Furthermore, proposals should develop an operational system for encouraging and measuring performance and reviewing outputs of interactive innovation and practice-oriented research, with a view to improving their effective delivery and the uptake of best practices from the field. They should build on front-running initiatives and assess different options currently being tested in the EU or elsewhere (e.g. the EIP-AGRI common format). Activities should deliver practical methodologies and criteria for i) measuring performance of research providers and projects with regard to their outputs for practice; and ii) translating academic knowledge into practical knowledge easily understandable by end-users. To this end, proposals should develop a peer-review system for research outputs ready-made for delivery to farmers and foresters, exploring all components required to operate such a system.

Proposals should build on the analysis to make further policy recommendations on how to develop education, training and science in the future. **Proposals should fall under the concept of the 'multi-actor approach'** and be highly participatory, **involving specialised education bodies,** farming/forestry sector representatives and advisors from the outset of project development to maximise bottom-up elaboration and final uptake of project results. It may be useful to involve authorities in charge of curriculum development and measuring research impact. Communication and dissemination activities should reach



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out far beyond the consortium to improve the uptake of research results.

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

Expected impact

This action should improve the performance of science and education systems and their benefits for agricultural and forestry sectors and related industries. The following impacts are expected:

- **a shared inventory of the skills needed for a transition to more competitive and sustainable agriculture and related value chains, serving as a basis for continuous and longer-term cooperation between education bodies across Europe, leading to intensified exchanges and regular updates of the inventory;**
- improved technical and soft skills for farmers, foresters, advisors, industry employees and scientists, translating into better farm management, increased competitiveness, sustainability and resilience to environmental, climate and market changes;
- greater awareness of gaps in research capacities and specific fields of science of crucial importance for sustainable agriculture;
- increased efficiency of agricultural knowledge and innovation systems in the EU thanks to i) improved linkages between education, science and economic players, ii) enhanced capacity of players to interact with one another, and iii) contribution to an institutional shift towards better recognition and rewarding of practice-oriented research;
- improved quality and usefulness of research outputs for the immediate use by farmers, foresters or value-chain businesses, thanks to a peer-review system leading to an improved implementation of research results by end-users and an innovative agricultural sector; and
- recommendations for improved policies for education, agriculture, research and innovation at European, national and regional levels.

Type of action	Research and Innovation action
Deadline	1st stage - 14 February 2017 2nd stage - 13 September 2017
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5110-rur-13-2017.html



RUR-14-2016

Advisors' roles in the functioning of AKIS and advisory policies boosting innovation in sustainable agriculture

Specific challenge

There is a need to analyse the role of advisors in the Agricultural Knowledge and Innovation System (AKIS) and explore farmers' decision making processes.

Advisors' short- and long-term influence on farm decisions, their impartiality and the way practical knowledge is kept public and conserved in the longer term are determined by how various types of advisor are embedded in their national or regional AKIS, by how public and private advisory services interact, and by the type or combination of financing sources they use. This complex relationship is governed by public policies at national, regional and EU level and increasingly impacts on whether society can sufficiently move to more sustainable agricultural systems.

While the term 'advice' normally refers to an 'opinion or recommendation offered as a guide to action' in a context of linear knowledge transfer from science to agricultural practice, the term 'advisor' appears to cover various and different roles. The role that authorities and private industry attribute to advisory services, and their expectations in terms of how this will help them fulfil their own objectives needs to be researched if we are to understand how AKIS really functions. New approaches need to be developed to enhance advisors' potential to boost innovation through their function as intermediaries connecting science and practice. The focus should be on the farmers' needs and behaviour, improving connections with research and finding ways of providing accurate and timely advice, including the use of new ICT advisory tools. The quality, efficiency and effectiveness of an advisory service rely on a relationship of trust over time between advisor and farmer and on the advisors' qualifications, experience and networking capacity. Therefore, the sustainable financing of specific basic functions of existing public/private advisors may be a key to success. The growing number and impact of private advisors and the shrinkage of public extension services makes cooperation between different types of advisors more challenging. New forms of interaction among advisors and between advisors and scientists need to be explored, in order to ultimately improve knowledge flows in Member States' AKIS and in the EU, and to conserve and develop public knowledge for agriculture.

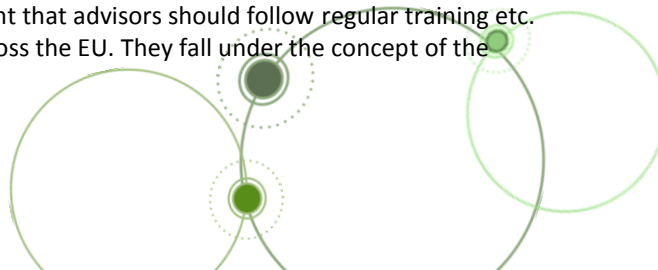
Scope

Considering the different types of farming systems and farmers, **proposals should examine how farmers make their decisions and who influences them most.** Within this context, activities should analyse the role of the various types of advisor in the AKISs. **Taking into account the impact of face-to-face interaction, projects should identify the key factors in the creation of trust between farmer and advisor so as to enable effective knowledge transfer and exchange.** They shall, as a minimum, **explore the relationship between advisors and researchers and between advisors and farmers, identifying the main elements facilitating the flow of information in both directions.** Apart from linear knowledge transfer processes, particular attention should be paid to advisors' potential to boost innovation, inter alia by funnelling practice needs into research activities, participating and intermediating in farmer-to-farmer learning processes and interactive innovation projects, and by acting as innovation brokers or as an innovation support service encouraging innovation projects and capturing grass-roots innovative ideas from practice for further development.

Moreover, **projects should examine which governance models are most appropriate for empowering such multi-functional advisory services:** how can the various advisory roles be embedded in regional, national and EU AKIS policies, how can public and private advisors be interconnected (both at MS and at EU level), are they in competition or well-coordinated, how is the lifelong training of advisors organised (who, when, why etc), what are the minimum education requirements for an advisor, how to support farmer-to-farmer learning or organise knowledge building using ICT tools or the internet, etc.

Proposals shall also explore the role of advisors in innovation networks at local, regional, national and European level (e.g. within the EU Farm Advisory System, the European Innovation Partnership 'Agricultural Productivity and Sustainability' (EIP-AGRI) network, National Rural Networks, the European Network for Rural Development, Leader, etc.) and the role of farmers' associations (trade unions, cooperatives, irrigation associations, etc.) or private advisors linked to agricultural input suppliers.

Activities should analyse the impact of funding for multi-functional advisory services under national policies and the Common Agricultural Policy (CAP) in general, including the impact of public procurement for the selection of advisory services, possible difficulties for smaller advisory services wishing to participate, the requirement that advisors should follow regular training etc. Projects shall identify best practices from a broad series of practical cases across the EU. They fall under the concept of the



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'multi-actor approach'. **Consortia must include a range of key actors** with practical experience in the subject **such as** private and public advisors and advisory services, and also other relevant players such as farmers, farmers' organisations, **social scientists**, researchers, authorities, businesses or cooperatives providing advice etc. The project should provide input to and liaise with the SCAR- AKIS Strategic Working Group.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

This action should contribute to understanding the future role of advisors in AKIS and their potential to boost innovation, and improve related public policies. The following impacts can be expected:

- **improved understanding of farmers' decision making processes** across the EU and the impact of advice/advisory services on the sustainability of agricultural practices;
- enhanced impact of advisory systems on the strengthening of knowledge flows between science and practice, including suggestions for efficient support and training systems for advisors
- from the cases discussed, a set of good examples and best practices for well-connected and effective advisory systems, focusing on ways of preserving practical knowledge in the long-term and including identification of success elements and possible novel roles for advisors with a view to boosting innovation and improving networking;
- transition pathways and recommendations for improving the performance and effectiveness of advisory services, including interconnection and networking of advisory services and innovation support services at national/regional and EU level, supporting the implementation of the EIP AGRI;
- **suggestions for governance models and public policy mechanisms, contractual arrangements and appropriate funding instruments providing effective support for improved interactivity of advisors**, enhancing innovation-driven research and advisory services to support the transition to more sustainable and climate-smart agriculture; and
- suggestions on how to deepen the networking capacity and impact of the CAP's horizontal Farm Advisory System, including a thorough understanding of the impact of and mechanisms under 2014-2020 rural development support for advisory services.

Type of action	Research and Innovation action	
Deadline	1st stage - 17 February 2016	2nd stage - 13 September 2016
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5103-rur-14-2016.html	



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Fostering innovation and business opportunities

RUR-15-2017

The benefits of working with others – fostering social capital in the farming sector

Specific challenge

The environmental and economic sustainability of the farming sector depends to a great extent on farmers' and land managers' capacity to develop activities and participate in networks with fellow farmers, groups and other entities or individuals. Despite the benefits of such approaches, farmers' involvement in them is low in a number of European countries, for various reasons. To address this, we need to investigate and find ways of overcoming the constraints and disincentives that impede the development of such approaches in different areas of collective action (productivity, information sharing, sustainability).

Scope

Proposals will primarily cover EU Member States where the level of organisation of farmers and land managers is considered low. Activities **will address constraints on the development of cooperatives/networking activities in particular areas (economic activity, environmental sustainability etc.)** and draw up solutions based on case studies, identified best practices, participatory workshops, etc. Proposals should fall under the concept of the 'multi-actor approach'.

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

Expected impact

The project results are expected to:

- **improve understanding of farmers' attitudes to cooperation and networking;**
- **provide recommendations for policy-makers to foster social capital in the farming sector;** and
- lead to higher levels of farmer organisation in the medium to long term.

Type of action	Coordination and support action
Deadline	14 February 2017
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5102-rur-15-2017.html



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Fostering innovation and business opportunities

RUR-16-2017

Optimising interactive innovation project approaches and the delivery of EU policies to speed up innovation in rural areas

Specific challenge

A number of recent initiatives and instruments for speeding up innovation deserve in-depth exploration. Horizon 2020 and the European Commission's Communication on the *CAP towards 2020* have focused attention on innovation in agriculture and related sectors. The European Innovation Partnership (EIP) "Agricultural Productivity and Sustainability", a new approach under the Europe 2020 strategy, aims to speed up EU research and innovation by linking existing policies, instruments and actors. The agricultural EIP in particular implements the interactive innovation approach which relies on knowledge exchange and the empowerment of all actors concerned, and focuses on getting results implemented in practice. An EU wide EIP network is connecting the EIP Operational Groups funded under rural development programmes and provides interaction with Horizon 2020 projects. Apart from Horizon 2020 multi-actor research projects and thematic networks compiling practice-ready knowledge, other EU and national policies may also contribute to innovation, e.g. the Farm Advisory System, Rural Development funding supporting farm advisory services, knowledge and information actions, LEADER, specific national/regional or particular H2020 instruments etc. All of these contribute to innovation in agriculture and forestry. The challenge is to improve their targeting and interlinking - if and where needed - , and possibly learn from relevant insights from outside Europe.

Scope

Proposals should explore how instruments and approaches under the various policies could be further adjusted and how they contribute to innovation in the agricultural and forestry sector. Learning also from experience at international level, proposals should investigate the design and implementation of interactive innovation projects, on the basis of a substantial number of case studies of interactive projects in a broad range of agriculture and forestry sectors.

An essential part of this topic would **develop detailed best practices/approaches for H2020 multi-actor projects and thematic networks at project level**. On the basis of a series of cases of existing multi-actor projects and thematic networks, proposals should develop best practices for consortia to combine as much as possible both scientific and practical knowledge in their projects and exploit them to the full. Special attention needs to be given to the role of facilitators that mediate between different types of actor and to the particular management/coordination needs of this type of project, with a view to intensifying knowledge exchange between actors. Examples of unsuccessful approaches where project implementation is not delivering as expected are also relevant: **'facts', 'feelings' and group dynamics should be taken into account. Activities should investigate how co-creation and co-ownership of project results can be improved and quantified/qualified in order to speed up the use of project results in practice.** Activities will examine how practically/legally to construct consortia with different types of actor, taking into account the different status of the various types of organisations involved (partner, subcontractor, etc). Projects should also explore pathways for involvement of secondary and higher education as actors in interactive innovation projects, including H2020 multi-actor projects, thematic networks and EIP Operational Groups. Furthermore, activities should examine how multi-actor projects and thematic networks can seek synergies and intensify effective linkages with Operational Groups and other interactive innovation projects under national/regional/European policies.

Proposals should fall under the concept of the 'multi-actor approach' involving key actors in the AKIS (farmers, advisors, researchers, research bodies, **social scientists**, managing authorities, network agents, enterprises, etc.) and using the work of the SCAR-AKIS Strategic Working Group, as appropriate. They may include insights from outside Europe.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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.



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Expected impact

- a description of supporting mechanisms and governance for a more efficient management of interactive innovation projects, including pathways for improved interaction with existing sectoral, rural and innovation actors and networks at local, regional, national and EU level and to the Farm Advisory System under the Common Agricultural Policy;
- development of best practices for building and implementing multi-actor project proposals and consortia under H2020, including thematic networks compiling knowledge for practice;
- delivery of a set of good examples of various types of multi-actor research projects and thematic networks which compile practice-ready knowledge and connect successfully with Operational Groups;
- better quantitative and qualitative measurement of scientific efforts impacting agricultural practices and systems, including the impact of the facilitating actors and the involvement of education; and
- suggestions for public policy governance mechanisms, contractual arrangements and appropriate funding instruments providing for effective interactive projects, enhancing innovation-driven research and advisory services leading to more competitive, sustainable and climate-smart agriculture.

Type of action	Research and Innovation action	
Deadline	1 st stage - 14 February 2017	2 nd stage - 13 September 2017
Call identifier	H2020-RUR-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5109-rur-16-2017.html	



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Topics with minor SSH relevance

RUR-10-2016-2017

Thematic Networks compiling knowledge ready for practice

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5115-rur-10-2016-2017.html>

RUR-11-2016

On-farm demonstrations: deepening farmer-to-farmer learning mechanisms

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5113-rur-11-2016.html>

RUR-12-2017

Networking European farms to boost thematic knowledge exchanges and close the innovation gap

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5101-rur-12-2017.html>



Call - Bio-based innovation for sustainable goods and services

Supporting the development of a European Bioeconomy

BB-01-2016: Sustainability schemes for the bio-based economy

Specific challenge

Sustainability assessments are major factors not only for consumer acceptance but also for developing an efficient and meaningful policy framework for bio-based products. While there is already a framework in place for the sustainability assessment of biomass and biofuels, there are only incipient initiatives for bio-based products. Objective and quality life cycle assessments based on robust and agreed methods are important to clarify the environmental impact/benefits of bio-based products and to benchmark their environmental performance with alternative non-bio-based products on the market.

Scope

The proposals will develop sustainability schemes for bio-based products building on (1) existing schemes for biomass and bioenergy, including biofuels, (2) the work of (CEN-TC411) on standards for 'Bio-based Products – Sustainability Criteria' and 'Bio-based Products – Life Cycle Assessment' which should incorporate end of life, (3) previous work on bio-based products LCA methods for bio-based products. **Aspects that could be considered include: building-in economic and social factors;** thresholds for different sustainability criteria/indicators; certification schemes and use of standards; life cycle assessment of bio-based products; (eco)labelling; aspects of the circular economy, resource efficiency and the principle of cascade use considering existing criteria for bioenergy product sustainability; the development of ILUC factors for bio-based products taking into account existing approaches to ILUC for bioenergy. The applicability and efficiency of the proposed sustainability schemes and criteria/indicators in the current regulatory framework; the balance between costs and complexity of the sustainability assessment; and the market pull the specific proposed measures will represent, should be presented as credible cases in the proposal. In this context applicants may decide to focus making the case for specific segment/groups of bio-based products, which should be of course justified.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

To contribute to the implementation of the objectives of relevant European policy initiatives, including the Lead Market Initiative in Bio-based Products, the Industrial Policy with its instruments such as the European Innovation Partnership on Raw Materials, the Environmental Technology Action Plan and the Bioeconomy Strategy, proposals will have to:

- Contribute to the development of efficient, implementable and fit-for-purpose sustainability schemes and criteria and indicators;
- Ensure market pull for bio-based products through (i) wider use of bio-based standards and certification schemes and (ii) the expansion of bio-based products accessing sustainability schemes, e.g. (eco)labelling;
- **Develop objective and quality life cycle assessments based on robust and agreed methods, allowing benchmarking, accepted and applicable in regulatory and policy frameworks.**

Type of action	Research and Innovation action	
Deadline	1st stage - 17 February 2016	2nd stage - 13 September 2016
Call identifier	H2020-BB-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6080-bb-01-2016.html	



Call - Bio-based innovation for sustainable goods and services

Supporting the development of a European Bioeconomy

BB-05-2017: Bio-based products: Mobilisation and mutual learning action plan

Specific challenge

Ensuring that research and innovation in bio-based products and processes is not only excellent, but also relevant and responsive to the needs of all actors is important, not least in ensuring the uptake of results. Surveys show that consumers and citizens in general have little awareness and knowledge of bio-based products (BBP). To improve market uptake of bio-based products, shape future research in BBP science, technology and innovation and meet the views and expectations of society, there is a need for a broad, inclusive assessment of the challenges and opportunities at hand.

Multi-actor approaches are needed to identify and address both the risks and different stakeholders' interests and aspirations, in order to maximise the benefits of new bio-based business models within society. Mobilisation of all actors along the value chain is crucial to mitigate the probability of "technology mismatches" (i.e. development of technologies without a corresponding reliable and cost-efficient feedstock supply, or which face insufficient market demand).

Scope

The Mobilisation and Mutual Learning Action Plan (MML) should **ensure the engagement of all relevant groups and tackle innovation related challenges by establishing a multi-stakeholder platform**, gathering a plurality of actors with different perspectives, knowledge and experiences, and maintaining open dialogue between the different stakeholders.

The objective of the platform should be the development and implementation of an Action Plan that would address the challenges of raising awareness of and engaging with the citizens on the bio-based products. Proposals have to be based on and develop the concept of Mobilisation & Mutual Learning Platforms (MML). The design of this platform and its activities should take into account and build on methods developed previously in European projects and initiatives (including consultation processes in the field of bio-based products).

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

Expected impact

The direct and sustainable impact of proposals will be:

- **to create networks of specific target groups in order to raise citizens' awareness and understanding of bio-based products;**
- **to create a better framework for new bio-based market opportunities, through broad stakeholder engagement leading to responsible, reliable, and societally acceptable solutions;**
- **to contribute to responsible policy-making, helping to shape further research on bio-based products and improving acceptability of existing bio-based products.**

Type of action	Coordination and support action
Deadline	14 February 2017
Call identifier	H2020-BB-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/6081-bb-05-2017.html





Societal Challenge 3
Secure, Clean and Efficient Energy

EE-06-2016-2017

Engaging private consumers towards sustainable energy

Specific challenge

Consumers should be considered at the heart of the energy system and become active market players. The future private consumer should be more aware, active, energy sufficient, as well as being a prosumer producing energy for their own consumption, where this is possible. Furthermore, in view of the rise in energy prices, consumers are spending an increasing share of their income on energy, with estimates stating that more than 50 million Europeans are affected by energy poverty. Energy efficiency, energy savings and increased use of locally produced, including own produced, renewable energy are key tools in addressing fuel poverty.

In this context, **engagement actions are needed across Europe in order to achieve behavioural change towards more sustainable choices and decisions for energy.** This includes increasing and understanding consumer 'apetite' for higher efficiency products.

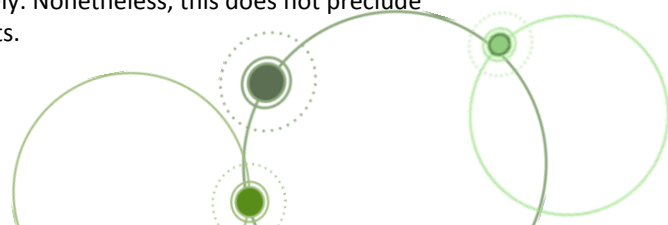
Although awareness on the benefits of collective consumer action in the field of EE and RES has increased in past years, such action is still hampered by a number of barriers, including financial and regulatory barriers and inconsistencies in grid integration practice. In addition, insufficient use of relevant ICT solutions and insufficient understanding of energy bills contribute to hampering the achievement of a more sustainable energy system.

Scope

Develop and roll out tailored and effective and innovative engagement actions to motivate changes in consumers' sustainable energy behaviour that would result in reduced energy consumption in buildings, heating/cooling systems and/or appliances. The proposed actions should focus on clearly defined target groups of private consumers (individuals or collectives), using market segmentation. **The proposed actions should demonstrate an understanding of different types of behaviours and consider the different approaches needed to influence them. The actions should** also address the risk of "rebound effects", propose measures to counteract them, and **apply current theory and practice on consumer decision making processes** (e.g. effects of new technologies on energy behaviour). All relevant stakeholders necessary for the successful implementation of the action should be involved and it is expected that relevant consumer organisations, in particular, are either directly involved or their support is clearly demonstrated in the proposal. Where relevant for the proposed action, gender issues should be taken into account, in particular the role gender characteristics may play in influencing consumer behaviour. Actions should preferably cover a wide geographic area through complementary actions covering various parts of the EU.

The proposed action should cover one or more of the following:

- **Empower and facilitate actions for consumers to become prosumers**, or to form collective consumer groups/consumer cooperatives (addressing energy efficiency and/or renewable energy, and energy storage, where applicable, with a focus on action).
- **Support clearly defined groups of vulnerable consumers** in tackling fuel poverty by facilitating more sustainable energy behaviour and choices in their everyday life, without compromising comfort levels. This should also aim at achieving structural changes of national policies to specifically address fuel poverty and could include the transfer of best practices for the active engagement of vulnerable consumers.
- Facilitate wider deployment and consumer adoption of existing ICT-based solutions, for energy efficiency and information on energy consumption and costs, with a focus on action and resulting in improved understanding of ICT interfaces and information depiction (including smart metering and related systems).
- Facilitate consumer understanding of energy bills (on and off line), leading to actions allowing for a reduction in energy consumption. Such actions should ensure robust monitoring to demonstrate the effectiveness of the approach proposed,
- **Create better instruments for improving consumer understanding and routing purchase decisions** towards higher efficiency products, ensuring high performance in the areas important to health and wellbeing at the same level of effectiveness and with no additional relevant environmental impacts,
- **Distilling policy lessons from the market insight** gathered as a means to review existing, and produce better, legislation.
- The Commission considers that proposals requesting a contribution from the EU of 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.



Call - Energy Efficiency

Expected impact

Proposed actions are expected to demonstrate the impacts listed below (wherever possible, use quantified indicators and targets), depending on the scope of the proposal:

Primary energy savings triggered by the project within its duration (in GWh/year per million Euro of EU funding);

- **Number of people changing their behaviour and taking informed decisions**, documenting why and how changes are an effect of particular measures taken, as well in terms of the sustainability of the behavioural change;
- **Number of consumers engaged by actions aiming at improving consumer understanding and routing purchase decisions towards higher efficiency products;**
- Renewable Energy production and Investments in sustainable energy triggered by the project within its duration (for actions on prosumers/consumers groups, respectively in GWh/year and million Euro of investments per million Euro of EU funding);
- **Policies and strategies created/adapted to include fuel poverty (for actions on fuel poverty, to be measured in number of citations / statements from governance bodies).**

Type of action	Coordination and support action
Deadline	15 September 2016
Call identifier	H2020-EE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/4095-ee-06-2016-2017.html



EE-07-2016-2017

Behavioural change toward energy efficiency through ICT

Specific challenge

The objective is to demonstrate that ICT-based solutions can contribute to saving energy by **motivating and supporting behavioural change of energy end-users**.

The main challenges are (i) establishing cost-effectiveness, i.e. demonstrating that solutions allow a good return on investment through energy savings (ii) making energy usage data accessible to the consumer and to designated third parties (for application development or designing new business models around them) and (iii) demonstrating that energy savings can be achieved without compromising comfort levels.

Scope

Activities are focused on the development of innovative user-friendly digital tools and applications or services making use of energy end-user generated information or captured from in-home equipment/sensors (like smart meters, communication-enabled heat metering tools, smart plugs, smart appliances and/or energy-aware products), in possible combination with intelligent controls and automation, with the purpose to significantly enhance energy efficiency by behavioural change of end-users taking informed decisions. The solutions will focus on empowering consumers (buildings managers, buildings owners as well final users including residents, housing associations, visitors, public actors, etc.) to engage and collaborate in achieving energy savings and allowing them to explore different means and measures to manage their energy needs over the longer term.

Proposers should integrate and validate different technological elements, each element with at least TRL 6 (please see part G of the General Annexes), **combined with appropriate business models and social acceptance parameters**.

Insights from social and behavioural sciences should be used to understand: (i) factors influencing consumer choices and (ii) the impact of consumer behaviour on the energy system. Where relevant, gender, socio-economic, demographic and cultural differences should be identified and taken into account as a means of segmentation and tailoring actions to target groups.

The proposals should respond to the following:

- **The need for efficient and compact consortia, involving**, as appropriate, ICT developers and providers, manufacturers of home appliances, energy experts, **social sciences and humanities experts**, citizens representatives, as well as utilities (DSOs or retailers), energy service companies (ESCOs) and building managers.
- The impact of indoor climatic conditions on personal health, productivity and comfort.
- The developed solutions should be deployed in a variety of building types located in at least two different climatic regions. Access to the buildings should be guaranteed, together with all relevant building information, including smart metering infrastructure.
- The proposed solutions shall be deployed and validated in real environments, clearly defined and monitored, for a period of at least 1 year, ensuring credibility and consistency of conclusions. Validation should cover business models and RoI, and should include detailed plans for sustainability and large-scale uptake beyond the project lifetime.

ICT solutions should primarily address energy efficiency, but may integrate other solutions including also indoor climate, building/home security or health monitoring. This "packaging" approach would need to demonstrate the added benefits for consumers, as well as the market potential.

Proposals should take into consideration the projects supported under the topic EE 11 of the Work Programme 2014-2015 of the H2020 Energy Challenge.

The topic EUB-02-2017 ("Utilities: energy management at home and in buildings") in Part 5.i. Information and Communication Technologies of the Work Programme/ LEIT is also relevant and addresses similar challenges.

The proposers should explain in detail how they will address possible ethical issues like research on human participants and personal data protection.

The proposers should also explain what will happen after the end of the action of any project-related equipment deployed in buildings for the purpose of the project. Costs for the purchase of mobile devices like mobile phones, tablets as well as cost for services of internet connections are not eligible under this topic.

Proposals requesting a contribution from the EU of 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



Call - Energy Efficiency

amounts.

Expected impact

Proposed actions are expected to demonstrate the impacts listed below (wherever possible, use quantified indicators and targets):

- Significant reduction of final energy consumption prompted by innovative ICT solutions clearly quantified and substantiated, and subsequent reduction of CO2 emissions.
- Accelerated wider deployment and adoption of user-friendly ICT solutions prompting behavioural change and energy efficiency, including plans for its sustainability after the project's life and potential/readiness for replication.
- Number of energy end-users changing their behaviour documenting why and how changes are an effect of particular measures taken, as well in terms of the sustainability of the behavioural change.

The proposals should quantify foreseen impacts, using preliminary but credible baselines and benchmarks to substantiate calculations and clearly demonstrate how the energy savings will be measured and reached.

Proposals are encouraged to take advantage of using the already developed common methodologies for calculating energy savings in public buildings and social housing.

Type of action	Innovation action
Deadline	CALL 2016 - 21 January 2016 CALL 2017 - 19 January 2017
Call identifier	H2020-EE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5059-ee-07-2016-2017.html



EE-08-2016

Socio-economic research on consumer's behaviour related to energy efficiency

Specific challenge

In most of the existing economics energy models it is generally assumed that energy consumers behave in an economically rational way. However, empirical data show that consumers are rather 'bounded rational', because of effects such as split preferences, perceived financial barriers, lack of knowledge/ information, or the implicit costs of the transaction. The different energy efficiency policies implemented in the EU try to remove the different financial and non-financial barriers to incentive energy consumers to invest in cost-effective energy efficiency technologies.

Empirical research is needed to better understand consumer's decision making to improve the design of future energy efficiency policies in such a way that existing barriers can be removed, to better reflect the behaviour of consumers in energy models and also to better reflect the impact of energy efficiency policies on the different consumers' decision making processes in energy models.

Scope

Proposal should advance the current knowledge on how the different consumer groups make their energy efficiency investment decisions and how energy efficiency policies can have an impact on financial and non-financial barriers in the decision making process making use of market data, large sample-surveys and other empirical sources in addition to a theoretical analysis. As different factors influence the individual choice of consumers the empirical analysis needs to be done for all consumer groups. For households there might be differences dependent on the income level, age, education, gender, tenant/landlord etc. that should be better investigated. In addition, there might be also a geographical differentiation of consumers with regard to energy efficiency investments. The decision of other consumer groups invest in energy efficiency, like companies in the service sector, in agriculture or in industry might be influenced by other factors. In addition, research should also investigate the differentiation between possible energy efficiency investments which are influenced by different factors, e.g. decisions to invest in the renovation of buildings have a different time horizon than investments in energy efficient products (washing machine, TV etc.). Such analysis should also take into account country-specific factors.

Discount rates are used in many energy models to reflect the inter-temporal decision making of consumers and to describe the economic actor's behaviour. To improve energy models the results should be based on robust empirical data to apply appropriate discount rates or other parameters to support the analysis and development of energy efficiency related policy strategies. Proposals should visualise their research results and include tailored communication activities to clearly defined target groups. Where appropriate, they should take gender issues into account. Proposals should fill knowledge gaps not yet covered by former or ongoing research projects and take into account existing macro- and microeconomic models and results of socio-economic sciences and humanities.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Proposed actions are expected to improve the current methodologies and empirical base used to quantify the positive impacts of energy efficiency policy and to improve the evidence-base for a better development of future energy efficiency policies and energy models, evidenced for example by the number of public officers and other stakeholders influenced or references to impact assessments, strategy papers or other policy documents.

Type of action	Research and Innovation action
Deadline	21 January 2016
Call identifier	H2020-EE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5058-ee-08-2016.html



Call - Competitive Low-carbon energy

LCE-05-2017

Tools and technologies for coordination and integration of the European energy system

Specific challenge

The increasing share of variable renewable energy sources and the 2020 and 2030 targets for the reduction of greenhouse gas emission in the EU are calling for important changes in our energy system: more flexibility, more active involvement of all stakeholders and more collaboration. If no actions are taken, the power system will face several risks such as, poor quality of the electricity supply, congestion, lack of stability, excessive levels or curtailments, impossibility to cope with electro mobility demand, etc. The challenge is therefore to create and deploy common tools for planning, integration and operation across the energy system and its actors.

Scope

Proposals must target the development of technologies, tools and systems in one or several of the following areas:

1. Novel European grid and end-to-end energy system planning tools, including foreseeable features such as storage, aggregation, demand-response and integrating cost aspects;
2. Enhanced TSO / DSO collaboration and coordination tools, secure data exchange across networks along whole the value chain, ICT tools for cross-border trading for nearly real-time balancing; definition of minimum set of specifications to allow automated digital cross-border electricity market;
3. Solutions for the deployment of neutral data access points ensuring a fair and transparent data access to all energy actors (TSOs, DSOs, ESCOs, Telcos, ICT companies, consumers, etc.); **validation of new business models** resulting from the cooperation between them; investigation of incentives and possible commercial arrangements with a fair share of benefits across actors;
4. Synergies between electricity, gas and heat networks, associated business and market mechanisms and **analysis of existing regulatory aspects**; technologies for hydrogen production and storage are addressed in the frame of the Fuel Cell and Hydrogen JU and are therefore excluded from this call;
5. **Socio-economic aspects and environmental aspects related to large scale infrastructures relevant to renewable generation and changes to transmission infrastructure need for their integration; socioeconomic aspects of consumer behaviours in demand-response mechanisms, consumer engagement.**

Proposals will demonstrate a good knowledge and compatibility with current regulations, available or emerging standards and interoperability issues applying to their technologies, in particular in connection to ongoing work in the Smart Grid Task Force and its Experts Groups in the field of Standardization (e.g. CEN-CLC-ETSI M/490), regulatory environment for privacy, data protection⁵⁸, cyber security, smart grid deployment, infrastructure and industrial policy (<http://ec.europa.eu/energy/en/topics/markets-and-consumers/smart-grids-and-meters/smart-grids-task-force>).

The Commission considers that proposals requesting a contribution from the EU between EUR 2 and 4 million would allow this specific challenge to be addressed appropriately and between EUR 0.5 and 1 million for proposals addressing area 5 only. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

In order to ensure the coverage of each area, proposals above all thresholds will be ranked in each of the 5 areas and the first ranked proposals in each area will be selected until the available budget is exhausted (first, all proposals ranked nb 1, then nb 2, etc.); in case of insufficient budget to select all projects of the same rank to cover the 5 areas, the best scores will prevail; in case of equal scores, standard rules do apply.

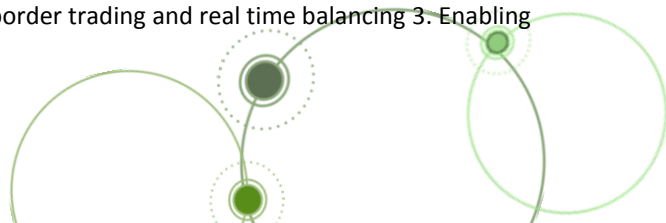
Expected impact

Proposals must demonstrate that they are relevant, compatible with the broad EU energy policy context such as Climate-Energy packages, Energy Union. Where relevant, they should also indicate if and how they will contribute to:

- ongoing policy developments in the field of the design of the internal electricity market, of the retail market, ongoing discussions on self-consumption,
- enhanced interconnections between Member States and/or between energy networks.

Proposals must demonstrate if and how they contribute to the following impacts.

1. Optimized grid planning and design at European level, maximizing the capacity of the grid to host variable renewables, take full advantages of a pan-European grid for stability and security
2. Safe, secure, efficient and coherent data handling, enabling more cross border trading and real time balancing
3. Enabling



Call - Competitive Low-carbon energy

new flexibility services to the grid associated with new business opportunities, offering the access to cheaper energy for the consumers and maximising the social welfare

4. Increasing the potential of exchanges between energy networks, enhanced security of supply, create business opportunities, avoidance of curtailment, offering new services to the grid

5. Account for human behaviour in the design of infrastructure and demand-response to avoid blockages due to social acceptance, placing the consumer at the center of the energy system.

Finally, proposals will also include ad-hoc indicators to measure the progress against specific objectives of their choice which could be used to assess the progress during the project life.

Type of action	Research and Innovation action
Deadline	14 February 2017
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2161-lce-05-2017.html



Call - Competitive Low-carbon energy

LCE-06-2017

New knowledge and technologies

Specific challenge

The technologies that will form the backbone of the energy system by 2030 and 2050 are still under development. Promising technologies for energy conversion are being developed at laboratory scale and need to be scaled up in order to demonstrate their potential value in our future energy system. These new technologies should provide more flexibility to the energy system and could help adapting to changing climatic conditions. New knowledge and more efficient and cost-competitive energy technologies, including their conventional and newly developed supply chains, are required for the long run. It is crucial that these new technologies show evidence of promising developments and do not represent a risk to society.

Scope

One of the following technology-specific challenges has to be addressed:

- **New renewable energy technologies:** Developing the new energy technologies that will form the backbone of the energy system by 2030 and 2050: Excluding wind energy and sustainable fuels addressed in the other bullet points, and photovoltaic new materials addressed in topic NMBP-17-2016 ('Advanced materials solutions and architectures for high efficiency solar energy harvesting') of the work programme part 'Leadership in enabling and industrial technologies – 5.ii Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing', the challenge is to scale up energy technologies currently in development at laboratory scale. It is crucial that these new, more efficient, and cost-competitive energy generation and conversion technologies, demonstrate their potential value in the future European energy system. Developments in sectors other than energy may provide ideas, experiences, technology contributions, knowledge, new approaches, innovative materials and skills that are of relevance to the energy sector. Cross-fertilisation could offer mutually beneficial effects.
- **Wind energy:** Improved understanding of the physics of wind as a primary resource and wind energy technology: For an improved design of large-scale wind rotors a better understanding of the underlying physics is needed. The challenge is to increase understanding of the underlying physics and to significantly improve the simulation capability for multi-scale wind flows, loads and materials failure. Significant high-performance computing (HPC) resources will be needed for this challenge. It is expected that further research towards this challenge will continue after the project, therefore the data retrieved in this project should be with open access. Research results could contribute to IEA Wind and for that reason cooperation with IEA partner countries is expected. International cooperation with leading groups outside Europe is encouraged. This research will contribute to making wind energy fully competitive, through a better design of the wind turbine and having an impact on the turbine efficiency and therefore on the cost of energy produced.
- **Sustainable Fuels:** Diversification of renewable fuel production through novel conversion routes and novel fuels: Novel technologies for sustainable fuel production and novel fuels having a potential value in our future transport energy system should be developed at laboratory scale. The specific challenge is to diversify the sustainable fuel production taking into account long-term dependencies on fossil fuels of particular transport sectors by developing novel fuels and processes that in the long-term can bring down substantially transport fuel costs while overcoming sustainability constraints and feedstock limitations. While biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded, this research shall enable novel fuel production addressing one of the following pathways:
 - Development of novel microorganisms, enzymes and catalysts or a combination of these systems with improved performance for obtaining paraffinic biofuels or higher alcohols from lignocellulosic biomass;
 - Development of renewable alternative fuels from CO₂ in industrial waste flue gases through chemical catalytic conversion;
 - Development of renewable alternative fuels from H₂O, CO₂ and energy from renewable, autonomous sources through micro-organisms, synthetic molecular systems or chemical synthesis, or a combination of these processes;
 - Development of middle distillate range biofuels (i.e. diesel and jet fuel) from liquid organic or lignocellulosic waste streams through advanced thermochemical conversion processes.



Call - Competitive Low-carbon energy

Aside from the technology-specific challenges mentioned above, potential environmental, resource efficiency and safety concerns, **issues related to social acceptance or resistance to new energy technologies, as well as related socioeconomic and livelihood issues also should be addressed**, where relevant. **This may require a multi-disciplinary perspective with contributions also from the social sciences and humanities, which then should be integrated into the research process from the outset.** A methodology that permits a sustainability assessment of the environmental (notably in terms of GHG performance), **as well as economic and social benefits with respect to current technologies should be included.**

Novel technology solutions for grid integration, storage, fuel cells and hydrogen – other than integral to the technology solution developed, energy efficiency and smart cities will not be supported under this topic but in the relevant parts of this work program.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 4 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 this research are expected to move the technology involved to TRL 4 (please see part G of the General Annexes) and to provide better scientific understanding and guidance enabling the players concerned (e.g. policy makers, regulatory authorities, industry, interest groups representing civil society) to frame strategic choices concerning future energy technologies and to integrate them in the future energy system. It is also expected that new, out-of-the-box or advanced innovative ideas will emerge that will provide new impetus to technology pathways, to new solutions, and to new contributions to the energy challenge in Europe or worldwide.

Where relevant, the new developed technology pathways should improve the economic, environmental and social benefits of renewable energy. Notably, for sustainable fuels they should improve the conversion efficiency that will eventually allow significant cost reduction.

Type of action	Research and Innovation action
Deadline	5 January 2017
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2156-lce-06-2017.html



Call - Competitive Low-carbon energy

LCE-11-2017

Near-to-market solutions for reducing the water consumption of CSP Plants

Specific challenge

In spite of the improvements in recent years, water consumption remains a crucial barrier to the deployment of CSP plants especially in arid areas. The challenge is to drastically reduce water consumption.

Scope

Projects shall demonstrate **cost-effective** technical **solutions** which significantly reduce or replace the water consumption of CSP plants. The demonstration shall take place in a region with very good solar resource values (Direct Normal Irradiation > 2000 kWh/m² year).

Since **the availability of water resources** particularly in arid areas is linked to broader socioeconomic and livelihood issues and therefore of particular relevance to local communities, multidisciplinary research designs that integrate contributions also from the social sciences and humanities are encouraged. Engaging and involving local communities, and further investigating the roots of social acceptance or any resistance to CSP plants, so as to develop mitigating strategies or alternative solutions, should likewise be part of the project.

TRL 7 shall be achieved at the end of project activities (please see part G of the General Annexes).

Opening the project's test sites, pilot and demonstration facilities, or research infrastructures for practice oriented education, training or knowledge exchange is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 10 to 12 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

The action will result in significant exploitation prospects for the European technology in the field of CSP deployment, **bringing cost effective solutions** that improve the environmental profile.

Type of action	Research and Innovation action
Deadline	7 September 2017
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2172-lce-11-2017.html



Call - Competitive Low-carbon energy

LCE-19-2016-2017

Demonstration of the most promising advanced biofuel pathways

Specific challenge

It is essential to diversify the technology portfolio and feedstock basis to allow competitive production of advanced biofuels for use in transport.

The following sub-challenges should be addressed:

- a. **improving the technical and economic feasibility of the production of new and advanced liquid biofuels;**
- b. **demonstrating the feasibility of using feedstock particularly suitable for transport energy purposes.**

Scope

Proposals shall aim at moving technologies that reached already TRL 5-6 to TRL 6-7 (please see part G of the General Annexes) through industrial demonstration projects in line with the Implementation Plan of the EIBI. Projects should target the most promising advanced liquid biofuel production pathways incorporating new or improved biochemical/thermochemical/chemical conversion together with upgrading technologies and valorisation of co-products **that improve the economic viability of the fuel production.**

Environment, **economic and social issues** including health and safety **should be considered in the whole life cycle and appropriately addressed. A methodology that permits robust and reliable assessment of the** environmental (notably in terms of GHG performance), **economic and social benefits with respect to current technologies should be included.**

The proposals should respect the principle of the minimum bioenergy content laid out in the EIBI Implementation Plan: 'At least 70% of the bioproducts produced by the plant shall be bioenergy (biofuels, heat, power) , calculated on energy basis. Biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded.

Proposals should address both sub-challenges described above, while the main effort in 2016 shall be in addressing sub-challenge a) and in 2017 sub-challenge b). Where synthesis gas or intermediate energy carriers are produced, their final use for production of advanced biofuels for transport must be demonstrated.

In particular, proposals shall address one of the following:

In 2016:

- Biomass gasification to synthesis gas;
- Biomass pyrolysis and torrefaction to intermediate bioenergy carriers (pyrolysis oils and torrefied biomass);
- Biochemical conversion of lignocellulosic biomass sugars to hydrocarbons for diesel and jet engines;

In 2017:

- Biofuels from the carbon content in flue gases of industrial wastes through biochemical and/or biological conversion;
- Biofuels from aquatic biomass;
- Liquid biofuels from wastes and residues (forest, agricultural, the organic fraction of municipal and industrial wastes).

Proposals shall explicitly address performance and cost targets together with relevant key performance indicators and the expected impacts. Industrial involvement in the consortium and explicit exploitation plans are a prerequisite.

Proposals shall include a work package on the business case of the technology solution and which identifies potential issues of public acceptance, market and regulatory barriers, including standardisation needs. **It should also address, where appropriate, synergies between new and existing technologies and other socio-economic and environmental aspects from a life-cycle perspective.** Furthermore, they shall address the risks (technological, business, process) and their possible mitigation.

Opening the project's test sites, pilot and demonstration facilities, or research infrastructures for practice oriented education, training or knowledge exchange is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 10 to 15 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.



Call - Competitive Low-carbon energy

Expected impact

Demonstrating advanced biofuel technologies at large industrial scale reduces the technological risks and paves the way for subsequent first-of-a-kind industrial projects. For this purpose, the scale of the proposals should permit obtaining the data and experience required so that up-scaling to a first-of-a-kind, industrial project can be envisaged as a next step. Favourable energy and GHG balances are expected. **The demonstrated industrial concepts should ensure the techno-economic feasibility of the entire value chain and have the potential for a significant social and economic impact**, notably in terms of job creation, economic growth and safe and affordable energy supply.

Type of action	Innovation action
Deadline	8 September 2016
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2152-lce-19-2016-2017.html



Call - Competitive Low-carbon energy

LCE-20-2016-2017

Enabling pre-commercial production of advanced aviation biofuel

Specific challenge

Decarbonisation of the aviation transport sector and reducing its dependence on fossil fuel requires liquid biofuels even in the longer term. Accelerating the deployment of advanced biofuel technologies for use in aviation will allow competitive production of biojet fuels on commercial scale, increase their attractiveness and facilitate achievement of the EU Biofuel FlightPath targets. Therefore, the specific challenge is to **enable commercial production of sustainable and cost-competitive advanced biofuels** aimed for use in the aviation sector. In particular, supporting the accomplishment of pre-commercial plant(s) for advanced biofuels for aviation based on sustainable biomass feedstock is essential.

Scope

Proposals shall aim at moving technologies that have already reached TRL 5-6 to TRL 6-7 (please see part G of the General Annexes) through novel industrial demonstration projects which support the innovative integration of production processes for advanced biofuels for aviation into first-of-a-kind or existing industrial scale plants. Projects should target the most promising advanced aviation biofuel production pathways incorporating upgrading **technologies** and valorisation of co-products **that improve the economic viability of the fuel production**. The ultimate production target of aviation biofuel for the complete plant shall be in the range of several tens of thousand tonnes per year. The aviation biofuel must be fully compliant with international aviation fuel standards and therefore suitable for commercial flight operations. Where relevant, projects should also make use of existing infrastructures for transportation, logistics, and fuelling for performing commercial flights with the produced fuel. Relevant datasets shall be collected for these operations.

Environment, **economic and social issues** including health and **safety should be considered in the whole life cycle and appropriately addressed. A methodology that enables robust and reliable assessment of the** environmental (notably in terms of GHG) performance, **economic and social benefits with respect to current technologies should be included**. In addition, proposals shall address the entire value chain including the supply chain of sustainable biomass feedstock and the actual use of the produced biofuel in aviation.

Biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded.

Proposals shall explicitly address performance and cost targets together with relevant key performance indicators and the expected impacts. Industrial involvement in the consortium and explicit exploitation plans are a prerequisite. **Proposals shall include a work package on the business case of the overall business solution and which identifies potential issues of public acceptance, market and regulatory barriers along the entire value chain. It should also address, where appropriate, synergies between new and existing technologies and other socio-economic and environmental aspects from a life-cycle perspective.** Furthermore, they shall address the risks (feedstock, technological, business, process) and their possible mitigation. A signed off-take agreement with one or more airlines or alternative similar agreements should be envisaged in the proposal. In the event of a grant award the off-take agreement must be signed before signature of the grant agreement.

The Commission considers that proposals requesting a contribution from the EU of between EUR 5 to 15 million in 2016 and 5 to 10 million in 2017 would allow this specific challenge to be addressed appropriately while maximizing the acceptable production pathways. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Demonstrating advanced biofuel technologies for aviation at large industrial scale will respond to the EU FlightPath objectives for commercial deployment and realisation of aviation biofuels and its target of using 2 million tons aviation biofuel by 2020. Favourable energy and GHG balances are expected. **The demonstrated industrial concepts should ensure the techno-economic feasibility of the entire value chain and have the potential for a significant social and economic impact**, notably in terms of job creation, economic growth and contribution to the decarbonisation of the aviation sector in addition to supporting advancement of the regulatory framework.



Call - Competitive Low-carbon energy

Type of action	Innovation action
Deadline	8 September 2016
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2154-lce-20-2016-2017.html



LCE-21-2017

Market uptake of renewable energy technologies

Specific challenge

Since the adoption of RES Directive in 2009, most Member States have experienced significant growth in renewable energy consumption and the EU and large majority of Member States are on track towards 2020 RES targets. Considering Member States' current and planned policy initiatives, their current implementation rates and the various barriers to renewable energy development, the need for improvements for some RES technologies, like offshore wind, advanced biofuels, CSP and geothermal, however, becomes apparent.

To ensure the level of growth needed to deliver the technology deployment rates at least to the level planned in the National Renewable Energy Action plans and their necessary contribution to the 2020 RES targets. EU targets for renewable energy, and to create the appropriate business environment for EU industrial leadership in low-carbon energy technologies, a number of important market-uptake challenges need to be addressed.

Scope

One of the following technology-specific challenges has to be addressed:

1. **Photovoltaics:** Tackling the bottlenecks of high penetration levels of PV electricity into the electric power network: PV electricity is not necessarily generated when mostly needed. Furthermore, small distributed PV systems feed into the grid possibly all at the same time challenging grid stability. To enable the effective and efficient integration of growing shares of PV power into the grid, the idea of PV producers becoming “prosumers” – both producers and consumers of energy – is gaining ground while “self-consumption” is becoming a major driver for the installation of small distributed PV systems. To facilitate this to happen, the following sub-challenges need to be addressed:
 - a. Development of solutions for innovative system-integration and power-management for households/larger buildings (in general small distributed PV systems) including storage, particularly addressing the impact of self-consumption on the operation of the grid and the value of PV electricity when aggregated and offered to the wholesale market;
 - b. Based on these solutions, **elaboration of business and management models, including cost-benefit analysis and assessing economic feasibility** for the European urban landscape.
2. **Heat Pumps:** Accelerate the penetration of heat pumps for heating and cooling purposes: Heating and cooling represents almost 50% of the final EU energy consumption and cooling demand is increasing. The cost associated with the purchase and installation of heat pumps remains an obstacle for a wider penetration on the market. In order to accelerate the penetration of heat pumps for heating and cooling purposes, proposals should address the following challenges:
 - a. identification of the most promising cost reduction options for CAPEX, installation costs, and OPEX as well as development of EU wide scenarios of deployment; proposed prioritisation of R&I investments;
 - b. development of solutions for innovative system integration and integrated power management for household/industrial buildings.
3. **CSP:** Facilitating the supply of electricity from CSP plants in Southern Europe to Central and Northern European countries - By means of CSP Southern European countries could supply renewable electricity on demand to the entire European energy market, including Central and Northern European countries – in particular, the Renewable Energy Directive foresees cooperation mechanisms to this end to allow Member States to meet their national targets cost-efficiently. The exploitation of this possibility would greatly facilitate the market uptake of CSP, but this has not happened so far. **The challenge is to identify all issues (technological, legal, economic, political, social, financial, etc.) that may constitute an obstacle to the supply of renewable electricity** on demand from CSP plants to Central and Northern European countries (other than those bottlenecks related to building new physical interconnections), and to provide options for addressing them in the context of a concrete project case.
4. **Wind energy:** Increasing the market share of wind energy systems: One of the following specific sub-challenges need to be addressed: i) Develop spatial planning methodologies and tools for new onshore wind and repowering of old wind farms taking into account environmental and social impacts but also the adoption of the latest developments in wind energy technology; ii) Identify the bottlenecks for further deployment in Europe and the regulations which limit the adoption of technological innovation and their deployment possibilities; **iii) Increase the social acceptance and support for wind energy in 'wind energy scarce regions' using, with solid involvement of social sciences and humanities and local communities and civil society to understand best practices and to increase knowledge about social and environmental**



Call - Competitive Low-carbon energy

impact of wind energy.

5. **Geothermal energy:** Tackling the bottlenecks of high penetration levels for geothermal energy systems: Geothermal energy suffers from a level of penetration that is limited compared to its potential and there are growing concerns regarding the environmental and the social impact of geothermal installations. **The challenge is to remove environmental and social concerns that pose barriers limiting the contribution of geothermal energy to the energy mix. The challenge is to assess the nature of public concerns and the elements that influence individual and group's perception of geothermal installations, to increase the understanding of the socio-economic dimension of geothermal energy, and to promote change in community responses to new and existing geothermal installations.** Different technologies and possible technological solutions, with particular reference to reinjection of incondensable gases in deep geothermal plants, are key elements of the environmental and social impact assessment. Specific challenges related to deep and shallow geothermal energy require separate considerations. Risk management strategies and adequate technology selection, for example induced seismicity or emission reduction should be addressed, when relevant.
6. **Sustainable Fuels:** Facilitating the market roll-out of liquid advanced biofuels and liquid renewable alternative fuels: The challenge is to enable commercialisation of advanced biofuels to help meeting the 10% target for Renewable Energy Sources in the EU transport energy consumption by 2020 and then contribute to the EU targets of 27% share of Renewable Energy Sources in the EU energy consumption and of 40% GHG reduction by 2030. Fossil fuels and biofuels produced from starch, sugar and oil fractions of food/feed crops are excluded. Proposals shall address one or several of the following sub-challenges:
 - a. **Development of tools for predicting the fuel cost in relation to different supply and demand scenarios taking into account technology performance, economies of scale, feedstock costs, market demand, socio-economic aspects, etc. and including sensitivity analysis** through conceptual engineering and cost estimation for the most common conversion routes;
 - b. Development and implementation of innovative crop rotation schemes for the production of lignocellulosic biofuels with improved sustainability;
 - c. Development of numerical tools for prediction of fuel and fuel blend properties and model validation to facilitate the certification process in the transport sector;
 - d. **Development of communication strategies to increase the public acceptance for advanced biofuels for the most common conversion routes;**
 - e. **Setting up sustainable and cost-effective European biomass supply chains for the industrial production of advanced biofuels;**
 - f. Actions aiming at development and implementation of common standards and certification schemes for fuels at EU-level;
 - g. Actions aiming at harmonization of national standards and certification schemes for fuels at a European level;
 - h. Development of tools and actions for capacity building among relevant stakeholders of all steps in the advanced biofuel value chain aiming at substantially reducing biofuel costs at large scale.

Proposals should address one of the sectorial technology challenges mentioned above. **The complexity of these challenges and that of the related market uptake barriers calls for multi-disciplinary research designs, which may include contributions also from the social sciences and humanities.** Regional specificities, **socio-economic**, spatial and environmental **aspects from a life-cycle perspective shall be considered.** For all actions, the consortia should involve and/or engage relevant stakeholders and market actors who are committed to adopting/implementing the results. **Where relevant, proposals should also critically evaluate the legal, institutional and political frameworks at local, national and European level and how, why and under what conditions these (could) act as a barrier or an enabling element.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 to 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

It is expected to increase the share of renewable energy in the future energy mix and to increase the share of sustainable advanced biofuels and renewable alternative fuels in the final EU transport energy consumption or facilitate those increases in the future. In addition, contribution to market understanding for possible policy and regulatory development is anticipated.



Call - Competitive Low-carbon energy

Type of action	Coordination and support action
Deadline	5 January 2017
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2168-lce-21-2017.html



LCE-28-2017

Highly flexible and efficient fossil fuel power plants

Specific challenge

The share of energy produced from renewable resources is growing rapidly. The output of wind and solar power is highly variable, and depends of factors such as weather conditions and time of day. With this growing share of renewable power, in particular when having priority access to the grid, fossil fuel power plants will have to increasingly shift their role from providing base-load power to providing fluctuating back-up power to meet unpredictable and short-noticed demand peaks, in order to control and stabilise the grid. Plants should be able to run both at the lowest part load possible at the highest possible efficiency. Moreover, plants will be required to operate across the entire load range with high load-change velocities, and even operate in start/stop mode with full turndown and very fast re-start, all at minimal (lifetime) fuel consumption. This forces base-load plants to operate through significantly more thermal cycles, leading to increased rate of wear on plant components. Operational flexibility therefore presents a significant challenge for fossil fuel power (and CHP) plants.

Scope

Focus on progressing solutions that already reached TRL 3 to TRL 4-6 (please see part G of the General Annexes) and offer the highest potential for a deeper integration into an advanced energy system with ever higher shares of renewable energies, for both existing (retrofitting) and new thermal power plants. Solutions with lowest greenhouse gas emissions, residue disposal and water need per energy unit are preferred. Collaboration with power plant operators is strongly encouraged. Support will not be given to projects that provide performance improvements that are not related to load fluctuations.

The Commission considers that proposals requesting a contribution from the EU in the range of EUR 3 to 6 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 should lead to innovative and cost-effective solutions to improve the ability of new and/or existing dispatchable thermal power plants to meet fast load changes, in order to better support the grid due to fluctuations in energy peak demand and power output from renewable sources, at minimal fuel consumption and emissions, while mitigating the effects of cycling operation to avoid excessive wear and service life expenditure, and not impeding the potential CO2 capture readiness of the power plants.

Type of action	Research and Innovation action
Deadline	5 January 2017
Call identifier	H2020-LCE-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2160-lce-28-2017.html



LCE-31-2016-2017

Social Sciences and Humanities Support for the Energy Union

Specific challenge

Completing the Energy Union remains one of the top priorities of the European Commission, and a critical component in Europe's transition towards the decarbonized energy system of the future. Over and above the many technological challenges that need to be overcome on the road to reaching these twin goals, a number of cross-cutting issues need to be better understood, particularly those relating to socioeconomic, gender, sociocultural, and socio-political aspects of the energy transition.

Addressing these cross-cutting issues is crucial to furthering social acceptability of the many changes that the energy transition implies, as well as to better understand why citizens may resist these changes and to devise appropriate mitigating strategies or alternatives.

Of particular importance in this context are the factors that drive individual and collective energy choices and energy-related behaviour, the governance frameworks in which these choices are made, and the changing roles particularly of consumers and "prosumers" in the energy system.

Scope

Proposals should address one, or a combination, of the following issues (a comparative perspective, with case studies or data from at least three European Union Member States or Associated Countries, will be considered an advantage):

In 2016:

- Factors driving individual energy choices and energy-related behaviour (such as values and ethics, structures of everyday practices, belief systems or social or cultural, notably gender, roles), employing different data-gathering techniques;
- Factors driving collective energy choices and energy-related behaviour (such as social, economic, or other forms of organization or experiences with social mobilization).

In 2017:

- Socioeconomic incentive structures that encourage or discourage energy-responsible behaviour;
- Political, institutional, and organizational frameworks that condition and structure citizen participation, including questions of inclusiveness, gender, democracy, organizational formats and business models.

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.

Expected impact

The proposed research will

- provide a better understanding of these factors and their interrelations with technological, regulatory, and investment-related aspects which is crucial for the further advancement of the energy transition and ultimately the success of the Energy Union.
- further the completion of the Energy Union and particularly its research and innovation pillar, as well as the continued implementation of the Strategic Energy Technology (SET) Plan and especially the Action Plan based on the Integrated Roadmap.

Type of action	Research and Innovation action
Deadline	16 February 2016
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2178-lce-31-2016-2017.html



LCE-32-2016

European Platform for energy-related Social Sciences and Humanities research

Specific challenge

The transition to a low-carbon energy system poses a unique set of policy, technological and scientific challenges, as it changes the fundamental nature of the interrelations between all actors in our societies (from energy incumbents to regulators and citizens). Not only there is a need to find novel approaches to the development and application of technological or social processes as they relate to the energy transition, but also to better understand the changes they bring to people's behaviour, pervasive values, cultures of practice and modes of communication.

Since researchers in the Social Sciences and Humanities (SSH) have a particular expertise in analysing and understanding deep change and in designing innovation processes, including social innovations, they must play a stronger role in addressing energy-related challenges. Accordingly, SSH aspects must be better integrated into all stages of the research process.

At present, the energy-related SSH landscape is quite fragmented: there is a lack of exchange among different SSH communities, as well as between these communities and other energy-research disciplines. Creating a platform for better interaction between SSH and other energy-research disciplines would fill an existing gap and contribute to better responding to on-going changes and arising challenges in the energy field.

Scope

Within the scope of this call a platform for SSH research communities in the energy field will be set up at European level, aiming to integrate and build upon the experience of already existing networks and initiatives. The platform will seek to structure and enhance the energy-related dialogue at EU level among the different SSH stakeholders, as well as with other energy-research communities, creating greater inter-disciplinarity and fostering knowledge and information sharing among various disciplines. It will promote the generation of novel, evidence-based research designed to inform and influence relevant policy processes, particularly with respect to the role of SSH aspects (including gender) in hindering or accelerating the transition to a low-carbon energy system in Europe. The platform will also be a source of specific expertise and advice to EU policymakers, such as on how best to embed SSH aspects in Horizon 2020 energy calls, as well as how to address the SSH dimension in EU energy initiatives more broadly.

With a view to addressing specific research and innovation needs in the energy field, and as a principal goal of the platform, a program of activities will be designed. This program will set out how the platform will:

- Consolidate and foster the inter-disciplinary interaction among existing SSH research communities in the energy field, building on the reach and depth of the networks that form part of the submission;
- Extend and deepen existing networks across different disciplines, involving a variety of stakeholders;
- Reach out to geographic areas in Europe presently not well served in terms of energy-related SSH research and help build capacities there;
- Establish linkages between the new SSH platform and the existing European Technology Platforms (ETPs);
- Better integrate SSH aspects in H2020 energy calls and address the SSH dimension in EU energy initiatives more broadly;
- Formulate a strategic research agenda covering SSH-related aspects in the energy-research field from an inter-disciplinary perspective, with a view to producing relevant, influential, evidence-based research on SSH-related aspects of Europe's transition to a low-carbon energy system.

The Commission considers that proposals requesting a contribution from the EU of 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.

Expected impact

The proposal is expected to:

- help deepen, consolidate and broaden the energy research-related SSH communities in Europe;
- trigger and facilitate interdisciplinary dialogue among and between SSH and other energy-research disciplines;
- influence key policy processes in the energy domain by producing novel, evidence-based research on SSH-related aspects;
- provide targeted advice to EU policymakers on how to best embed SSH aspects in H2020 energy calls, as well as how to address the SSH dimension in EU energy initiatives more broadly;
- foster social innovation and social dialogue in the energy field at European level.



Call - Competitive Low-carbon energy

Type of action	Coordination and support action
Deadline	5 April 2016
Call identifier	H2020-RUR-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2166-lce-32-2016.html



Topics with minor SSH relevance

LCE-07-2016-2017

Developing the next generation technologies of renewable electricity and heating/cooling

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2180-lce-07-2016-2017.html>

LCE-08-2016-2017

Development of next generation biofuel technologies

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2182-lce-08-2016-2017.html>

LCE-15-2016

Scaling up in the ocean energy sector to arrays

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2153-lce-15-2016.html>

LCE-17-2017

Easier to install and more efficient geothermal systems for retrofitting buildings

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2170-lce-17-2017.html>

LCE-22-2016

International Cooperation with Brazil on advanced lignocellulosic biofuels

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2150-lce-22-2016.html>





Societal Challenge 4

Smart, green and integrated transport

Call – Mobility for Growth

MG-1.4-2016-2017

Breakthrough innovation

Specific challenge

Very ambitious long-term goals are addressed by Europe's vision for aviation Flightpath 2050, in particular for maintaining and extending industrial leadership and for protecting the environment. As many evolutionary technologies are mature near to their maximum potential, new disruptive breakthrough technologies are needed to reach these ambitious goals.

Scope

The aim is to develop exploitable breakthrough technologies and concepts for the medium term that are not currently used or that have not yet being put in combination for civil aviation. The actions should target technologies and concepts that are at low Technology Readiness Level today (up to TRL 3) and can potentially achieve Technology Readiness Level 6 by 2030-2035. The actions should focus to airframe, propulsion and on-board systems & equipment, including their integration and may challenge established practices. The proposals may also include the advancement of numerical and experimental methods towards validating the proposed concepts. The actions should address one or several of the following areas:

- Innovative aircraft configurations and airframes (e.g. short take-off and landing, long wing span; personal vehicles).
- Propulsion systems (e.g. partially or fully embedded within the airframe; distributed propulsion technologies and revolutionary engine cycles; high-speed propulsion).
- Novel and integrated multifunctional systems.
- Autonomous, intelligent and evolving systems (e.g. Remotely Piloted Aircraft Systems).

The proposals should include a quantitative preliminary assessment against the relevant criteria (for example, economic viability, time efficiency, safety, potential to cope with evolutions of regulations, human factor considerations such as passenger friendliness, social acceptance, etc.). They should also assess the potential of the technologies to be developed further and identify regulatory, technological and socio-economic barriers that could prevent such developments.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 4 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

Actions will propose new or develop further highly innovative and exploitable breakthrough technologies for the medium term that will make feasible a substantial decrease of the environmental impact of air vehicles and/or enhance the competitiveness of the European aviation industry and the safety of civil aviation. They should demonstrate the proof of concept and consider integration issues without assuming fundamental changes at airport level. Proposals are also expected to demonstrate the validity of the technologies and concepts following a sound technical and scientific approach as well as significant decrease in the environmental impact and/or **high potential for new market opportunities for the European aviation industry.**

Type of action	Research and Innovation action	
Deadline	1 st stage - 20 January 2016	2 nd stage - 29 September 2016
Call identifier	H2020-MG-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2085-mg-1.4-2016-2017.html	



MG-3.5-2016

Behavioural aspects for safer transport

Specific challenge

To make all transport modes safer (roads, rail, waterborne and aviation), **an increased understanding is needed of the behaviour of individual users** (in this case drivers, riders, pilots, cyclists, pedestrians and other transport users), and of their interaction with their associated safety-related systems and services (such as on-board technologies, mobile devices and infrastructure).

The challenge is to study those key factors that influence safe transport user behaviour, both individually and collectively, taking into account demographic factors (gender, age, socio-cultural aspects, etc.) and societal framework conditions (changing living conditions etc.). Using the knowledge gained on the interacting parameters that define user behaviour and their combined effects, appropriate measures and systems should be developed and assessed to ensure safe user performance, to pro-actively anticipate user response and reduce the number of errors and potential accidents in the transport system.

Scope

Proposals should address the following aspects:

—Distraction and health related factors such as: studying the parameters that influence user condition (fatigue, illness, use of drugs, medicines, alcohol, etc.); distraction caused by using on-board and mobile devices; behaviour causing unsafe conditions (e.g. switching off safety functions, extreme emotions) affecting response in pre-crash situations; **assessment of the psychological condition of those in charge of vehicles/vessels**; and identification and development of suitable mitigation measures.

—**Social and demographic factors such as: variations in safety behaviour, socio-cultural issues, gender, age and disability and their impact on risk assessment and exposure of each individual or group; and identification and development of measures to address these factors and reduce their impact.**

—Risk appraisal such as: development of analysis and assessment methods for factors affecting the level of risk users are willing to take, e.g. the ability to judge and manage conditions like weather, infrastructure condition and traffic levels; and development of means to reduce hazardous risk taking.

—Measures to modify transport user behaviour such as: novel enforcement and incentive schemes for high risk groups; focused and coordinated training schemes and tools for transport users based on reliable interaction and **behavioural models** piloted widely across different types of traffic and geographical regions; analysis of changes in users' behaviour from first use to familiarisation and confidence in new safety assistance systems.

Extensive knowledge on user behaviour has been developed within each transport mode, e.g. mental overload for pilots, the effect of shift rotation on train driver response time. Transfer of knowledge between transport modes and an effective deployment of multi-modal solutions are recommended, as well as the inclusion of non-traditional transport modes, such as personal mobility devices.

Active participation of SMEs is strongly encouraged.

In line with the strategy for EU international cooperation in research and innovation, 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 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

Solutions will contribute to achieving the objective of the Transport White Paper to ensure that the EU remains a world leader in the safety of all modes of transport.

Research and innovation on this topic will result in: reduction of fatal, serious and minor accidents through **measures to mitigate unsafe transport user behaviour patterns; economic savings linked to the reduction of accidents; safer use of vehicles and increased awareness of other users; effective enforcement and training schemes based on reliable behavioural models**; safe integration of new types of vehicle and increased usage of 'soft' modes.



Call – Mobility for Growth

Type of action	Research and Innovation action
Deadline	1st stage - 20 January 2016 2nd stage -29 September 2016
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2090-mg-3.5-2016.html



Call – Mobility for Growth

MG-4.1-2017

Increasing the take up and scale-up of innovative solutions to achieve sustainable mobility in urban areas

Specific challenge

Many innovative solutions (supported by STEER, CIVITAS, national, regional, local, international and other initiatives) for sustainable urban mobility were locally developed or developed as self-standing projects in a variety of social, economic and geographical contexts. The specific challenge is to increase the take up of innovative solutions by transferring them to new contexts and studying and comparing the impacts. **Special attention should be paid to social issues and implications.** Where relevant, potential gender differences should be investigated.

Scope

Proposals should address one or several of the following domains:

- Traffic and travel avoidance: planning and location policy; innovative demand management approaches while providing citizens, businesses and organisations with minimum levels of access; **less car dependent lifestyles.**
- Optimising the use of existing infrastructure and vehicles: this may include **smart pricing of parking, public transport and road use**; increasing load factors and making the last mile more efficient in urban freight transport; integration between urban freight and passengers transport networks within appropriate city and transport planning governance; innovative use of passenger transport means; planning for increasing the resilience of the urban transport system to extreme weather events.
- Optimising design and use of multi-modals hubs and terminals for passengers and freight; integration of systems, (sustainable) modes and 'mobility as a service', more efficient transfers; transformation of districts; multi-purpose use of space for vehicles.
- Supporting modal shift towards more efficient modes: increased walking and cycling; urban waterborne transport; mobility management and travel awareness; increased attractiveness of public transport; new coordination and service concepts.
- New governance models** for freight and passenger transport: better coordination and cooperation; synergies between passenger and freight transport; stakeholder engagement; public consultation and participation; **education and training, policy transfer.**

ITS solutions are covered in other topics of the Transport Challenge Work Programme and in other parts of Horizon 2020, but the integration of IT and ITS enablers for urban mobility measures needs to be fully considered.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 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

Actions should demonstrate successfully transfer a single solution/approach or limited package of mutually reinforcing solutions/approaches from a small number of locations in Europe (indicatively not more than five) to at least ten new locations in Europe.

Building on clear commitments from action participants for a further Europe-wide take-up and rollout of results during and following the actions, they will result in new insights into the practical transferability of innovative solutions/approaches. Actions will demonstrate how their activities will lead to faster, **more cost-effective and larger scale deployment of a range of innovative (technological and non-technological) solutions/approaches to achieve sustainable mobility in urban areas.** **Possible (technological and non-technological) barriers and ways to overcome them should be identified and addressed by actions.**

Type of action	Innovation action	
Deadline	1 st stage - 26 January 2017	2 nd stage -19 October 2017
Call identifier	H2020-MG-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2111-mg-4.1-2017.html	



Call – Mobility for Growth

MG-4.2-2017

Supporting 'smart electric mobility' in cities

Specific challenge

In order to integrate electromobility in their Sustainable Mobility Plans, European cities need to equip themselves with a network of electric recharging stations for electric cars and L-category vehicles. This will help the market to grow, as potentially interested consumers tend not to buy electric vehicles because they are not confident enough about the opportunities to recharge them. However, **the real business models do not yet exist**. The establishment of recharging infrastructure for electric vehicles is expensive and, without additional financial support and/or new approaches, there is a first-mover disadvantage until there are enough vehicles to make the investments profitable.

Scope

Proposals should focus on the development of integrated approaches and testing of "business" models for the local production and distribution of electricity together with electric vehicles fleet, to create the conditions for market take up in urban and sub-urban areas. This could include private and public recharging stations. Approaches could include e.g. charging at work places, private parking places, homes, public spaces, transport intermodal hubs, system integration of large fleets of electric vehicles (BEVs and PHEVs), multimodal platforms, etc. Specific tests and pilots focussing on the integration of solutions into transport system, in combination with a cross-site evaluation, could be carried out. **Possible barriers and ways to overcome these barriers to deploy integrated solutions and business models for electric recharging should be identified.** Where relevant, potential gender differences should be investigated.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 to 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.

In order to maximise the impact in this topic, **the focus of investments planned in these proposals should be on developing integrated approaches and testing of business models**, rather than purchasing the actual clean vehicles and their appropriate infrastructure.

Expected impact

Tested and validated business models for electromobility solutions regarding:

—Large scale, sustainable and decentralised energy production and distribution (also from transport infrastructure itself) in balance with local use.

—**Simple, interoperable, convenient and intelligent billing systems** ensuring at the same time a safe and reliable data exchange in cities. This includes integrated energy infrastructure systems, bringing together technologies from the energy, infrastructure and transport domains.

—Emergent integrated approaches and **business models for recharging, looking – among others – at consumer acceptance, value models and ownership.**

—Projects should bring innovative tools and recommendations to integrate electromobility in SUMP (for example, planning policies and use of urban space), as well as recommendations for common standards of ultra-low emissions urban areas.

—On the basis of clear commitments from participants for a further Europe-wide take-up and rollout of results during and following the project are expected.

The project proposal should include an estimation of CO₂ savings obtained through the sustainable urban mobility solutions deployed in the project, on the basis of CO₂ intensity of the European electricity grid of 540 g CO₂/kW-h19. It should also provide information on how this estimate is calculated, for example on the basis of the size of the entire vehicle fleet powered by electricity that will be deployed in the project, and/or on the number of the recharging in the infrastructure that will be deployed in the project.

Type of action	Innovation action	
Deadline	1st stage - 26 January 2017	2nd stage -19 October 2017
Call identifier	H2020-MG-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2110-mg-4.2-2017.html	



Call – Mobility for Growth

MG-4.5-2016

New ways of supporting development and implementation of neighbourhood-level and urban-district-level transport innovations

Specific challenge

People oriented transport and mobility encompasses both new ways of translating people's (both passenger and freight) needs into mobility solutions and new ways of delivering (co-creating) these solutions. Despite the huge diversity in cultural backgrounds, demographic developments, economic potential and social conditions, neighbourhoods and urban districts could be an appropriate scale to pilot mobility innovations that address some common sustainable urban mobility issues. These could include improving access to mobility solutions, to healthcare, education, jobs and for businesses and sustainable lifestyles; behaviours, reducing greenhouse emissions from mobility, reducing noise, increasing the use of alternative fuelled vehicles and public/shared transport and safety issues. Also, new uses of public space for different mobility users could be developed and tested at neighbourhood level.

Scope

Actions should include the development, testing and comparison of initial results of sustainable mobility solutions that are targeted to at least five European neighbourhoods or urban districts. The neighbourhoods could be located in urban areas of different densities and sizes, such as in small towns, peri-urban areas or scarcely populated urban neighbourhoods. In order to meet this challenge, **proposals should include all the following types of innovative approaches:**

—**New approaches to involve end-users, consumers and citizens, both women and men, to validate the needs of the neighbourhoods involved, to assess the potential impact of the solutions, and to better understand the needs and preferences of the end-users whose problems are meant to be solved in the project.**

—**New types of innovations (technological and non-technological) such as: social innovation, workplace innovation, design, creativity, public sector innovation, open innovation or co-creation or gamification processes.**

—**New forms of tools and approaches for measuring take-up, support, and impact of the innovative approaches so that results can be scaled up and disseminated to address common issues in neighbourhoods located in other EU countries.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 4 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

Actions will lead to new innovation processes, **new organisational and governance concepts**, changes in planning processes, that result in new forms of urban mobility solutions at neighbourhood or urban district level.

Actions will implement a strategy to create scale and visibility, and to measure impacts of the innovative approaches, and how these can be embedded and mainstreamed in practice amongst providers, funders and policy-makers across Europe.

Type of action	Research and Innovation action	
Deadline	1st stage - 20 January 2016	2nd stage -29 September 2016
Call identifier	H2020-MG-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2093-mg-4.5-2016.html	



MG-5.4-2017

Potential of the Physical Internet

Specific challenge

Ongoing research efforts show that the translation of the working principles of the Digital Internet to the routing of freight, thus creating the Physical Internet (PI), has the potential to be a real game-changer. In the PI world freight travels from hub to hub in an open network rather than from origin to destination directly. Each parcel is routed automatically and at each section it is bundled for efficiency. In the PI network of networks many (if not all) transport and logistics services would be accessible on demand to all users.

This will however require the successful **integration of many innovative concepts and non-the-least the mental-shift to adopt a very different governance structure.** The Internet of Things for example, which could link every future container, load unit or parcel to the internet, can be considered a pre-requisite for the Physical Internet to work as there will be an increased need to track all goods in a freight environment lacking a fixed and known transport route. The main challenge is to model a future Physical Internet network topology and assess the benefits it could generate in terms of carbon footprint, throughput times and cost reductions. Additionally the concept of the Physical Internet, already identified by ALICE, needs to be detailed into a strategic and operational vision which has the capability to get industry-wide endorsement of all stakeholders.

Scope

This topic will be implemented through two types of actions:

1) Research and Innovation Actions. Proposals should cover all the following issues:

—Set up a case study to identify the position, size and number of hubs needed for efficiently linking the long distance network and providing sufficient access points to urban areas.

—Map the influence sphere of each node and its benefits across borders to fuel future shared investments.

—Develop **simulation and modelling tools to assess the possible impact of the PI, including the socio-economic aspects.**

2) Coordination and Support Actions. Proposals should cover all the following issues:

—Develop a roadmap towards the Physical Internet (milestones, first implementation opportunities, etc.) defining which changes are required for migrating to a PI and how these could take place (e.g. current vs future logistic practices, IT applications and enabling technologies, **business models, mental shift**, integration of SMEs, **customer behaviour**, etc.).

—Monitor logistics and freight transport initiatives and research projects from relevant European programmes (H2020, TEN-T, etc.), and their impacts and contributions to Physical Internet. Fostering the links between ALICE and other transport and manufacturing focused ETPs with the aim to identify barriers and opportunities for the deployment of research results and improvement of framework conditions.

—Create support and consensus between public bodies, research and industry stakeholders on opportunities, barriers and next steps towards a PI. Organise workshops to present and discuss results, trends, exchange experience and foster innovation aspects.

—**Explore the need for legislative initiatives by authorities, including a legal contractual framework for participants to the Physical Internet.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 to 3 million each for Research and Innovation Actions, and between EUR 0.5 to 1 million for Coordination and Support Actions 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 achieve the benefits resulting from the paradigm change proposed by the Physical Internet, actions are expected to demonstrate how the following aspects can be achieved:

—Kick-Start the development of the Physical Internet through building industry-wide support.

—Improved asset utilisation.

—30% reduction in terms of congestion, emissions and energy consumption.



Call – Mobility for Growth

Type of action	Research and Innovation action, Coordination and support action
Deadline	CSA 1 February 2017 RIA 1st stage - 26 January 2017 2nd stage -19 October 2017
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2096-mg-5.4-2017.html



Call – Mobility for Growth

MG-6.1-2016

Innovative concepts, systems and services towards 'mobility as a service'

Specific challenge

Full implementation of ITS will allow advanced capabilities across national boundaries and transport modes, to respond to multiple users' needs and enable improved travel performance. Analysis and development of coherent concepts, encompassing all relevant elements, systems and services to bring Europe's transport system towards a more user-centric, digital and intelligent mobility model (e.g. mobility as a service) to make advanced travel planning a reality need to be ensured. Utilisation of open data (produced by both the public and private sector) in the establishment of novel services is a key element. Data protection must also be ensured. A paradigm change in transportation is expected to take place through mobility as a service, where the service providers could offer travellers easy, flexible, reliable, price-worthy and environmentally sustainable everyday travel, including for example public transport, car-sharing, car leasing and road use, as well as more efficient goods shipping and delivery possibilities. Although activities in this field are on-going in some of the EU Member States, at present, there is no quantifiable evidence on its costs and benefits, as well as on its influence on travel patterns and behaviour of the end users.

Evidence-based decision support is needed, for full utilisation of data and automation as an integral part of the transport system, **to facilitate the development of mobility service business models and innovative financing, pricing and taxation methods** to steer users to choose smart mobility, as well as linking transport, communications and energy networks together **to support an effective and socio-economically pertinent deployment of novel transport services.**

Scope

In order to meet this challenge, proposals should address several of the following aspects:

- Multi-modal, cross-border traffic management, information and planning systems to serve passengers and/or other users.
- Analysis of the range of services to be made accessible under each interface, by **taking into account differences in preferences and behaviour between various user groups.**
- Identification of the success and failure factors** (technological, economic and socio-cultural) **of the new concept(s), such as mobility as a service, with particular attention to the users' acceptance factors.**
- Identification of the necessary framework** (regulatory, technological, financial, etc.) to support the implementation of new services, including the needed private-public collaboration requirements.
- Identification and development of viable business models suitable for future market take-up.**
- Identification and validation of measures apt to induce socially-responsible** (e.g. vis-à-vis the environment and the community at large) **travel behaviours** and advanced planning (e.g. via integrated intermodal paperless ticketing). Participation of SMEs with proven experience in these areas is encouraged.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 to 3.5 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

Actions are expected to lead to:

- Advanced, cross-border, multi-modal travel planning and booking/ticketing for today's needs, as well as **identification of future framework requirements, including socially responsible behaviour, fostering sustainable development and social inclusion.**
- Proof of concepts, including demonstrations, testing and development of private-public collaboration, supported by appropriate technological systems and services.
- Novel business models for (large scale) deployment of innovative intermodal/integrated mobility concept(s) and services, including service definition(s), organisational structure/value chain, financial framework and technology harmonization.**

Type of action	Research and Innovation action	
Deadline	1st stage - 20 January 2016	2nd stage -29 September 2016
Call identifier	H2020-MG-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2086-mg-6.1-2016.html	



Call – Mobility for Growth

MG-6.3-2016

Roadmap, new business models, awareness raising, support and incentives for the roll-out of ITS

Specific challenge

ITS business models (including cooperative ITS) have not evolved sufficiently to take into account the broad range of new technologies, systems and services, as well as user needs. A key challenge for ITS remains the "last-mover advantage", where many parties wait for others to deploy first, to maximise their own immediate benefits at lowest possible implementing cost. **It is a challenge to address market sizing, customer demand versus production, project feasibility and financial returns**, as well as security aspects of relevant mobility services. The implementation of Key Performance Indicators (KPIs), building on on-going activities for the assessment and measurement of ITS deployment (infrastructure and vehicle based) and associated benefits (contribution to public policies and objectives) is at the centre of this challenge.

Scope

Building upon the EU strategy for the deployment of C-ITS, the action should develop tools and guidance to support public and private stakeholders, in particular Member States, with the development of efficient policies for C-ITS deployment based on consolidated knowledge across the EU and the work undertaken by the C-ITS Platform.

Proposals should address one or several of the following aspects:

- Building upon the latest developments, raise awareness of the benefits of C-ITS through knowledge-enhancing education and training practices (e.g. tools and guidance to support public and private stakeholders).
- Implementing Key Performance Indicators (KPIs) for the performance assessment and measurement of ITS deployment and benefits/impact assessment.
- Financing measures to support inter alia the development, purchase, installation and maintenance of new ITS systems.
- Market sizing, customer demand vs. production, project feasibility and financial returns**, as well as security assessment (cyber-attacks / unintended exploitation) of mobility services.

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

Proposals should foresee twinning with entities participating in projects funded by US, to exchange knowledge and experience and exploit synergies.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 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

Actions are expected to lead to:

- Understanding of the dynamics behind the current status of ITS implementation across Europe and solutions that address the "last mover advantage" issue hindering the deployment of ITS (including C-ITS).
- Contributions that concretely support the development of more efficient policies for C-ITS deployment across the EU, accelerating the roll-out of related services in line with those agreed in the context of the C-ITS Platform.
- New business models that are able to inform decision-making across a variety of stakeholders and identify potential incentives to accelerate deployment.**

Type of action	Coordination and support action
Deadline	26 January 2016
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2098-mg-6.3-2016.html



Call – Mobility for Growth

MG-8.1-2016

Research, technology development and market trends for the European transport manufacturing industries

Specific challenge

European transport manufacturing industries across different sectors are well positioned in the global market. However, they are faced with new challenges stemming from the need to move to smart, green and sustainable transport technologies and systems within a relatively short period of time, as well as from the changing mobility demand, increasing international competition and the appearance of new players (for example, in the area of automation, data analytics, etc.). The challenge is to provide an overview of research, technology development and innovation capacities and strategies of the European transport manufacturing industries, and **identify present and emerging market trends at a global scale**, making use of diverse data and information sources.

Scope

Proposals should address the following aspects:

- **Analyse the investment trends, productivity levels**, technology choices and options, industrial strategies, research and technology development capabilities and funding efforts of the European producers of transport means, including manufacturers of vehicles, equipment, components and systems, in the automotive, aeronautical, ship-building and rail vehicle industries.
- **Assess the competitive advantages and disadvantages of those industries in relation to their main competitors world-wide, including new players from other areas who are active in new fields like automation; project their global market share prospects and predictable employment level scenarios.**
- **Analyse the economic potential of new technologies, products and markets and their role in the determination of the industrial and commercial strategies of the major players; and assess the success factors of those strategies.**
- **Consider the incidence of legislation and regulation at national and supranational level on industrial practices, innovation potential and global competitiveness.**

The expected duration of actions is between 12 and 18 months.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 1.5 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 of the** research and technology development capabilities, innovation challenges and **market prospects of the European transport industries**, taking into account the heterogeneous nature and future demand of the transport sector.
- Proposals are expected to demonstrate how the knowledge produced will enable stakeholders and policy makers to identify possible gaps in the research, technology development and innovation capacities and strategies of the European transport industry, particularly with regard to emerging market prospects, and elaborate appropriate measures at a corporate and policy level.

Type of action	Coordination and support action
Deadline	26 January 2016
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2102-mg-8.1-2016.html



Call – Mobility for Growth

MG-8.2-2017

Big data in Transport: Research opportunities, challenges and limitations

Specific challenge

Technological developments, particularly related to the extended and expanding use of ICT in the transport sector, allow the collection of unprecedented volumes of data across all modes and transport systems. These volumes of data, known also as "big data", have generated a strong interest in the transport research community as well as in the relevant industries and among policy makers.

From freight transport and supply chain optimisation to evacuation modelling and crowd dynamics under extreme phenomena, and from short-term traffic forecasting to **travel behavioural research** and the use of social media for efficient transport operations, the so-called trend of big data has created a wide spectrum of challenges and opportunities in the field of transport research. **Indicative areas of research could, for example, cover travel behaviour (by incorporating in modelling processes heterogeneous sources of information), logistics and consumer preferences, network capacity planning and optimisation (e.g. in the case of toll roads), risk management, response to extreme weather events or other emergency situations. Disaggregated data analysis by users' groups (e.g. age, gender) will contribute to better focus specific needs and trends.** At the same time, the collection and possible exploitation of "big data" pose a number of questions both in methodological terms as well as in legal, institutional and social ones, which need to be addressed. The main challenge is therefore to investigate the implications of the utilisation of big data in the transport field.

Scope

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

—Identification of areas and contexts in which ICT investments and exploitation of data should be implemented. Examination of a series of different case studies and contexts throughout Europe, in order to provide useful information and suggestions on the prerequisites of successful big data implementation in the transport sector from a socio-economic point of view.

—Identification of methodological issues and the development of necessary tools in order to allow for effective data mining and data exploitation.

—Analysis of the barriers and limitations of the transportation system to exploit big data opportunities. This point should address issues that range from technical to institutional. For example, many transportation agencies and authorities, transport industries, etc. may not consider profitable the investment in collecting and analysing big data, worrying also about the associated costs and risks of data collection and sharing.

—**Examine the institutional and governmental issues and barriers concerning the application of big data in transport providing policy recommendations towards "data openness" and sharing. Issues of legitimacy and public acceptance (e.g. privacy, data security, etc.) are important and should be adequately addressed.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.5 and 1.5 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

Appropriate exploitation of big data can help policy makers at the EU, national and regional level, as well as relevant decision makers to take informed decisions. Better data can help transport authorities and industries to understand the behaviour of travellers and consumers, also in disaggregated groups (e.g. age and gender), provide targeted information and identify policy interventions.

Work under this topic is therefore expected to contribute to evidence-based decision making by improving knowledge on methodological and exploitation issues taking also into account economic and technical considerations.

It is also expected to contribute to an early identification of critical issues linked to privacy, data security, legal and institutional aspects. It may therefore facilitate the development of an appropriate legal framework for the collection and exploitation of big data in the area of transport.

Type of action	Coordination and support action
Deadline	1 February 2017
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2106-mg-8.2-2017.html



MG-8.3-2016

Assessing future requirements for skills and jobs across transport modes and systems

Specific challenge

Transport is a rapidly developing and changing sector which faces problems to develop, attract and retain appropriate staff. As the overall trend is to increase automation, the sector will depend more and more on specialised equipment and products. Future jobs will therefore require new and advanced skills in engineering as well as in back office operations, but at the same time, the growing interdisciplinary elements of transport activities will also require transport professionals with developed skills in safety, security, logistics, IT, behavioural sciences, marketing and economics. As a consequence a new paradigm needs to be developed in training and education cross-fertilizing the disciplines and combining traditional training methods (e.g. face-to face classrooms, on the job training, etc.) with alternative methods and learning systems (such as web-based training, immersive virtual learning environments /IVLE, etc.) addressing the different needs of the various skill levels (from low skilled workers to high skilled managers/researchers) and incorporating lifelong learning aspects which seem particularly important for the low and middle-skills segments of the workforce.

The specific challenge of this topic will be to identify and assess future requirements for skills and training tools/methods across transport modes and systems, in order to improve the potential of the workforce and improve the gender balance in the field of transport.

Scope

Proposals should address all the following aspects:

—Explore the impact of the deployment of new technologies new business models, growing internationalisation, increased intermodality and interdisciplinarity of transport activities on employment profiles and identify future requirements of skills and competences across all skill levels of the transport workforce.

—Identify critically review (and benchmark) existing and/or innovative training and learning methods and tools with a view to address the needs of the workforce in transport modes and systems of a growing complexity.

—Identify critical issues to be addressed and subjects to be taught in order to meet the future needs of transport across all skills levels; identify and/or propose specific curricula for training in particular for the mid-low skilled workers and those who need to upgrade their skills through lifelong learning.

—Define the competences of trainers and design new profiles of teams devoted to facilitating the transfer of knowledge through innovative ideas/methods.

Issues of gender and age are important and should be appropriately considered.

Actions should take into account and coordinate with, where appropriate, with other EU and national initiatives in the field, such as those supported in the context of Erasmus+ and its sector skills alliances.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 3 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

As described in the specific challenge, the transport sectors will undergo significant changes over the next years with the gradual deployment of new technologies, increased intermodality and internationalisation. These changes will lead to new requirements for skills and competences of the workforce in practically all relevant sectors. Work under this topic is expected to provide the identification of these new requirements, a critical review and analysis of educational and training needs and methods thus contributing to the elaboration of new training curricula, tools and methods to be used for the development of a workforce capable of meeting the future needs of the sector across Europe. While, in the mid-term, work under this topic is expected to contribute to a better qualified labour force in the various transport sectors, in the longer term is expected to contribute to improved transport services as well as the employment prospects and gender balance of the sector.

Type of action	Research and Innovation action
Deadline	26 January 2016
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2081-mg-8.3-2016.html



MG-8.4-2017

Improving accessibility, inclusive mobility and equity: new tools and business models for public transport in prioritised areas

Specific challenge

Accessibility is a concept used in order to address both travel patterns, attitudes and needs of particular social groups – e.g. gender specific needs, unemployed persons, vulnerable to exclusion citizens such as elderly, children, disabled, etc., as well as the mobility needs and transport use characteristics of people living in different types of areas such as rural, remote or deprived urban areas. To obtain a more comprehensive view which will allow the elaboration of measures and transport systems that will improve inclusive mobility and equity, and support social innovation in this area, it is necessary to incorporate both approaches considering specific geographical factors as well as the mobility needs and capabilities of particular population groups.

Rural areas, for example, are faced with continuous challenges linked to demographic, socio-economic and mobility factors such as: declining populations characterised by more pronounced ageing; income factors; reduced number of services and economic viability of public transport schemes; longer distances and different mobility needs related to public transport. Urban peripheral, suburban and deprived urban areas on the other hand are often characterised by population groups which face acute social, demographic and economic problems which impact on their mobility and on their ability to use available transport systems on equal terms.

In this context, the main challenge of this topic is to examine whether organisational, technological (including extended use of ICT) and social innovations in public transport can lead to improved accessibility, inclusive mobility and equity in prioritised areas, by responding better to their specific needs and demographic/socio-economic characteristics.

Scope

Proposals should address all the following aspects:

—Analysis of the characteristics of prioritised areas in terms of spatial, demographic and socio-economic characteristics and identification of the factors that influence mobility and accessibility.

—Exploring travel behaviour and social habits of the population in a disaggregated way and assessing travel demands in prioritised areas.

—Addressing mobility needs of vulnerable to exclusion population groups such as: elderly, children, youth, disabled, people in poverty etc., as well as possible limitations to the use of new transport business models (e.g. IT illiteracy of elderly or low educated persons, pricing, etc.). Identification of gender-related specificities in each group is strongly recommended.

—Critical assessment of existing innovative organisational and operational frameworks aimed at delivering new mobility solutions and their impact on inclusive mobility and equity.

—Identification and/or development of new, efficient, inclusive, affordable and accessible mobility solutions and public transport models taking also advantage of IT applications (such as social media, app-oriented services, etc.).

The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 3 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

As described in the specific challenge, certain geographic areas (such as rural, remote and deprived urban areas) as well as population groups (such as the elderly, disabled, in poverty, etc.) are faced with particular challenges regarding their mobility needs and capabilities, to which current public transport systems do not always respond adequately.

Work under this topic is expected to contribute to:

—The identification and critical assessment of sustainable and inclusive mobility options for European citizens in prioritised areas and improve accessibility offered by public transport systems.

—The development of effective, efficient and affordable mobility solutions which respond to the specific needs of particular population groups such as the elderly, the young, the disabled, taking into consideration the gender aspect.

—The elaboration of new business models for public transport, with the deployment of organisational, technological (such as IT and app-oriented services) and social innovations taking into account possible social and demographic barriers for their effective use.



Call – Mobility for Growth

Type of action	Research and Innovation action
Deadline	1 February 2017
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2103-mg-8.4-2017.html



MG-8.5-2017

Shifting paradigms: Exploring the dynamics of individual preferences, behaviours and lifestyles influencing travel and mobility choices

Specific challenge

There are indications that transport may be entering a period of paradigm shifts due to the introduction of disruptive technologies but also due to changes in individual preferences, behaviours, lifestyles and the emergence of social innovation and new concepts which are likely to impact on the future transport models and management. Some of these changes are already present, as for example, the growing trend towards vehicle sharing practices in many European cities, while others may still be at their very early stages, as for example, changing values of travel time.

Car sharing has been gradually developing over the past two decades while new business models and social innovation are likely to emerge in the forthcoming years fostered also by new IT applications (app-based services). This relatively short period of time has not allowed for a comprehensive and established assessment of its various impacts in social, economic and environmental terms. Estimates for its growth potential over the next decades vary considerably, so do estimates about the "replacing capacity" of car sharing. Similarly, its effects in reducing congestions, emissions and noise – especially in urban areas – as well as the impact on car manufacturing industries have not been sufficiently explored.

Travel time savings is often the principal benefit of a transportation project and efforts to achieve faster travel have been long dominating decision making. The value of travel time has been perceived as a cost which includes costs to businesses of the time their employees and vehicles spend on travel, and costs to consumers of personal (unpaid) time spent on travel. However, as technology evolves (particularly ICT), people can use their time during travel for business or leisure thus "reducing" the cost of travel in economic terms and allowing other considerations (such as energy savings, pricing, environmental and social considerations) to affect their travel time preferences.

Transport research is needed to explore at an early stage the dynamics of such changes and their impacts in socio-economic and environmental terms. The specific research challenges of this topic are to provide comprehensive analyses of these new preferences, behaviours and lifestyles, identify the main factors that influence them and assess their potential economic, social and environmental impact. In all aspects, issues of age and gender should be taken into consideration.

Scope

In order to meet this challenge, proposals should address one of the two following parts:

1. Shifting from car ownership to sharing. Proposals should:

— Compare the existing trends and forecasts across the EU and identify the factors (economic/social/demographic/spatial/cultural aspects), that influence the varied implementation of such schemes in different countries/regions/cultures including the growing use of app-based services.

— Compare and benchmark existing business models, social innovations and identify possible new ones.

— Assess the implications of car sharing schemes for the European car industry (impact on foreseen sales of conventional and electric cars, other revenues, etc.).

— Assess the potential impact on emissions, noise and congestion, especially in urban environments, as well as on safety of potential users.

2. Changing value of travel time. Proposals should:

— Analyse differences between various travel motivations (leisure, business) and the related travel time value and examine the extent to which the proliferation of ICT applications such as wifi connections (e.g. in trains, ships) tend to reduce the perceived cost of travel time for private and corporate travel. Gender disaggregated data collection and analysis could contribute to a more thorough analysis.

— Identify possible areas where a shift away from the "speed paradigm" would be feasible and provide estimates of environmental, socio-economic and organisational implications.

— Propose cost-benefit analyses of additional time savings in case of already advanced transport connections (e.g. need for faster high speed trains, for new sections of motorways in certain "almost saturated" areas, etc.) taking into account the possible new concepts of value of travel time and their environmental and socio-economic implications.

The Commission considers that proposals requesting a contribution from the EU between EUR 1 and 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.



Call – Mobility for Growth

Expected impact

As mentioned in the specific challenge the topic seeks to provide comprehensive analyses of the dynamics of new preferences, behaviours and lifestyles, to identify the main factors that influence them and to assess their potential economic, social and environmental impact. Work under this topic is expected to collect and provide up-to-date information on the present state of development of new business models and social innovations, a reliable assessment of their growth potential across different geographical cultural and economic environments and an assessment of their impact in areas of key policy interest, such as urban congestion, emission and noise reductions. In addition, it is expected to provide concrete assessments of their impacts on the European car industry (including electric vehicles) over the mid-long term.

The collection of updated and reliable data on the car sharing market and its prospects as well as assessments on their social, economic and environmental impact will facilitate evidence-based policy making particularly with regard to urban congestion/emissions/re-organisation of urban transport. It will also contribute to a forward looking analysis of the prospects of the European car industry market.

Work is also expected to contribute to the generation of new knowledge in a new and under-researched area which may lead in the short-medium term to different cost-benefit assessment methods of transport projects and in depth knowledge of users attitudes and choices with respect to travel time and in the longer term in possible energy savings and emission reductions as well as re-organisation of transport routes and schedules based on different perceptions of the value of travel time.

Type of action	Research and Innovation action
Deadline	1 February 2017
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2104-mg-8.5-2017.html



Call – Mobility for Growth

MG-8.6-2016

Innovation awards for students and researchers in the context of the Transport Research Arena conference - TRA 2018

Specific challenge

To promote the interest of students and researchers on research and innovation in the transport sector, by rewarding the best innovative ideas and research achievements in this field.

Scope

The action should focus on organising two competitions for transport research and innovation awards to be assigned at the TRA conference in 2018:

—A competition for students and young researchers with the goal of stimulating the interest among young researchers/students in the field of transport.

—A competition for senior researchers in the field of innovative transport concepts based on results from EU-funded projects only.

Both competitions should cover all transport modes and cross-cutting issues (technological, socio-economic and behavioural aspects) in line with the EU policy objectives for smart, green and integrated transport. The organisation of these awards should ensure high-quality competition and very good media coverage before, during and after the TRA conference.

The action should give particular attention to gender issues.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.4 and 0.6 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

This action is expected to increase the attractiveness of transport related studies and reinforce the pursuit of excellence in European transport research and innovation, by giving recognition and visibility to the best achievements. The TRA conference is expected to efficiently disseminate knowledge and results of European and national research projects in the area of transport and thus improve the development and deployment of innovative solutions for transport in Europe.

Type of action	Coordination and support action
Deadline	26 January 2016
Call identifier	H2020-MG-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2101-mg-8.6-2016.html



Topics with minor SSH relevance

MG-2.1-2017: Innovations for energy efficiency and emission control in waterborne transport

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2113-mg-2.1-2017.html>

MG-3.2-2017: Protection of all road users in crashes

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2109-mg-3.2-2017.html>

MG-3.4-2016: Transport infrastructure innovation to increase the transport system safety at modal and intermodal level (including nodes and interchanges)

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2088-mg-3.4-2016.html>

MG-3.6-2016: Euro-African initiative on road safety and traffic management¹⁴

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2097-mg-3.6-2016.html>

MG-5.1-2016: Networked and efficient logistics clusters

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2084-mg-5.1-2016.html>

MG-7.1-2017: Resilience to extreme (natural and man-made) events

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2114-mg-7.1-2017.html>



Call – Automated Road Transport

ART-02-2016

Automation pilots for passenger cars

Specific challenge

It is expected that automated vehicles at automation level 3 (Conditional Automation) will enter the market by 2020 to 2025. In the past years, there have been significant efforts in research to develop the technologies for vehicles and infrastructure to enable automated driving functions. However, substantial challenges remain on the path to a European wide deployment. There is a great need to demonstrate the technological readiness, reliability and safety of the automated driving functions in a large scale pilot at European scale. Before the market introduction, it is important to test automated cars in mixed traffic situations, analyse the interaction between the driver, the cars and the traffic environment, study the behaviour of other traffic participants and get an insight into automated driving under different conditions (e.g. traffic intensity, weather, lighting, etc.). In addition these pilots should **assess the viability of different business models to ensure investments are done by those benefiting the most**. For implementing large scale testing, **Member States may need to adapt their regulatory framework and solve liability issues in case of accidents with automated vehicles**.

Scope

The action will integrate and test enabling technologies for automation level 3 (Conditional Automation) and evaluate the benefits in Field Operational Tests (FOTs) for passenger cars. Possible additional functions towards level 4 (High Automation) can also be tested, although the focus of the FOT should be on technologies for automation level 3. This needs the active involvement of all stakeholders such as car manufacturers, automotive suppliers, road users, insurance companies, road and traffic authorities, the EU Member States, etc., because the responsibility and liability of all stakeholders relating to the testing, demonstrating and use of automated cars requires clarification before market introduction. The FOTs should take place in at least 3 different countries. Automation pilots for all driving situations (i.e. from highway to urban) are within scope. If proposals include FOTs on highways, testing across borders should be considered. Consortia should commit to make the data collected during the pilots available through common data sharing frameworks in order to foster further research.

The automation pilots should consider all the following aspects:

- Demonstrate the robustness and reliability (functional safety) of technologies, systems and functions needed to support the gradual progress towards full automation, in particular from level 2 – Partial Automation (human driver monitors the driving environment) to level 3 (Conditional Automation) including possible additional functions towards level 4 (High Automation).
- Evaluate effects of automated driving systems (e.g. on traffic flow, communication, etc.) in a mixed traffic environment with automated and non-automated vehicles and under different conditions (e.g. traffic intensity, weather, lighting, etc.).
- **Analyse user acceptance and behaviour; study interaction between the driver, the vehicles and the traffic environment and behaviour of other traffic participants.**
- Focus on the in-vehicle evaluation of the driver under real traffic conditions in particular during the transition of control from the vehicle system to the driver and vice versa, e.g. expectations, adoption, acceptance, trust, usability driver position; human-vehicle interaction, monitoring strategies; investigate intended and unintended use of the system and possible mitigation solutions; evaluate fail operational solutions (e.g. emergency stop). Gender balanced representation of the reference group should be ensured and data analysed in a disaggregated way.
- **Conduct impact assessment** (e.g. safety, energy use, pollutant emissions, traffic congestion, mobility behaviour, **social inclusion**, use of transport services, etc.) on real world data sets.
- Establish a pan-European common catalogue on necessary characteristics of cooperative decision, planning and control algorithms, including self-adaptation and learning features and ethical questions.
- Fulfil all security requirements to protect the system to any threats and avoid any conscious manipulations of the information enabling automated driving systems.

Proposed actions may consider C-ITS communication and European GNSS as a possibility to improve the safety and reliability of automated transport systems in the future.

The size of proposals will depend on the geographical coverage of the large scale demonstrations.

Consideration should be taken of gender aspects and other demographic factors such as ageing, etc.

The Commission considers that proposals requesting a contribution from the EU of between EUR 18 to 36 million each would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.



Call – Automated Road Transport

Expected impact

Actions are expected to demonstrate the technological readiness, reliability and safety of the automated driving functions in a large scale pilot at European scale. They will test automated vehicles at automation level 3 (including possible additional functions towards automation level 4) in mixed traffic situations. Actions are expected to demonstrate that automated driving systems for passenger vehicles can contribute to increase road safety and transport efficiency, reduce energy use, pollutant emissions and traffic congestions, and therefore support climate action and sustainable development objectives. **This action will provide significant contributions in the following areas:**

- **User acceptance and the interaction between the driver, the vehicles and the traffic environment** (including other road users) in different real traffic conditions.
- **Wider socio-economic impacts of automated driving and the benefits for the driver in terms of mobility, comfort, convenience and safety and analyse specific issues related to gender and other demographic factors such as ageing, etc.**
- **Uptake of new automated transport business models.**
- Benefits resulting from the interaction between automated driving technologies and V2X communication (connected driving).

Type of action	Innovation action	
Deadline	1st stage - 20 January 2016	2nd stage -29 September 2016
Call identifier	H2020-MG-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2058-art-02-2016.html	



Call – Automated Road Transport

ART-04-2016

Safety and end-user acceptance aspects of road automation in the transition period

Specific challenge

Automated vehicles will be accepted by customers and society only when they will be deemed easy-to-use and fully reliable and safe regarding the planned manoeuvres and their execution. A key challenge is to ensure safe vehicles handling with reduced driver attention. Especially for level 3 automated driving systems an effective interaction between the driver and the automated vehicle plays an important role. To act in harmony with driver expectations, these systems should be engineered following a user-centric approach. User acceptance is particularly important for the design of, driver interfaces that will facilitate the transitions between human and automated driving. Moreover, the automated driving systems should be resilient to both system and driver failures and guarantee sufficient reliability and robustness in each and every situation in real world traffic. The introduction of automated vehicles into the existing traffic poses specific issues regarding safety, in particular during the transition period where there will be interactions with other vehicles (of any degree of automation or none) and other traffic participants such as pedestrians or cyclists.

Scope

Proposals for research and innovation activities should address one or several of the following domains:

—**Analyse user requirements, expectations and concerns (e.g. interaction with the system, trust, liability, privacy concerns, security, minimum safety and performance standards, etc.) related to the use of automated driving systems.**

—Design safe human-machine interface and driver monitoring strategies to maximise the intuitiveness and situation awareness; enable safe and appropriate driver take over strategies; **monitor drivers' behaviour, predict drivers' actions, and increase drivers' acceptance.**

—Safety of automated driving in mixed traffic situations. Develop fail-safe/fault tolerant systems and solutions for highly reliable and safe operations of automated vehicles in any kind of complex and mixed traffic situations in the transition period, also including safe interactions with all different road users and difficult weather conditions.

Gender issues are particularly relevant and disaggregated data collection and analysis is strongly recommended.

In line with the Union's strategy for international cooperation in research and innovation⁵⁰, international cooperation is encouraged. In particular, proposals should foresee twinning with entities participating in projects funded by US DOT⁵¹ to exchange knowledge and experience and exploit synergies.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 to 6 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

Actions are expected to develop safe automated driving systems which are fully in line with user expectations, easy-to-use and allow an effective interaction between the driver and the automated vehicle. These automated driving systems will be resilient to both system and driver failures and guarantee sufficient reliability and robustness in mixed traffic situations. Actions will provide significant contributions in the following areas:

—Reducing the number of accidents caused by human errors, such as inattention and distraction. Research will therefore help to achieve the European policy objective of halving road deaths by 2020, and, in the longer term, the Transport White Paper "Vision Zero" objective by preventing road accidents caused by human errors.

—Maintaining the leadership position in developing user-centric, safe and reliable vehicle automation systems by the European vehicle manufacturers and their suppliers.

—Proper validation procedures for automated driving systems to assess and test functional safety and performance.

—**Integrating user requirements, expectations and concerns related to the use of automated driving systems.**

Type of action	Research and Innovation action	
Deadline	1st stage - 20 January 2016	2nd stage -29 September 2016
Call identifier	H2020-ART-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2057-art-04-2016.html	



Call – Automated Road Transport

ART-07-2017

Full-scale demonstration of urban road transport automation

Specific challenge

Fully automated road transport systems have the potential to revolutionise urban transport offering high quality public transport services which are not feasible with conventional public transport systems. Low speed full automation systems have been demonstrated in several European cities. However full-scale demonstrations are still necessary to prove the reliability, safety and robustness of fully automated road transport systems in complex scenarios in urban areas. In addition, **it is necessary to address the remaining questions, such as user acceptance and legal framework and to develop business cases to make fully automated urban road transport systems economically viable.**

Scope

Proposals should demonstrate fully automated road transport systems which should be complementary to mass transit to reach low to medium demand areas with high quality transport services. A fleet of automated road transport vehicles (e.g. light weight vehicles, cyber cars, small buses) should be implemented at pan-European level in urban and/or sub-urban areas. The demonstrated systems should be fully integrated into existing public transport systems and should provide evidence of their safety, reliability and fault tolerance in complex traffic scenarios (with automated and non-automated vehicles, pedestrians, cyclists, powered two-wheelers, etc.)

Proposed actions should assess the user acceptance and effects on transport demand and modal transfer. **Attention should also be paid to the analysis of socio-economic impacts and benefits of urban automated vehicle fleets as part of an integrated transport system, such as improved accessibility of persons with reduced mobility, elderly, etc.** Gender specificities should be considered. Recommendations for local and national authorities to deploy fully automated road vehicles should be developed.

Active participation of SMEs is strongly encouraged.

In line with the Union's strategy for international cooperation in research and innovation, international cooperation is encouraged. In particular, proposals should foresee twinning with entities participating in projects funded by US DOT to exchange knowledge and experience and exploit synergies.

The Commission considers that proposals requesting a contribution from the EU of between EUR 10 to 15 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

Actions are expected to demonstrate the reliability, safety and robustness of fully automated road transport systems in complex scenarios in urban areas. They should develop innovative solutions for the safe and smooth integration of automated vehicles into the existing transport system in urban areas, as well as door-to-door public transport services, which can change radically the mobility paradigm of European cities. Therefore, actions will contribute to the development of modern, more efficient urban transport systems, with reduced impacts on climate change, air pollution, noise, health and accidents.

Moreover, actions will provide detailed knowledge and recommendations which enable transport authorities, policy makers and business to invest in urban automated vehicle systems and support the development of innovative mobility services (e.g. car sharing, road train systems, etc.).

Type of action	Innovation action	
Deadline	1st stage - 26 January 2017	2nd stage -19 October 2017
Call identifier	H2020-ART-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2061-art-07-2017.html	



Topics with minor SSH relevance

ART-03-2017
Multi-Brand platooning in real traffic conditions

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2062-art-03-2017.html>





Societal challenge 5
**Climate action, environment,
resource efficiency and raw
materials**

SC5-03-2016

Climate services market research

Specific challenge

Climate services are a specialised field, but have the potential to evolve into a promising market, able to scale up the cost-effectiveness of climate change adaptation and mitigation in Europe and beyond. To enable the growth of the climate services market, there is a need to better understand the nature and scope of both the demand and supply sides, and to assess constraints and opportunities, so as to identify the untapped potentials and enabling conditions for market development in Europe.

Scope

a) Defining the European and international climate service market characteristics and foresight into market growth: Proposals should develop a comprehensive analysis of users, their needs, constraints and capabilities, and a systematic assessment of European climate services providers/purveyors – operating at national, European and international levels – together with their business models and services provided. Based on this, the potential for market development should be assessed. This covers assessing the potential of including climate services in the decision-making process of perspective users (public administrations, business, individuals); translating users' needs into the required services, access and capabilities; assessing the divide between users' needs/perceived market potentials and services supplied, and identifying service and innovation gaps and responses.

b) Climate services market barriers and enabling conditions: Proposals should assess the constraints and enablers – of scientific, technical, legal and socioeconomic nature – for the uptake of climate services and the growth of the market, leading to identification of gaps and responses. Proposals should develop a comprehensive analysis including: the assessment of policy environments and supportive frameworks (e.g. incentives, voluntary schemes, and standards); the assessment of the implications of competition and synergies among different provision modes (public/private, EU/national/local level); the analysis of ethical, legal and intellectual property implications of provision and use of climate services, including the assessment of criteria and protocols for quality assurance and quality control.

For both, based on appropriate surveys and analysis of case studies, proposals should develop best practices and recommendations for both climate services providers/purveyors and policy makers, with a view to growing the market and enhancing users' access to quality services.

Adequate involvement of, and outreach to, relevant stakeholders and multiplier organisations, as well as feedback and linkages to the relevant platforms and research and innovation actions in the field should be ensured. The topic calls for a strong trans-disciplinary approach. The participation of partners with a sound track record in market research is expected.

Projects with duration of maximum 2 years will be financed. The Commission considers that proposals requesting a contribution from the EU in the range of EUR 1.5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

The project results are expected to contribute to:

- enhanced access to climate services;
- greater reliability of climate services;
- better relevance and use of climate services for and by user organisations, through a supportive environment for business and the development of existing and creation of new markets, building market share;
- the development of a new generation of highly-customised climate services, tailored for users' needs;
- strengthening and broadening the use of climate services to new sectors/users.



Call – Greening the Economy

Type of action	Research and Innovation Action
Deadline	8 March 2016
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2200-sc5-03-2016.html



SC5-06-2016-2017

Pathways towards the decarbonisation and resilience of the European economy in the timeframe 2030-2050 and beyond

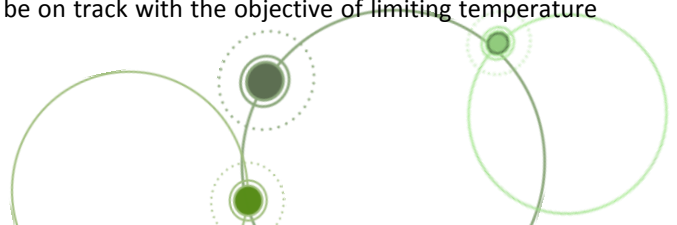
Specific challenge

In the broad spectrum of the feasible decarbonisation pathways, the challenge for **political and economic decision-makers** is to weigh uncertain impact chains against potentially devastating damage, immediate and medium-term engagement against long-term benefits, and the need for global mitigation efforts against **differences in economic and political outlook on the international scene**. It is therefore imperative to build a comprehensive evidence-based framework for research, business, investment and policy decision making which is able to assess the **socio-economic implications** of and incentives for medium- to long-term decarbonisation pathways (including their associated costs, benefit and risks), the challenges of planning medium- to long-term technological transitions, the adequacy of future global commitments for achieving long-term climate goals as well as **the risks and costs** of climate change. This action should be built around the co-design of pathways and scenarios with **economic and societal actors** and address relevant **cross-sectorial perspectives** of the decarbonisation of the European economy.

Scope

Trans-disciplinary approaches, including social sciences, are considered necessary to address this specific challenge. Projects should also foresee activities to cluster with other projects financed under this topic and – if possible – also under other parts of Horizon 2020. Proposals should address one of the following:

- a) Managing technology transition (2016): The decarbonisation of European society will require a series of gradual or rapid technology changes in different sectors such as power generation, transport, industry, agriculture, and residential energy use. The massive deployment of new or existing low-carbon and smart technologies within a relatively short time represents an enormous challenge for innovators, regulators and investors, as well as for users and citizens. Proposals should explore and address the challenges of planning technological transition ahead of time and prioritising within and between different sectors in Europe so as to support stringent mitigation policies, taking into account among other aspects the inertia in innovation systems and lock-in effects. Special emphasis should be given to non-technological factors and drivers and innovative solutions influencing the development and deployment of low-carbon and smart technologies within the transformational requirements of the deep decarbonisation pathways for the timeframe 2030-2050 and beyond. Proposals should also explore the inter-linkages between large-scale deployment of low-carbon technologies and intra-EU and **international trade**, energy security, **job creation and the competitiveness of the European economy**, as well as the necessary **policy interactions across different governance levels (EU, national and sub-national)**. In addition, proposals should address **the socio-economic and environmental implications of deep decarbonisation**, including the consequences for **supply chains and production of goods** (e.g. agriculture, industry, feedstock, raw material availability) and the **impacts on various social groups** (including gender aspects). Proposals should also identify necessary changes in investment patterns, **financial mechanisms and regulatory incentives in order to achieve sustainable growth, job creation** and ambitious low-carbon goals. Proposals should provide a research and innovation framework which allows the co-design of pathways and scenarios with **key economic and societal actors and addresses relevant cross-sectorial perspectives of the decarbonisation of the European economy**. The Commission considers that proposals requesting a contribution from the EU of between EUR 4 million and EUR 6 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.
- b) Assessment of the global mitigation efforts in the perspective of the long-term climate goal (2016): The Parties of the United Nations Framework Convention on Climate Change (UNFCCC) agreed to limit the rise of global mean temperature to 2°C compared to preindustrial levels, in order to prevent dangerous anthropogenic (i.e. human-caused) interference with the climate system. The 21st Conference of Parties of the UNFCCC, known as COP21, which will be held in December 2015 in Paris, will mark a milestone in the course of international efforts to engage on global climate action consistent with the 2°C target. Proposals should analyse the adequacy of the outcomes of COP21 and the pledges of major emitting countries in view of the long-term climate goal. Proposals should also address the available pathways and necessary level of actions that will be needed to be on track with the objective of limiting temperature



Call – Greening the Economy

increase to below 2°C. Furthermore, proposals should analyse the implications and opportunities emerging from the UNFCCC negotiations on European decarbonisation and broader objectives, particularly in view of **industrial competitiveness**, green growth, **international trade**, energy security, **public finance and cross-border capital flows**. In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with countries that substantially contribute to global greenhouse gas emissions. Proposals should include partners from (non-European) high-, middle- and/or low-income countries. The Commission considers that proposals requesting a contribution from the EU of between EUR 2 million and EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

- c) The risks and costs of climate change for Europe (2017): Climate change can induce large – or eventually extremely large – environmental and **socio-economic damage**. Defining and assessing complex impact chains under different climate change scenarios – from unmitigated to effectively mitigated – including **macro-economic consequences** (such as impact on growth and welfare) as well as non-market damage constitute a prerequisite of policy-making. In this constantly evolving research area, efforts must continue to further develop modelling tools and formulate more detailed and downscaled projections associated with the possible consequences of climate change, also taking into account climate tipping points and low-probability, high-impact events. Proposals should build on the latest results of climate science, with special regard to the IPCC's 5th Assessment Report and also relevant European projects¹⁰, and contribute to the evolution of methodologies in physical science, risk assessment and **economics**. Improved methodologies should then be applied to the analysis of possible impact chains, as well as to the **economic valuation of climate action** (mitigation and adaptation) in the EU at various levels (regions, countries, economic sectors) over medium to longer-term timeframes. Proposals should focus their analysis on Europe, but take into consideration the global context of climate change. The Commission considers that proposals requesting a contribution from the EU of between EUR 4 million and EUR 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

- a)
- fostering the design and implementation of **cost-effective** medium to long-term technological transitions, consistent with decarbonisation pathways and **economic development in Europe and beyond**;
 - providing a medium to long-term vision on low carbon technological development and deployment in Europe, within the context of a **global economy**;
 - fostering greater transparency of models, methods and tools;
 - contributions to major international scientific assessments (e.g. IPCC);
 - enhancing the science-decision making interface, **though co-creation/co-design with economic and societal stakeholders**;
- b)
- providing a thorough analysis of the adequateness, potential and barriers of international mitigation efforts in the perspective of the long-term climate target, and their repercussions for EU goals and policies;
 - identifying most pressing areas for policy action at European or national/regional level;
 - contributions to major international scientific assessments (e.g. IPCC);
 - enhanced scientific cooperation with third countries;
- c)
- providing more accurate and **downscaled economic valuation** of climate-induced impacts and risks in Europe;
 - decreased uncertainties concerning the **economic valuation of climate action** in the EU, over the longer term (2050 and beyond);
 - fostering greater transparency of models, methods and tools;
 - contributions to major international scientific assessments (e.g. IPCC).

Type of action	Research and Innovation Action
Deadline	8 March 2016
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2201-sc5-06-2016-2017.html



SC5-07-2017

Coordinating and supporting research and innovation actions on the decarbonisation of the EU economy

Specific challenge

There is a constant need for strengthening the information flow and enhancing the exchange of experience on on-going and future European and international research and innovation activities concerning low-carbon transition scenarios, as well as for maintaining continuous dialogue between the scientific community, **economic and societal stakeholder groups** and policy-makers in order to better support EU policy processes targeting the decarbonisation of Europe's economy between 2030 and 2050 and beyond.

Scope

The action will support the work of a panel of personalities, expected to be established by the European Commission. The panel's role will be to provide strategic-level, **trans-disciplinary advice** to the European Commission in this area of research and to ensure co-design through appropriate engagement of relevant stakeholders. This action should create a network of leading scientists and relevant research projects in the field of EU decarbonisation strategies, contributing to the definition of robust scientific statements and coverage of knowledge gaps. The project should from an early stage establish links with policy-makers and stakeholder groups at EU, national and sub-national level, in order **to inform policy and business processes** and set up feedback loops. The project should provide foresight analysis on emerging issues, **produce sectoral and macro-economic syntheses emanating from results of EU-funded projects**, and elaborate recommendations on current and emerging policy-relevant issues. It should also engage in active communication and dissemination of results. This action will have to be implemented in close cooperation with the European Commission's Directorate General for Research and Innovation in order to allow for constant alignment with and support for policy initiatives. The Commission considers that proposals requesting a contribution from the EU of between EUR 2.5 million and EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Up to one action shall be funded.

Expected impact

Project results are expected to contribute to:

- enhanced coordination of European and Member State research and innovation actions on decarbonisation pathways and scenarios;
- better informed **policy and business processes within a cross sectoral and integrated perspective**, based on the latest scientific findings and recommendations for managing a low-carbon transition at various levels;
- the introduction and further development of the notion of **cost-effectiveness**, resulting from better medium-to-longer term planning and coordination.

Type of action	Coordination and Support Action
Deadline	7 March 2017
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2195-sc5-07-2017.html



SC5-08-2017

Large-scale demonstrators on nature-based solutions for hydrometeorological risk reduction

Specific challenge

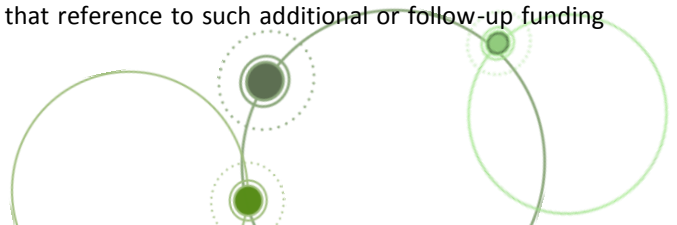
Economic damage costs from extreme hydro-meteorological events (such as floods, droughts, storm surges, landslides) are increasing throughout Europe. Further investment in traditional, engineering solutions for risk prevention is no longer possible in several cases, due to the very high costs, and to the limited flexibility offered by such solutions to cope with extreme events for which changes in frequency, intensity and distribution may be expected due to climate change. Nature-based solutions can be flexible, multi-beneficial alternatives to traditional engineering, but adequate proof-of-concept for their upscaling and replication is lacking.

Scope

Via large-scale demonstration, projects should aim to:

- develop, demonstrate and deploy innovative systemic and yet locally attuned nature-based solutions, including green and blue infrastructure and ecosystem-based management approaches, in rural and natural areas, including particularly sensitive ones such as mountainous and coastal areas, for hydro-meteorological risk reduction at watershed/landscape scale. Solutions should be incorporated in an integrated design concept for land management and planning and be co-designed and co-deployed in a **trans-disciplinary multi-stakeholder and participatory context with due consideration to and integration of social and cultural aspects** and climate change effects;
- develop a comprehensive framework for the comparison of green and blue/grey/hybrid hydro-meteorological risk prevention and reduction solutions, taking into account wider land use and adaptation to the effects of climate change, considering impacts on landscape, **local communities and cultural acceptance** as well as co-benefits such as biodiversity conservation/enhancement, more sustainable local livelihoods, human health and well-being, climate change mitigation, etc.;
- identify and assess barriers related to their **social and cultural acceptance** and **policy regulatory frameworks** and propose ways to overcome them;
- develop methodologies, tools and best practices enabling the replication and up-scaling of nature-based solutions in different contexts, including replication of innovative investment strategies, **governance and business models**, as well as performance assessment tools, protocols and standards for the design, operation and maintenance of these solutions;
- provide a consolidated evidence-base on co-development processes, performance standards, **cost-effectiveness**, operational requirements, life cycle costs and the multiple benefits of nature-based **solutions as economically, socially, culturally** and environmentally viable alternatives for hydro-meteorological risk reduction and climate change adaptation at watershed/landscape level, also considering the potential and limits of the solutions under different circumstances and conditions;
- establish long-term sustainable data platforms considering existing initiatives and alternative options, such as pan-European web-based repositories, securing open, consistent data and performance measurements and interoperability of data infrastructures to ensure effective communication, public consultation, exchange of practices and sharing of experiences and a continuous building up of the 'knowledge portfolio' in the longer term (i.e. following project completion).

Proposals shall address all of the above points. The contribution of **social sciences and humanities** to these processes is considered necessary. Projects should envisage resources for clustering with other projects funded under this topic, under topic SC5-10-2016, and relevant topics on sustainable cities through nature-based solutions funded under the 'Smart and Sustainable Cities' call in part 17 of this Work Programme. Because of the substantial investments that might be necessary for implementing the nature-based solutions, additional or follow-up funding (private or public) should be sought, including from relevant regional/national schemes under the European Structural and Investment Funds (ESIF), in particular under the European Regional Development Fund (ERDF), or other relevant funds such as the Instrument for Pre-accession Assistance (IPA II). To this end, projects could seek contact with ERDF/IPA managing authorities and with the authorities who developed the Research and Innovation Smart Specialisation Strategies (RIS3). Please note, however, that reference to such additional or follow-up funding



Call – Greening the Economy

will not lead automatically to a higher score in the evaluation of the proposal. In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), cooperation and synergies with similar international demonstration activities on nature-based solutions for hydro-meteorological risk reduction and climate change adaptation, funded under different financial arrangements or programmes, is encouraged to facilitate mutual learning, sharing of experience, networking and follow-up. The project proposals could already indicate which interested regions/countries or other partners have been pre-identified for contact during the project. The Commission considers that proposals requesting a contribution from the EU of at least EUR 12 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 contribute to:

- the EU being recognised as a leader in nature-based solutions for hydro-meteorological risk reduction and climate change adaptation and thus enhancement of territorial, **socioeconomic** and ecological resilience and coherence;
- the mainstreaming of nature-based solutions in land use planning, landscaping and territorial policies due to the provision of appropriate tools and best practices to assist decision makers, designers, competent authorities, planners, practitioners, enterprises, citizens and other stakeholders in reducing hydro-meteorological risks and in climate change adaptation;
- development of an integrated EU-wide evidence base and a European reference framework on nature-based solutions and **the stimulation of a new culture** for 'land use planning' that links the reduction of risks with local and regional sustainable development objectives;
- **enhanced market demand** for nature-based solutions for hydro-meteorological risk reduction and climate change adaptation, due to the availability of protocols and standards for their design, operation, maintenance, performance monitoring and measuring of their broader **economic, societal** and environmental **benefits**;
- improved disaster risk management, due to enhanced capacity for providing quantitative assessments of nature-based solutions for disaster risk reduction and climate change adaptation;
- **reduced human and financial costs** due to better and more flexible disaster risk management with nature-based solutions;
- enhanced implementation of EU policies for disaster risk prevention and reduction, for climate change adaptation, for Green Infrastructure, and for water management (Water Framework Directive, Floods Directive, Blueprint to safeguard Europe's water resources), as well as of international frameworks, such as the Sendai Framework for Disaster Risk Reduction 2015-2030. Contribution to the priorities of the EIP Water.

Type of action	Innovation action
Deadline	1st Stage: 7 March 2017 2nd Stage: 5 September 2017
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2188-sc5-08-2017.html



Call – Greening the Economy

SC5-09-2016

Operationalising insurance value of ecosystems

Specific challenge

There is an increasing trend worldwide in the occurrence and severity of disasters. This trend will be further aggravated by global changes, including environmental and climate change ones. As a result, individual households, industry, private investors and public authorities are finding themselves increasingly exposed to changing and multiple risks. Ecosystems, through the provision of their services, can provide more holistic solutions to disaster risk reduction and to the mitigation of the effects of climate change, while serving multiple purposes. For instance, they can simultaneously mitigate the impacts of hazards, enhance social, **economic and environmental resilience, and reduce the exposure and vulnerability of communities, businesses, properties and other economic assets**. To promote the uptake of ecosystem-based approaches for disaster risk reduction and climate change adaptation,, the theoretical and empirical exploration of the concept of insurance value of the ecosystems – the value of the sustained capacity of ecosystems to reduce or **eliminate risks to human society and economic activities caused by global change or natural hazards** – and methodologies for operationalizing the concept are needed. The insurance value of ecosystems comprises both an estimate of reduced risk, due to the physical presence of an ecosystem, and of the capacity to sustain risk reduction (resilience of the system) under global change. The insurance value of ecosystems has so far been overlooked in research and practice: e.g. **socio-economic approaches to estimating insurance value are poorly developed**, methodologies for quantifying and qualifying the insurance value of ecosystems are still in their infancy, and **relevant institutional and economic incentives** to protect, enhance or restore this insurance potential are lacking. Nature-based solutions, by means of their proper insurance capacity, can provide **cost-effective solutions** for disaster risk management and reduction, and for climate change adaptation, but can also be used for the protection, restoration and conservation of ecosystems and thus enhance the insurance value of the latter.

Scope

There is need for **trans-disciplinary research** on the insurance value of ecosystems, also **involving legal, economic and financial expertise**, to derive relevant quantitative assessments and propose ways through which such concepts can be practically used, for instance to provide incentives for promoting nature-based solutions in risk management and climate change adaptation agendas. **Trans-disciplinary and participatory approaches** including natural and **social sciences and humanities are therefore considered necessary**. Actions should assess the potential of the insurance value of ecosystems and operationalize it in the design, development and implementation of risk reduction strategies. Proposals should aim to:

- develop methodologies and conceptual frameworks for assessing and monetising the insurance value of ecosystems and to integrate this into disaster risk management and climate change adaptation agendas. Analyse the qualitative and quantitative components and features of ecosystems needed to sustain the insurance capacity of ecosystems, including in urban areas. Provide evidence of the effectiveness of preventing further (ecosystem) degradation and of implementing nature-based solutions to protect, enhance and restore the insurance value of ecosystems, and for the potential of scaling-up from local to regional or other larger geographic scales;
- establish truly **comprehensive participatory processes** that engage all relevant stakeholders, e.g. individuals, industry, private investors, financial institutions and insurance companies and/or public authorities, in the evaluation, development and implementation of the insurance value of ecosystems taking account of the **cultural dimension** of the insurance value of ecosystems and people's perceptions of risks and insurance;
- develop and validate reliable and evidence-based methodologies to quantify short-term and long-term costs, benefits and co-benefits, at different scenarios, of increasing insurance capacity of ecosystems;
- provide EU standardised data, methodologies and models for quantifying insurance value by translating risk reduction and adaptive capacity into (monetary and nonmonetary) value for different actors;
- develop and validate **innovative financial frameworks** and incentives and **recommend changes to legal and/or regulatory frameworks** for maintaining and/or enhancing the insurance capacity of ecosystems. Proposals shall address all of the above points. Projects should foresee activities to cluster with other projects financed under this part of the call, and relevant topics on sustainable cities through nature-based solutions funded under the 'Smart and Sustainable Cities' call in part 17 of this Work Programme. The Commission considers that proposals requesting a contribution from the EU in the range of EUR 5 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

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Expected impact

Projects are expected to contribute to:

- providing a robust scientific underpinning on the quantification, qualification and valuation of the insurance value of ecosystems to enable its full operationalization;
- integrating ecosystems insurance value into conventional insurance policies, leading to lower premiums for land and property insurance policies and **decreased public costs** for risk management and reduction;
- developing new public and private sector insurance models for resilience;
- increased participation and commitment of insurance companies to maintain or enhance the insurance capacity of ecosystems through **innovative business models**;
- increased deployment of multi-purpose and flexible, nature-based solutions by contributing to the development of policies that maintain or enhance the insurance capacity of ecosystems
- **creating new business models** that involve insurance companies in restoration activities;
- enhanced natural capital;
- **creating business opportunities and a market** for the preservation, restoration and protection of ecosystems and natural capital;
- supporting the objectives of the EU Adaptation Strategy, particularly concerning the promotion of climate resilient investments and decision-making in the public and private sectors and the priorities of other EU and international policies, such as the EU Green Infrastructure Strategy and the Sendai Framework for Disaster Risk Reduction, where this is relevant.

Type of action	Research and Innovation action
Deadline	8 March 2016
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2208-sc5-09-2016.html



SC5-10-2016

Multi-stakeholder dialogue platform to promote innovation with nature to address societal challenges

Specific challenge

Nature-based solutions have a large – but largely untapped – potential for delivering multiple ecosystem services (such as carbon sequestration and soil water retention and purification) contributing to green growth, climate action and territory resilience. To promote innovating with nature and speed up market up-taking of nature-based solutions for solving societal challenges there is a need to establish **science-policy-business-society interfaces** to allow for continuous dialogue and interaction. Such interfaces can take the form of multi-level partnerships, which bring together **multi-disciplinary** scientific expertise, **policy, business and society**, including NGOs, CSOs, and citizens as appropriate.

Scope

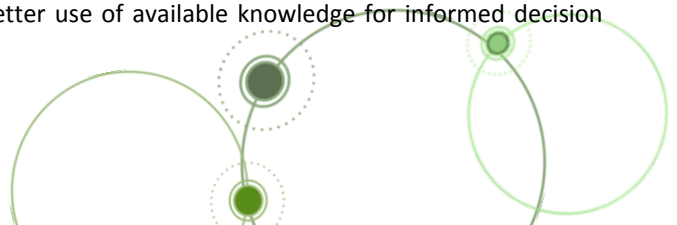
The EU multi-stakeholder innovation platform should aim to develop an integrated evidence base and a European reference framework on nature-based solutions and to promote the co-design, testing and deployment of improved and innovative nature-based solutions in an integrated way and at multiple scales and levels (from European to national, regional and local). This can be best achieved through strategic, effective and sustained dialogue, **interactions and exchanges** between science, **policy, business and society** to mainstream both the available knowledge into policy making and practice, and the needs of policy makers and practitioners into research and innovation policy and agendas. The platform must take due account of the outcomes of the large-scale demonstration projects to be funded under the 'Nature-based solutions for territorial resilience' part of this call as well as those on sustainable cities through nature-based solutions funded under the 'Smart and Sustainable Cities' call in part 17 of this Work Programme. It should also create synergies with other highly relevant ongoing (such as the Biodiversa ERA-net) or upcoming (such as the EU Mechanism for Biodiversity and Ecosystem services) initiatives. Actions should:

- establish a broad multi-stakeholder (**science, policy, business, society**, including SMEs, public and private investors) and multi-level (local, regional, national and EU) innovation platform that facilitates the development of committed innovation partnerships for testing and deploying improved and innovative nature-based solutions (think-and-do-tank);
- steer dialogue to identify specific domains and priorities where further research and innovation is needed for marketable nature-based solutions;
- identify, communicate (e.g. by developing appropriate handbooks) and promote successful innovative nature-based solutions, including best practices, to foster their large scale deployment;
- identify potential regulatory, **economic** and technical **barriers** and propose concrete ways to overcome them;
- foster dialogue and collaboration across levels and with key strategic international partners. In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, in particular with key strategic international partners such as Latin America, countries participating in the Belmont Forum, and South East Asia. Proposals shall address all of the above points. In agreement with the Commission services, projects should ensure appropriate flexibility so as to respond in real time to potentially fast-changing policy scenarios. The Commission considers that proposals requesting a contribution from the EU of up to EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Actions are expected to lead to:

- strategic, effective and sustained multi-stakeholder dialogue between **science, policy, business and society**, functional within six months of the onset of funding;
- emergence of a **global market** for nature-based solutions through:
 - o EU-wide evidence and increased awareness among stakeholders, decision and policy makers, practitioners and public about the multiple benefits, **cost-effectiveness and economic viability of nature-based solutions to address societal challenges**;
 - o better use of available knowledge for informed decision



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making, innovative solutions and more effective deployment; o reduced (regulatory, institutional, cultural etc.) barriers; • **identification of users' needs, market potential** and knowledge gaps to inform a market-oriented EU research and innovation policy agenda for nature-based solutions;

- improved coordination among EU Member States and Associated and Accession Countries on research, innovation and demonstration activities for nature-based solutions;

- improved cooperation and synergies with relevant strategic international research and innovation programmes and key strategic international partners such as Latin America, countries participating in the Belmont Forum, and South East Asia in order to create a global market on nature-based solutions.

Type of action	Research and Innovation action
Deadline	8 March 2016
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2208-sc5-09-2016.html



SC5-19-2017

Coordination of citizens' observatories initiatives

Specific challenge

Citizens' observatories are community-based environmental monitoring and information systems which build on innovative and novel Earth observation applications embedded in portable or mobile personal devices. Thanks to the vast array of ubiquitous information and data they can provide, citizens' observatories can enable authorities to obtain evidence and inform environmental policy making, complementing more authoritative in-situ observation and monitoring networks and systems with a very positive cost-benefit ratio. Citizens are also provided with new opportunities to address environmental issues affecting them and to influence local decision making. **Social innovation** can be achieved through these novel partnerships which involve the private and public sector, NGOs and citizens, offering **new business opportunities for SMEs** in the fields of Earth observation and mobile technologies. These activities are, however, at an early stage and still largely rely on research funding. Risks and opportunities still have to be explored, which requires a comprehensive analysis of their full potential and applicability. There is a need to create a citizens' observatories knowledge base in Europe across disciplines to avoid duplication, ensure interoperability, create synergies and facilitate its gradual uptake by environmental authorities. With an increasing number of citizen-based initiatives, a coordinated approach for the integration of citizens' observations is becoming necessary in Earth observation systems at local, regional and also global level.

Scope

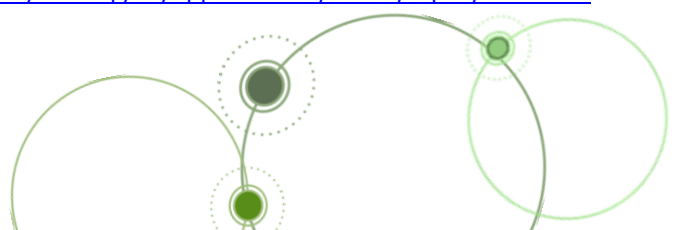
This action should bring environmental citizens' observatories and related communities together with existing relevant activities to benchmark and pinpoint best practices, identify barriers and synergies, promote standards, facilitate integration and stronger cooperation solutions, and stimulate a gradual uptake by public authorities of these new technological and methodological approaches. Relevant issues such as technologies and **methodologies for engaging citizens, social innovation opportunities**, sustainability approaches including the role of the European private sector, especially SMEs, as well as data management and interoperability of platforms should be addressed. A coherent approach should also be taken to ensuring the delivery and uptake of in-situ data and information coming from citizens observatories through GEOSS and Copernicus. Hence, proposals should include a broad range of stakeholders, including public bodies, private sector representatives, research institutions – including from **social sciences and humanities** – NGOs and citizens' associations. To address these points effectively, **social science research tools and methods will be required**. The Commission considers that proposals requesting a contribution from the EU in the range of EUR 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Up to one action shall be funded.

Expected impact

The project results are expected to contribute to:

- improved coordination between existing environmental citizens' observatories and related activities at regional, European and international level;
- expanded geographical coverage and use of environmental citizens' observation through an effective promotion and uptake of best practices and standards;
- wider dissemination and uptake of efficient information and data management and preservation strategies for existing and future citizens' observatory platforms;
- increased opportunities for SMEs and businesses in the field of in-situ Earth observation systems;
- better awareness and use of the citizens' observatories by environmental and disaster risk and emergency management decision makers;
- increased value added of GEOSS and Copernicus through the use of citizens' observations;
- a leading role for Europe in the integration and uptake of citizens' information in GEOSS.

Type of action	Coordination and Support Action
Deadline	7 March 2017
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2196-sc5-19-2017.html



SC5-21-2016-2017

Cultural heritage as a driver for sustainable growth

Specific challenge

European cities and rural areas are unique cultural landscapes full of character at the core of Europe's identity. They are examples of our living heritage which is continually evolving and being added to. However some of them are facing **economic, social** and environmental **problems**, resulting in **unemployment, disengagement, depopulation, marginalisation or loss of cultural** and biological **diversity**. These challenges create demand for testing and experimenting with innovative pathways for regeneration. **Cultural heritage (both tangible and intangible)** can be used as a driver for the sustainable growth of urban and rural areas, as a factor of production and competitiveness and a means for introducing **socially** and environmentally innovative **solutions**. The overall challenge is to go far beyond simple conservation, restoration, physical rehabilitation or repurposing of a site and to demonstrate **heritage potential as a powerful economic, social and environmental catalyst for regeneration, sustainable development, economic growth and improvement of people's well-being and living environments**.

Scope

Proposals should address one of the following:

- a) Heritage-led urban regeneration (2016)
- b) Heritage-led rural regeneration (2017)

For both, actions should develop and deploy via large-scale demonstration projects novel **heritage-led** systemic approaches and solutions for sustainable growth. In order to pave the way for their rapid replication and up-scaling, a 'Role models' and 'Replicators' approach should be implemented. The 'Role models' are urban or rural landscapes which have demonstrably and successfully pursued a **heritage-led regeneration**. The 'Replicators' are urban or rural landscapes that will be assisted/mentored by 'Role models' and committed to their heritage-led regeneration within the duration of the project, replicating the heritage-led regeneration 'blueprints' of the 'Role models', properly contextualised to fit their particular contexts. The 'Replicators' will therefore proactively seek advice, assistance and mentoring from the 'Role models', have privileged contact with them and access to their know-how, and will participate in the definition of user requirements and the methodology for transferability of solutions, data collection etc. The higher the number of 'Role models' and 'Replicators' involved, the larger the evidence base and hence the replicability and up-scalability potential of the project outputs under different contexts. The Commission considers that involving six 'Role models' and three 'Replicators' from different Member States would greatly enhance the potential of a proposal for replicating and up-taking of the results across Europe. Beyond this and in line with the strategy for EU international cooperation in research and innovation (COM(2012)497), participation of 'Role models' from non-EU countries is encouraged, since this would further enrich the evidence base of successfully implemented heritage-led regenerations and would thus enhance the replication and impact potential of such activities in non-EU regions (e.g. Latin America) and countries. Replication critically depends on the timely and active involvement of the 'Replicators' in the project development, the effective and continuous knowledge transfer, mentoring, networking and support by the 'Role models' (e.g. through staff exchanges to enhance their capacity in, among other things, securing the financial resources necessary for the regeneration through **innovative financing and business models**, partnerships (e.g. public/ private) and mobilisation of investments). The success potential of the proposal will be assessed according to the innovative nature and the replicability potential of the approach; **the financing, business and governance models**; the mobilisation of new investments; **the participatory, multi-stakeholder and trans-disciplinary processes** (also securing citizens' engagement and ownership of regeneration plans); the long-term political and financial commitment of the competent authorities in the 'Replicators' to guarantee the project implementation, independently of possible changes in their political context during the course of the project; the capacity for mobilising and leveraging additional investments to secure economic and financial sustainability for the execution of the project; and the soundness of the approach in 'mentoring' and transferring knowledge from the 'Role models' to the 'Replicators' and beyond. Partnerships should involve local and regional authorities, planners, enterprises, academics and local communities in a clearly defined structure with roles and responsibilities properly spelled out for all involved parties. **The participation of social sciences and humanities disciplines such as architecture, archaeological sciences, cultural anthropology, law, economics, governance, planning, cultural and historical studies, is critical to properly address the complex challenges of this topic**. Projects should aim to:



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- map, analyse and systematically document successful heritage-led regeneration models in 'Role models', linking where appropriate **cultural and natural heritage**; make this evidence base readily accessible to an EU-wide community of competent and interested authorities, planners, practitioners, enterprises and stakeholders (including civil society) through innovative communication and training strategies. Particular emphasis should be paid to **successful business and management models, financing mechanisms, leveraging of investments, governance structures**, urban and territorial plans and **legal frameworks**. 'Role models' would, if they so wish, also have the possibility of further upscaling their regeneration activities during the life of the project;
- assist 'Replicators' through provision of expertise, advice and capacity building in developing and implementing during the life of the project their heritage-led regeneration plans, including **appropriate business and management models, financing mechanisms, governance structures, planning tools and legal frameworks**;
- set up a robust monitoring scheme to monitor the performance of the deployed regeneration scheme, so as to assess the impact for the targeted rural and urban areas in an as quantifiable way as possible against a well-defined baseline at the time of the proposal. Performance monitoring should last for a period of at least 2 years within the life of the project. Longer term monitoring commitment beyond the end of the project, while continuing the systematic documentation of the data, will give an added value to the proposal;
- develop methodologies enabling the replication and up-scaling of heritage-led urban regeneration projects in different contexts, including replication of **innovative investment strategies, governance and business models**;
- **identify potential regulatory, economic and technical barriers and propose concrete ways to optimise policy and regulatory and administrative frameworks**;
- establish long-term sustainable data platforms securing open, consistent data and performance measurements and interoperability of data infrastructures to ensure effective communication, public consultation, exchange of practices and sharing of experiences and a continuous building up of the 'knowledge portfolio' through future activities under Horizon 2020 and beyond, and long-term (i.e. beyond the life of the project) exploitability of the results.

Proposals shall address all of the above points. Projects should envisage resources for clustering with other projects financed under this topic as well as other projects under the 'Cultural Heritage for sustainable growth' part of this call and – if possible – also under other relevant parts of Horizon 2020.

Because of the substantial investments that might be necessary for the heritage-led regeneration in the urban and rural context, additional or follow-up funding should be sought, be it private or public, from relevant regional/national schemes under the European Structural and Investment Funds (ESIF), including the European Regional Development Fund (ERDF), or other relevant funds such as the Instrument for Pre-accession Assistance (IPA II). In the case of ESIF/IPA, contacts could be established with the funds' managing body during the duration of the projects. In case of relevance for the Research and Innovation Smart Specialisation Strategies, the project proposals could already indicate which interested regions/countries have been pre-identified. Please note, however, that reference to such additional or follow-up funding will not lead automatically to a higher score in the evaluation of the proposal. The Commission considers that proposals requesting a contribution from the EU of up to a maximum 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 contribute to:

- providing new **heritage-led urban and rural regeneration paradigms**, up-scalable and replicable, replacing the object-oriented approach with a spatial approach in heritage planning and **offering new economic and investment opportunities**, new products and services, reduced regulative and administrative barriers, innovative governance adopting **trans-disciplinary and participatory approaches and promoting citizens' engagement and new local skills and jobs**;
- strengthening Europe's capacity as a world-leader in promoting, financing, developing, managing and replicating **innovative use of heritage for urban and rural regeneration in Europe and beyond**;
- securing heritage conservation and sustainability through fostering collective management, **responsibility and ownership of cultural heritage**, and **establishing a "community of practice" to promote heritage potential as a production (rather than a cost) factor to the society** through unlocking its potential as a driver for regeneration and a catalyser for economic growth and jobs;
- providing as quantifiable evidence as possible of the **cultural, social, environmental and economic benefits** (e.g. set-up of companies, start-ups in new productive activities in different fields new cultural products and services, tourism, construction industry, developing talent, attracting new investment in the regeneration sector etc.) of heritage reuse at different levels,



Call – Greening the Economy

including in deprived or less developed areas;

- mobilising investment and opening up of **new market opportunities for businesses** through networking at European level competent authorities and stakeholders interested in using heritage to regenerate their cities or rural areas;
- positioning Europe as a leading force in **the use of heritage as a means for social, cultural and economic development**;
- assisting regions in developing their Research and Innovation Smart Specialisation Strategies by including sound heritage-led urban and rural regeneration projects.

Type of action	Innovation action	
Deadline	2016 1st Stage: 8 March 2016	2nd Stage: 6 September 2016
	2017 1st Stage: 7 March 2017	2nd Stage: 5 September 2017
Call identifier	H2020-SC5-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2199-sc5-21-2016-2017.html	



SC5-22-2017

Innovative financing, business and governance models for adaptive re-use of cultural heritage

Specific challenge

Due to economic problems and social change many historic assets have been facing functional redundancy. These assets are mostly churches no longer used for worship, industrial buildings no longer used for manufacturing, farm buildings no longer used for agriculture, cultural landscapes which are degrading etc. In most instances, the costs for the adaptive re-use of these assets cannot be supported by the public sector or by traditional private sector models relying on return on investment. Innovative financing, business and governance models would fill up this “investment gap” and enable the maintenance of the historic fabric, its integration with the modern world and thus the appreciation of heritage inherent values and qualities by contemporary societies through optimal adaptive re-use practices.

Scope

Projects should:

- map and analyse existing successful business and management models, financing mechanisms and governance arrangements for adaptive re-use of groups of cultural heritage monuments, cultural landscapes, buildings or sites;
- develop and validate methods, tools, indicators and matrixes that would allow for the replication and up-scaling of successful adaptive re-use practices;
- propose innovative governance arrangements also fostering increased participation by citizens, business models, financing instruments (e.g. crowd funding), new forms of partnerships(e.g. public-private, community-based etc.) and strategies for mobilising new investments for adaptive re-use of groups of cultural heritage monuments, buildings or sites and develop and validate methods, tools, indicators and matrixes for assessing their effectiveness and performance;
- identify cultural, social, economic, institutional, legal, regulatory and administrative barriers and bottlenecks at city, regional, national and EU level for adaptive re-use of groups of cultural heritage monuments, buildings or sites, and recommend ways to overcome them;
- develop and validate tools with a replicability potential in different local conditions to assist decision-making processes, using multi-stakeholder approaches, involving local communities and underpinned by social science and humanities expertise, for adaptive re-use of cultural heritage. Proposals shall address all of the above points and efforts should be made to link cultural with natural capital where appropriate. Projects should envisage resources for clustering with other projects financed under this topic as well as other projects under the “Cultural Heritage for sustainable growth” part of this call and – if possible – also under other relevant parts of Horizon 2020. The Commission considers that proposals requesting a contribution from the EU of up to EUR 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

Projects are expected to lead to:

- more integrated approaches and strategies for the preservation and valorisation of cultural heritage through its adaptive re-use (securing thus its sustainability) comprising innovative finance (with high leverage capacity), business models and institutional and governance arrangements that foster multi-stakeholder involvement, citizens' and communities engagement and empowerment;
- new investment and market opportunities for businesses in the adaptive re-use of cultural heritage assets, both tangible and intangible, including opportunities for stimulating the creation of start-ups;
- an enabling context for the development and wide deployment of new technologies, techniques and expertise enhancing industrial competitiveness and contributing to economic growth, new skills and jobs;
- innovative adaptive re-use blueprints for culturally, socially and economically inclusive societies with reduced financial and operational burden for the public sector in heritage conservation.



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Type of action	Research and Innovation action
Deadline	7 March 2017
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2193-sc5-22-2017.html



SC5-25-2016

Macro-economic and societal benefits from creating new markets in a circular economy

Specific challenge

The EU has committed itself to a resource efficient growth path. A strong record in eco-innovation and an ambitious EU environment and climate policy has contributed to Europe's global excellence and competitiveness in a range of areas, such as waste and water management, climate adaptation, nature protection and biodiversity enhancement, air quality and soil decontamination. These economic sectors have consistently grown over the last decade and in many cases increased their research intensity. They are critical to moving forward the transition to a circular economy, and are also important sources of growth and jobs, which can be boosted within an enabling EU macro-economic policy framework. For its dialogue on progress with the Member States notably in the context of the European Semester, the European Commission needs a solid and policy-actionable assessment based on concrete data and indicators of the macro-economic, societal, environmental and labour market benefits/costs of developing successful and innovative approaches which contribute to the transition towards the circular economy.

Scope

Within the context of the European Semester, the action should:

- facilitate a better understanding and operational use of the current evidence base, including reliable datasets and projections;
- identify market and societal impacts of resource and waste flows – from extraction to end of life;
- identify innovative approaches based on the circular economy concept in Member States;
- assess their economic, societal and resource-efficiency impact on existing or new markets;
- estimate such impacts in the short, medium and long term;
- estimate and assess the macro-economic, societal and environmental costs and benefits of mainstreaming such approaches.

The project should also elaborate a benchmark between Member States and with a set of performing Third Countries, covering both green and blue growth potentials, further building on achievements in the waste and water sectors, and embedding the role of the digital economy in the analysis. In agreement with the Commission services, projects should ensure appropriate flexibility so as to respond in real time to potentially fast-changing policy scenarios. The Commission considers that proposals requesting a contribution from the EU in the range of 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

The project is expected to contribute to:

- creating a reliable knowledge base and reference framework on the macro-economic, societal and environmental impacts of resource efficiency/circular economy innovations, for both the European Commission and Member States, as potential sources of growth and jobs and on the macro-economic policy conditions for tapping these;
- improving the European Semester's evidence base in areas related to Societal Challenge 5;
- developing options for policies and investments that are economically, environmentally and socially sound.

Type of action	Coordination and Support Action
Deadline	8 March 2016
Call identifier	H2020-SC5-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2214-sc5-25-2016.html

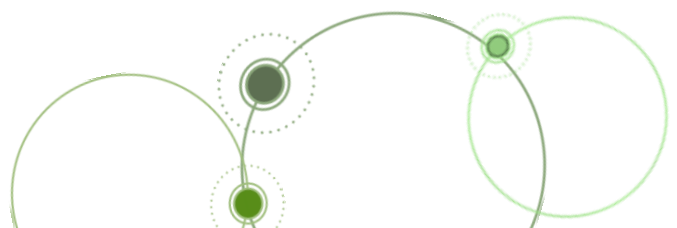


Topics with minor SSH relevance

SC5-15-2016-2017

Raw materials policy support actions

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2202-sc5-15-2016-2017.html>





Societal challenge 6

**Europe in a changing world:
Inclusive, Innovative and Reflective
Societies**

Call - Co-Creation for Growth and Inclusion

Dedicated Topic

CO-CREATION-01-2017

Education and skills: empowering Europe's young innovators

Specific challenge

Creativity, entrepreneurial skills, risk taking adaptability and innovation capacity, problem solving skills, skills related to effective teamwork and sharing information and knowledge, may all be key competitive advantages for Europeans, starting from young children. To make the best of this potential, it is essential that schools and educational institutions, as well as non-formal ways of learning, empower Europe's young innovators with the skills they need from early on in life. Empowering the young through skills for innovation and entrepreneurship, including social entrepreneurship, is particularly important to building more inclusive societies giving opportunities to all, including young innovators from less privileged backgrounds or those with disabilities in order to address inequalities. The challenge to be addressed by this topic is to improve learning and teaching in innovation related skills for young boys and girls at the age of primary and secondary education through the design and piloting of new innovative ways of skills education, including technologies, processes and relations.

Scope

New approaches for educating skills need to be developed, piloted and scaled up. There is a lack of sufficient collaboration with entrepreneurial stakeholders in teaching and students practice, and a lack of inter-generational learning. Young people need to be supported with tools, resources and an open environment encouraging experimentation and the development of joint projects including based on interdisciplinary approaches. Effective supporting schemes should guide young people into their entrepreneurial journey.

Building upon existing initiatives in Europe, the consortia (which shall include entrepreneurial partners, and may include partners from civil society and the social economy) shall develop new approaches and innovative models for skills education targeted at young people.

The involvement of young people in the activities of the consortium (not just as recipients of the outputs) is essential. This may include new inter-active methods and new pedagogical modules that will be easily accessible and part of an open platform, which will aim to reach out to thousands of schools and learning sites across Europe. The innovative schemes and new modules will enable the young, future innovators, to develop new capabilities and experimentation attitudes and turn their ideas into successful entrepreneurial and social Projects.

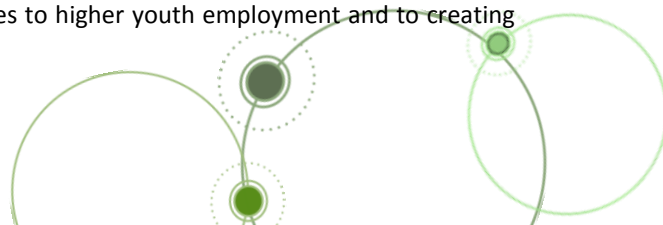
Promising new models combining technologies with organisational change and building new participatory relations in learning processes - can be tested and adapted in different regions. The innovative models shall be piloted through the schools and/or other businesses and communities, providing young people with a practical set of creative and entrepreneurial skills that will open them up to a world of new possibilities and future jobs.

Within the scope of the action is to develop new models, to investigate and to test new mechanisms that the young generation is engaging in, for addressing societal challenges coupled with an entrepreneurial spirit as well as effective ways and mechanisms for collecting and promoting innovative ideas from the young people. Particular attention should be paid to gender issues. The action should take into account and coordinate with, where appropriate, with other EU and national initiatives in the field, such as those supported in the context of Erasmus+ strategic partnerships and policy experimentation.

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

Expected impact

The action will pave the way for innovating learning and teaching practices, so that innovation skills are part of a person's education, formal and informal, at schools and interacting communities as well as on-line. This will boost innovation and entrepreneurship capacity, bringing together many stakeholders including from education, traditional business, the social and service economy and volunteering schemes. It will thereby empower young innovators across Europe, provide for innovative business models and give them tools to engage in society and channel their energies to create opportunities for the future. In the long run the topic contributes to higher youth employment and to creating



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new markets and new jobs. The knowledge generated as a result of the actions should be disseminated across Europe to benefit the largest numbers of young innovators.

Type of action	Innovation Action
Deadline	2 February 2017
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3071-co-creation-01-2017.html



Call - Co-Creation for Growth and Inclusion

Dedicated Topic

CO-CREATION-02-2016

User-driven innovation: value creation through design-enabled innovation

Specific challenge

With competitiveness being increasingly based on intangibles and a mix of products and services that respond to users' needs, applying design thinking, tools and methods can improve performance and efficiency in the commercial and public sector. Design-enabled innovation can be considered as a prominent example of "user-driven" innovation, where user involvement in the process is central, as in many cases innovation can better succeed through co-creation. User-centred design thinking and the application of design tools and methods, when applied to services, systems and organisations, enable structured service and business-model innovation, organisational innovation as well as other intangible forms of innovation. The focus is on applying design tools and methods, since this offers a systematic approach to conceive user-driven innovations.

The specific challenge to be addressed by this topic is that many public sector organisations and businesses, especially SMEs, miss out on the potential to utilise design as a source for improving efficiency and stimulating growth.

Scope

The consortium should plan and run a European pilot including selecting and allocating funding primarily to the concept development phase of the selected projects. Aspects of inclusiveness and social objectives of addressing inequalities in citizens' access to the innovations should be taken into account. The pilot should build on national and European level actions on design, incorporating a robust selection process to ensure that projects selected are likely to be further developed and implemented beyond the concept phase. The emphasis should be on practical experimentation, piloting and demonstrating activities as well as concept testing and incubating to improve organisations' processes, services, products or business models in the private, public or third sectors. Drawing on the experience of the funded projects, the pilot will a) gather data and metrics concerning the impact of design-related policies and programmes in terms of user benefit and business impact, b) develop a transferable methodology to evaluate the effectiveness of design in the innovation process, c) develop a methodology on how actors in different sectors can better connect with design-enabled innovation to increase efficiency and competitiveness in their respective sectors as well as a common impact evaluation methodology and respective indicators, to be applied across sectors and scalable to organisational, regional, national and European level. The activities could also involve showcasing success stories and disseminating the accumulated knowledge, particularly illustrating the applicability and potential of design-enabled innovation for all sectors, be they public or private or commercial or non-commercial activities.

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

Expected impact

Robust and commonly accepted guidance on embedding design in value-creating networks and identification of barriers and enablers;

- Creation of data, data sets and metrics to evaluate impact regardless of sector;
- The methodology developed and the analysis will contribute to incorporating diverse user perspectives into design policies and practices and for their further development and implementation. The results, e.g. the impact evaluation methodology, should be applicable and give clear guidance particularly to SMEs and public administrations;
- Development of new approaches and solutions which translate into new products, services and processes increasing public sector effectiveness and private sector competitiveness, and sustaining innovation capabilities and processes;
- Producing assessment and simulation tools to verify results in the increase of efficiency and/or effectiveness through the use of design;
- Mainstreaming design, making it an integral part of value creation and a self-sustaining element of innovation processes;
- Integration of design and user-driven innovation into innovation policies and support mechanisms, including funding programmes.



Call - Co-Creation for Growth and Inclusion

Type of action	Coordination and support action
Deadline	4 February 2016
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3077-co-creation-02-2016.html



Call - Co-Creation for Growth and Inclusion

Dedicated Topic

CO-CREATION-03-2016

Piloting demand-driven collaborative innovation models in Europe

Specific challenge

Facilitating open innovation would ensure that ideas and knowledge are transformed into socio-economic value for European citizens. An important market failure in Europe is that it has an abundance of unexploited ideas and research results with considerable innovation potential, which are not being brought to the markets. Some of the main issues are linked to the difficulty in matching demand and supply of ideas due to the great amount of information available and to the difficulties in communicating it. The latter can be aggravated by the lack of absorptive capacity and the difficulty of certain actors to formulate a demand for innovative ideas or to adopt/adapt existing ones. In open innovation and collaborative innovation projects it is more difficult to find appropriate sources of funding, since investors might fail to identify the potential of such projects, the actors involved and they might perceive an increased level of risk stemming from such configurations.

Scope

Experimenting mechanisms to facilitate the match between supply and demand for innovative ideas, as well as the development of absorptive capacities within businesses and other knowledge users. Addressing such issues would facilitate knowledge co-creation among actors that better understand each other's needs and language. The pilots need to address at least two of the following elements of the innovation ecosystem:

- Designing and piloting systematic ways of connecting innovation systems across Europe, so that knowledge flows from one to the other easily and meaningfully. One way of achieving this could be by facilitating human capital mobility and therefore the absorptive capacities of the parties involved. This could include ideas such as "Innovation Human Capital Vouchers" aimed at stimulating SMEs to contact higher education institutes in order to find a solution to their problems;
- Focus on the skills and capabilities of businesses to tap into the European knowledgebase, by developing and piloting specific skills-sets that allows for an effective monitoring of new relevant knowledge, as well as skills that allow a better formulation of a demand for innovative solutions fit for the companies' needs (facilitating interaction between business and academia and/or between businesses);
- Design and pilot public/private funding mechanisms aiming at increasing private funding participation in collaborative innovation projects, contributing to bring innovative ideas to the market. Such mechanisms could build on or combine existing mechanisms;
- Piloting other concrete measures favouring collaborative forms of innovation from a demand-side point of view (i.e. with a focus on businesses needs).

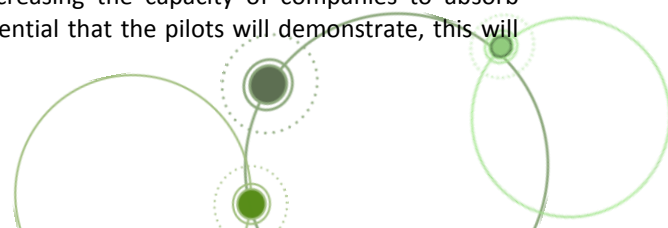
All activities must be concrete experiments or pilots with quantifiable results. All piloted actions will be ready for replication and scale-up. Activities that fall out of the scope of this call include: research activities, mapping of existing initiatives, collections of best practices, etc. Applicants could include partners from different sectors, such as knowledge transfer offices, regional development agencies, business associations, business accelerators, networks bringing together businesses and academia, innovation hubs, innovation centres, investment funds, venture capital, crowdfunding platforms, research and technology organisations etc.

The action should take into account and coordinate with, where appropriate, with other EU and national initiatives in the field, such as those supported in the context of Erasmus+ Knowledge Alliances.

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

Expected impact

It is expected that by better linking demand and supply of ideas and knowledge through new collaborative models, the projects will contribute in the medium term to an increase of innovation and competitiveness in Europe. In addition, starting from in the short to medium term, they will promote socio-economic benefits for European citizens, through the co-creation of solutions adapted to their needs, enabled by increasing the capacity of companies to absorb information. In the long term, due to the replication and scale up potential that the pilots will demonstrate, this will



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contribute to creating a European innovation ecosystem able to transform ideas and knowledge into socio-economic value for the European citizens.

The mechanisms and pilots supported by this topic will improve the flow of information through collaborative models with increased business participation. By strengthening business innovation through empowering the innovators to screen, identify and formulate a demand for relevant information, as well as increasing their capacity to absorb it and turn it into value, the projects will contribute to boosting innovation across Europe.

Type of action	Innovation Action
Deadline	4 February 2016
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3076-co-creation-03-2016.html



Call - Co-Creation for Growth and Inclusion

CO-CREATION-04-2017

Applied co-creation to deliver public services

Specific challenge

While efforts have been made to make public services user-friendly and reduce the administrative burden, for example by making them increasingly available online, studies show that service design often does not meet the expectations of citizens and businesses, who require more usability, **responsiveness and transparency**, reflecting the different needs of users - some of whom may not be computer literate - and the variety of activities public services encompasses. Weak service design and high administrative burden often lead to **non-use or non-take up by citizens and businesses of the public services and benefits available to them**.

The **profound understanding of end users including specific groups, like disabled elderly people, single parent families, disadvantaged citizens or immigrants**, the re-design of services to respond to their capacities, needs and preferred delivery channels are important elements for governments to prove their ability to fulfil the needs of citizens and businesses. The old 'one-size-fits-all' approach is not appropriate for all spheres of the public sector; complex and varied service delivery; **historical, cultural and socio-economic backgrounds play an important role in the expectations of interactions with public services**.

The steady integration of new technologies into the **everyday lives of people, businesses and governments** is helping to open up public administrations, offering opportunities for more collaborative and participatory relationships that allow relevant stakeholders (i.e. citizens, business and non-governmental organisations) to actively shape political priorities, collaborate in the design of public services and participate in their delivery to provide more coherent and integrated solutions to complex challenges. Co-creation of public services in this context is a public service that is provided by government, citizens, NGOs, private companies or individual civil servants, in collaboration or not with government institutions, based on government or non-government data or services.

Collaborative service creation (co-creation) requires public service actors to engage with stakeholders in the design, production and delivery phases, to gather the necessary user insight, re-define their operational processes and identify **appropriate sustainability models** to deliver an effective high quality service. Given the opportunity to actively participate in service delivery, stakeholders (citizens, businesses, civil society organisations, social partners, etc.) can contribute distinctive resources (time, effort, ideas and expertise) and can keep public officials accountable. The increased sense of ownership, greater efforts for the sustainability of public initiatives, as well as more creative ideas lead to an important shift in the role that civil society and the private sector can play in contributing to good governance. It is also expected to help better prioritise and target public spending to the most important purposes and urgent needs.

Scope

Innovation actions will pilot the co-designing and co-creation of public services, using ICT and relying on open data or open public services. They need to bring together a variety of actors in society, such as for example public authorities, citizens, businesses, researchers, civil society organisations, social innovators, social entrepreneurs, social partners, artists and designers, to co-create demand-driven, user-friendly, personalised public services and make effective decisions. Proposals need to **identify the particular policy area, public institution or function to assess the suitability of incorporating co-creation and the transferability of good practices**. Piloting needs to be carried out in a representative set of Member States in order to **test different cultural/socio-political context** for co-creating public services. Proposals need to address several of the below aspects:

- Using open services provided by public administrations and allowing third parties to design, aggregate, produce and deliver in collaboration with or without government value added complementary or new public services;
- Demonstrating how government can act as a broad, open collaboration 'platform' in practice by demonstrating and/or piloting use cases for sharing data, services, tools, cloud infrastructures and assets between public administrations (e.g. experiments of hybrid teams in government) and resulting in re-usable services or processes;
- Demonstrating how government can act as a broad, open collaboration 'platform' in practice by demonstrating and/or piloting use cases for sharing data, services, tools and assets with third parties and generating new or complementary services or making decisions;



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- **Demonstrating how the perspectives of citizens, service users, and others can be taken on board through, for example, the use of design principles or behavioural analysis, in the creation of new public services or policies;**
- **Demonstrating how transparency of government data, information or processes and the engagement of relevant stakeholders can lead to accountability and trust;**
- **Developing business models** that would enable financial remuneration for the public as data (or other asset) providers. Proposals need to ensure that **privacy and data protection** issues have been appropriately addressed and that the tools piloted could be re-used. Any policy area may be subject to the piloting, including social policies and those addressing the vulnerable. Proposals need to demonstrate the feasibility of their service or solution through a number of real-life pilots, demonstrate the concrete commitment of the piloting sites and need to propose a sustainability approach or model for the period beyond the project.

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

Expected impact

Proposals need to demonstrate that they can achieve impact beyond the project phase, inter alia, in terms of efficiency and effectiveness gains, transactional cost reduction, **productivity growth**, stimulating **the growth of new businesses**, **greater transparency** leading to reduced errors and **less public spending**, administrative burden reduction, **improved societal evidence**, increased take-up of electronic public services by citizens, user satisfaction as well as in terms of the **democratic dimension**, such as increasing level of civic participation and **social inclusion**. Quantitative and qualitative aspects are to be taken into account. Additional impact may be improving the skills and adding new skills of public sector employees as well as third parties being agents and enablers of change and acting as innovation actors.

Type of action	Innovation Action
Deadline	2 February 2017
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3072-co-creation-04-2017.html



Call - Co-Creation for Growth and Inclusion

CO-CREATION-06-2017

Policy-development in the age of big data: data-driven policymaking, policy-modelling and policy-implementation

Specific challenge

As societal challenges are growing more complex and interlinked, public policy innovation and experimentation, using ICT can improve the effectiveness, efficiency and the quality decisions in the public sector. Effective and reliable policies need to consider the available data (including its structure and topology) and evidence to ensure accurate and meaningful information. Big data offers many opportunities; using data analytics to generate new insights, increasing predictive power and **identifying unexpected patterns and relationships that can help inform policy making**. For instance data analytics tools can also help public authorities to better detect and evidence patterns of non-compliance in many policy areas affecting the health, the safety and the **welfare of citizens in the internal market of goods, services and persons**. Effective processing power and expertise are widely used in the retail and commercial sector, the challenge is to create effective resources to make this available to governments, allowing policy choices to become more evidence-based and analytical. In addition, **open policy-making and the integration of the citizens' perspective through the effective engagement of relevant social actors** - for example over online platforms or by **crowd-sourcing** - can potentially generate vast amounts of data, which can allow policy options to become more informed. Furthermore, open policy-making can support a participatory, open and collaborative government vision. Besides simulations, perceptions data pose a further promising source of information. Conducted on a regular basis, e.g. by the Eurobarometer, identifying perceived bottlenecks in relation to policy reforms as well as assessing the perceived performance of past reforms becomes feasible; in some cases these official statistics may be complemented by new sources of data. Taken together, this may lead to developing second generation data tools and assessment for more targeted **policy design**. It also offers opportunities for different communities to take ownership of the use and analysis of data in an age where they are at risk of being alienated by too much information. In addition, policy implementation can significantly benefit from efficient enforcement and monitoring tools that are informed by data from various sources.

Scope

In order to enable governments - at all levels - to benefit from the availability of relevant data and thereby introduce and implement effective policies, new or improved methods and tools are needed to support and establish new types of evidence-informed **policy design and implementation** and to facilitate the interpretation of big data for public communication, including new outcome-based. For public administrations to experiment with the possibilities offered by big data - for example through policy modelling, monitoring, enforcing, simulation, testing, analysis and policy compliance - there is a need to thoroughly **understand the legal frameworks and to take into account sociological, cultural, political, legal and economic as well as behavioural aspects**. Proposals should also elaborate on the relationship between evidence-based policy-making and citizens' participation, integrating the analysis of participatory elements.

a) Research and Innovation Actions:

Proposals need to address several of the following aspects:

- Methodological development for using big data in policy development, examining the extent to which policy-making structures and systems are ready to absorb and analyse big data;
- **Critical interdisciplinary assessment of the economic, political, epistemological, ethical and legal premises** and implications of big data practices (including algorithmic governance, smart cities, etc.), allowing for the reflection on the potential benefits and risks;
- Develop scalable and transferable methods and re-usable tools for compilation, analysis and visualisation of data, including relevant open, official or certified data;
- Develop scalable and transferable methods and re-usable tools for mining, compilation, analysis and visualisation of data from any source, including **data related to social dynamics and behaviour**;
- Develop scalable and transferable methods and re-usable tools for data curation, metadata schemes, data linking or



Call - Co-Creation for Growth and Inclusion

for reconciliation of multiple data sets to render coherent narratives;

- Understanding the implications of the increasing materiality of data with the development of the Internet of Things and its implications for the sustainability of government’s effective use of big data for improved policy making in the longer term;
- Develop scalable and transferable methods and re-usable tools for opinion-mining of large data sets in order to avoid the situation that the bigger the data, the less clear how they have been produced;
- Develop scalable and transferable methods and re-usable tools for policy modelling and simulation to improve the predicative analysis capacity of governments;
- Develop scalable and transferable methods and re-usable tools for iterative policy design and implementation (e.g. through the greater use of randomised controlled trials based on **behavioural science**);
- Develop scalable and transferable methods and re-usable tools for policy enforcement and compliance monitoring tools.

Proposals should apply their methodology to policy areas addressing societal challenges (e.g. environment, **migration, radicalisation, inequalities, unemployment, internal market obstacles to the free movement of persons, goods and services**). When using open and big data in order to enlarge the evidence base for effective policy-making, principles such as independence, quality, coherence and consistency, confidentiality, impartiality and objectivity as well as representativeness and extrapolation to meaningful populations need to be considered. **Data protection, ethical and privacy issues** will also have to be addressed as well as **ethical issues around storage, use and re-use of data**. Application and improvement of existing quantitative tools is preferable. **Sociological as well as behavioural science approaches are encouraged, especially where they aim to develop a deeper understanding of how public policy and services interact with citizens**. If relevant, proposals also need to analyse the suitability of the proposed software.

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

b) Coordination and Support Action

The activities should aim at encouraging networking of relevant stakeholders and teams working in the area of data-driven policy-making and policy-modelling and to support constituency building. Following an assessment of the needs of public administrations, the multidisciplinary network will identify methods, tools, technologies and applications for their implementation in the public sector, taking into consideration activities also undertaken outside the European Union and considering specificities relevant to different policy domains of public activity. The activities will conclude with the outlining of a roadmap for future research directions.

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

Expected impact

Proposals need to demonstrate the impact to be achieved after the project phase, inter alia, in terms of improved **public policy** effectiveness, efficiency gains, precision gains, improved consistency, and reliance on evidence leading to increased policy compliance as well as in terms of the **democratic dimension**, such as greater **transparency, good governance, increased trust in and the perceived legitimacy of government**. Additional impact may be increased accessibility to the non-governmental players.

Type of action	Research and Innovation action, Coordination and support action
Deadline	2 February 2017
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3073-co-creation-06-2017.html



CO-CREATION-07-2017

Towards a new growth strategy in Europe – Improved economic and social measurement, data and official statistics

Specific challenge

Over the past decades, the insight has grown among national, European and international policymakers that policy action cannot be solely guided by reference to gross domestic product and its growth without integrating intangible investment, social and environmental dimensions, individual well-being and qualitative dimensions in the GDP. The changing characteristics of economies and societies in Europe require inclusion of multiple dimensions, including gender and age, new measurement and data for developing new policy for economic growth and well-being.

European growth prospects, job creation and well-being of citizens largely depend on economically successful innovations which address global and EU challenges and create new opportunities for firms. However, the importance of capital stock developments and investments, as well as labour skills, at a detailed industry level and for all types of tangible and intangible assets has not been fully integrated into the analysis of EU innovation and growth performances mainly due to data issues. Better measurement of tangible and intangible investments together with labour skills, in existing categories as well as inclusion of potentially relevant asset categories outside the current asset boundary (such as economic competences, organisational capital, co-creation, skills, marketing assets, firm specific human capital investments, culture and arts) – by taking gender and age into account - would improve the understanding about growth in knowledge-based, globalised and connected economies. Moreover, innovation driven growth strategies require a better understanding on the roles of services (including business services) and the use of ICT and internet at industry level. Equally vital for new growth strategies is a better understanding of the complementarities of firms' investments in global value added chains and the creation of new dynamic market industries.

Europe needs to understand and analyse the changing frame of references for the evaluation of the state and development of societies. Official statistics need to be modernised to provide a more complete picture through the incorporation of new metrics, based on new sources and data collection methods, in coherent frameworks delivering consistent evidences and narratives to policymakers. New sources (including social media) offer unparalleled opportunities to elicit information on welfare, wellbeing and societal progress by other means than traditional sample surveys and require the development of modern, innovative methods for official statistics. With all strata of the population being in scope, methodologically sound official statistics ensure that for e.g. a “silent majority” (those who do not tweet) or marginalised minorities (those who for e.g., lack bank accounts and credit cards and hence leave no trace in certain electronic systems) remain visible to policymakers when innovative, non-traditional sources are used to measure progress. The protection of individual data is furthermore a concern that should be taken into account.

Scope

a) Research and innovation actions

Research aims to improve the availability and quality in the data on tangible and intangible investments, capital stock and the composition of labour inputs at industry level and/or firm level which in longer perspective qualifies for the endorsement from official statistics.

Compilation of data on tangible and intangible investment categories within the existing asset boundary of the national accounts standards (SNA 2008/ESA 2010) need to be targeted and supplemented with national sources and other types of calculations. Creating new data for potentially relevant asset categories outside the current asset boundary at a detailed industry level need statistical work together with implementing strategies and novel approaches to minimise cost and burden of compiling. Piloting and proof of concepts can be useful. All efforts to improve data availability and quality need to be consistent with the current statistical classification of economic activities (NACE Rev.2), National Accounts concepts, methodologies and quality criteria. It is important to use internationally harmonized official source statistics. Future extensions of official statistics can benefit from the already existing work on tangible and intangible capital stocks and labour input outside the official statistical systems by improving their quality in line with statistical quality criteria. It is essential to work out a strategy in which the statistical community cooperates with the economic and other social sciences communities to integrate the improved and/or newly created data into established official statistics to guarantee their lasting reproducibility.



Call - Co-Creation for Growth and Inclusion

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

b) Coordination and Support Action

The coordination and support action should focus on the incorporation and alignment of new, possibly unofficial and unstructured, sources with established official statistics. It should build on the rich body of results in the alternative growth approaches, social, environmental and sustainable indicators, new consumption models and "Beyond GDP" domain – in consistency with National Accounts - covering both novel domains and non-traditional sources as well as innovative data collection approaches. It should incorporate a strong statistical methodological component focusing on obtaining consistency, representativity/social inclusion (in particular when innovative data collection methods are used) and measures of uncertainty. Piloting and proof of concept should be at the forefront. Disaggregation of statistics - geographically, or by other domains (e.g. identifying vulnerable population groups) - to provide greater insights and providing evidence allowing more focused policy decisions should be covered, as should metadata and other aspects of quality of statistics. At the same time data protection concerns should be addressed.

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

Expected impact

Better data and official statistics should improve our understanding about the changing nature of overall investment and growth dynamism in Europe. Widening of the concept of investment should bring insights for the European growth strategy and reveal cross-country differences in growth and productivity performances taking into account the role of tangible and intangible capital in the modernisation and competitiveness of EU industries and services. Moreover, through the investigation of the practical applicability of new sources, frameworks and methods for official statistics across a wide range of aspects regarding social and sustainable progress will provide a coherent framework of reliable evidence to the benefit of society. Public statistics and measurements being more explorative and future-orientated should provide new innovative policy support frameworks in "Beyond GDP" perspective.

Type of action	Research and Innovation action, Coordination and support action
Deadline	2 February 2017
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3070-co-creation-07-2017.html



CO-CREATION-08-2016/2017

Better integration of evidence on the impact of research and innovation in policy making

Specific challenge

The growing attention given to research and innovation over the past decades has resulted in increased amounts of public funding being channelled to research and innovation, but also to a variety of policies and funding programmes being put in place in Europe, in order to maximise the quality and impact of this funding. These policies have been wide in scope, ranging from basic research all the way up to supporting the market introduction of innovation and used a variety of instruments, oriented not only towards the production of knowledge and innovation, but also towards optimising the processes by which innovations are generated (including Co-Creation).

Investments in R&I must be smart and efficient and obtain the most value for every euro invested. This requires clear strategies for investing in R&I coupled with quality R&I programmes and strong institutions capable of implementing these programmes in close connection with the business sector and other stakeholders such as civil society. In addition, there is a clear need to improve the overall framework conditions for transforming R&I investments into tangible results, whether as new products or services or in terms of less tangible impacts such as improvements in the quality of life or inclusion.

The challenge for policy makers is to design policies and programmes with targeted funding to address well identified bottlenecks and which are adapted to the specific context of the research and innovation system in question. This is key to improving the efficiency of the European research and innovation system as a whole, as was stressed by the Commission in its Communication on 'Research and innovation as sources of renewed growth'.

Designing such policies and programmes requires a sound evidence base around the performance of research and innovation systems, the impact of research and innovation policies, the impact of research and innovation on economic growth, job creation and societal progress, and on the way in which public funding and policies can influence performance and impact. The Commission regularly publishes authoritative reports (e.g. the Innovation Union Scoreboard and the Innovation Union Competitiveness Report) which contribute to this evidence base, but given the increasing importance of research and innovation and recent evolutions in this field, the analysis regarding these issues needs to become more sophisticated.

Scope

Research will focus on establishing new methodologies for assessing the performance and impact of research and innovation and the ways in which public policies and funding can influence these. This should focus in particular on the following aspects:

(2016) Integration of research and innovation in macro-economic models: fiscal policies are often supported by macro-economic models to make an ex-ante assessment of the impact of budgetary measures and structural reforms. This includes dynamic stochastic general equilibrium (DSGE) models, macro-sectoral models and econometric modelling. A common shortcoming of these macro-economic models is that they typically do not account for the long-term benefits of public research and innovation investments and policies, fail to take full account of the quality of these investments, or do so only in a limited manner. Projects should focus on developing modelling approaches which go beyond the current state-of-the-art by incorporating for instance: the distinction between public and private research sectors and the different ways in which public funding and policies can incentivise increased activity and quality in these sectors; the fact that quality of research and innovation is not homogenous (including at sectoral level) or the influence public policies can have on the quantity and quality of the stock of highly skilled people, on the link between human capital and the production and use of knowledge, on the productivity of knowledge production or on spillover and technology diffusion mechanisms;

(2016) Improving the parameterisation of the aforementioned models: in addition to developing novel modelling approaches, further work is also needed on empirically determining the underlying parameters (elasticity factors) used in the aforementioned models and which link for instance the human capital stock to knowledge production, the production, diffusion and use of knowledge to innovation or which quantify the effect public policies have on these parameters;



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(2017) New indicators for assessing research and innovation performance: projects should focus on developing and applying new indicators for assessing the performance of distinct elements of the research and innovation system, including the impact of research and innovation policies. These should go beyond the typical bibliometric and patenting indicators, as these only offer a limited view, in particular in an evolving landscape in which for instance open access mechanisms, social media, social innovation people mobility assume an increasing role. Such new indicators should allow policy makers to assess in a broader and more comprehensive way evolutions in performance and how these are linked to policy reforms;

(2017) Determining the societal impact of research and innovation funding: policy makers need to justify research and innovation spending by demonstrating the impact it has in terms of broader societal benefits. Projects should develop and test new ways to assess the societal impact of public funding allocated to research and innovation, for instance by building on examples of quantitative approaches (such as the USA's Star Metrics initiative or the European SIMPATIC project) or could develop qualitative approaches . Projects should take a broad approach and go beyond evaluating impacts in terms of productivity growth, economic growth and job creation, by also assessing the impact of public funding on tackling major societal challenges such as those defined in Horizon 2020. Projects to be funded on the 2016 budget should address either the first or second issue described above or can combine them in one project. Projects to be funded on the 2017 budget should address either the third or fourth issue described above or can combine them in one project. The Commission considers that proposals requesting a contribution from the EU of between EUR 1 and 1.5 million would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Depending on the aspect addressed, and in line with the scope above, projects are expected to respectively deliver the following impact:

- The development of models which provide a realistic assessment of the variety of ways in which research and innovation activities transmit into outputs and impact and of the ways in which public funding and policies can influence this transmission;
- An empirical determination of realistic values for the underlying parameters used in the models;
- A monitoring of research and innovation performance which captures the broader spectrum of ways in which research and innovation activities translate into outputs and impact, in which knowledge circulates between public and private sectors and internationally or through which quality of research and innovation can be assessed;
- A reliable assessment of the societal benefits generated by public funding for research and innovation, not only in terms of productivity growth, economic growth and job creation, but also the impact it has on tackling major societal challenges.

Type of action	Research and Innovation action
Deadline	4 February 2016
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3075-co-creation-08-2016_2017.html



Call - Co-Creation for Growth and Inclusion

Dedicated Topic

CO-CREATION-09-2016

A European map of knowledge production and co-creation in support of research and innovation for societal challenges

Specific challenge

Research and innovation dynamics are increasingly being influenced by the development of interactions among all stakeholders ("quadruple helix" approach). More actors are involved in knowledge creation and the innovation process. Universities and research institutions collaborate with business enterprises, hospitals, local municipalities, administrations for public services and citizen organisations. At the same time, the research and innovation process is changing with the transition towards open science and open innovation. The focus is increasingly on developing, testing and rolling out solutions to societal challenges for the benefit of citizens and local jobs. Since 2014, the EU has boosted its support to this dynamics through new funding instruments and modalities, incl. smart specialisation strategies. This show the way for new hot-spots of knowledge production and co-creation in Europe.

However, information and data on this new research and innovation dynamics is relatively unknown and fragmented. Local and regional actors are often not aware of which relevant and complementary knowledge, and possible project partners, can be found in other places in Europe. And national and European policy makers do not have the overview of hot spots in Europe. This information would enable them to refine their policies and funding instruments, improving the effectiveness and efficiency of national and European knowledge systems.

Scope

The aim of a European map of knowledge co-creation is to create a methodology and web-based platform that presents data on institutional, regional and national knowledge cocreation hot-spots. The resulting maps will enable web-based search for co-creation and knowledge production hot spots addressing societal challenges or Key Enabling Technologies. The methodology will make use of state of the art of all available data sets (e.g. webometrics, bibliometrics, patent data, EU-funded collaboration, institutional data) and methods for linking them, ensuring synergies and avoiding overlaps, also taking into account social sciences and humanities and big data. It will also be flexible enough to connect to existing and complementary data systems with more traditional input and output indicators on Higher Education Institutions (HEI) and Public Research Organizations.

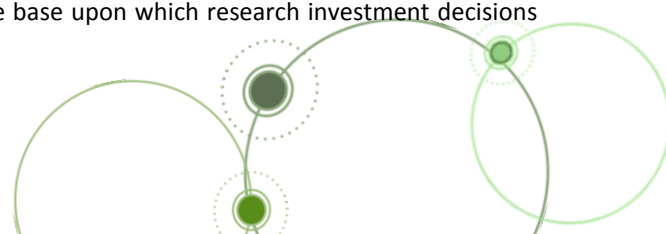
The funding will enable methodological developments and a European-wide pilot mapping of knowledge production, co-creation and cooperation. As a first stage, all institutions actively involved in knowledge production, co-creation and cooperation in Europe will be identified. In parallel, a common terminology will be established corresponding to specific societal challenges or technologies.

The platform should have an interactive graphic interface to allow users to quickly parameter their request and obtain European maps of knowledge production, co-creation and cooperation in a specific societal challenge or technology at regional and local level. The platform shall be fully compliant with all existing definitional standards in the field of S&T and be inter-operable and scalable, from an IT point of view. The Union shall support the initial development of the Map. The Union therefore asks proposers to suggest a convincing, sustainable, commercially viable business model for the operation and further development of the Map in the absence of follow-up support from the Union.

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

Expected impact

The proposed Map of knowledge co-creation shall provide a more effective basis for evidence-based policy making in the EU, through giving a novel insight to the driving forces bringing about knowledge production, co-creation and cooperation for societal challenges or key enabling technologies. It will also allow actors at local and regional level to identify possible partners and peers in other countries in Europe. The map crosses over disciplines and territories and go beyond the current state of the art to identify and assess the complete range of parameters linked to measuring actors, and hot-spots addressing different challenges. It fully capitalise on recent developments in the availability of data and in computational techniques. In such a way, it shall enrich the knowledge base upon which research investment decisions



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are taken and harness the full power of data visualisation tools by way of collecting large datasets and presenting them in a clear and understandable way, thus allowing essential policy insights quickly, in a flexible manner, and at a reasonable cost.

Type of action	Coordination and support action
Deadline	4 February 2016
Call identifier	H2020-SC6-CO-CREATION-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3078-co-creation-09-2016.html



Call – Reversing Inequalities and Promoting Fairness

REV-INEQUAL-01-2016

An empirically informed European theory of justice and fairness

Specific challenge

The ongoing financial, economic and social crises in Europe have brought the issue of rising inequalities to the fore. Whilst increases in inequalities vary between (Member) States and have evolved at different speeds at different times, it is clear that inequalities have been on the rise generally over the last three decades, both in Europe and globally. There is increasing evidence and awareness that rising inequalities have both contributed to the crises and been a consequence of them. The spatiality of institutions and the socio-economic context have contributed to the financial crises differently, while banking systems – e. g. decentralized versus centralised systems – have also played a major role. Despite evidence showing that more equal societies fare better on core quality of life indicators, there continue to be differences in perceptions of inequality. It is therefore high time to address, and possibly reappraise, the concepts and realities of equality, justice and fairness at a fundamental level, both normatively and empirically. The specific challenge is to formulate a theory of justice and fairness which is normatively sound, reflective of European values and at the same time rests on solid empirical ground with regard to citizens' attitudes and views.

Scope

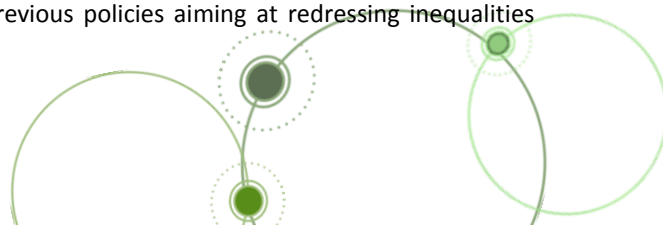
The research to address this challenge should in particular focus on the following key dimensions. It is expected to either comprehensively address one of these dimensions or to combine them. The research may also cover other issues relevant for addressing the specific challenge.

1) Towards a European Theory of Justice and Fairness

Research should take stock of and, if necessary, issue with past and existing theories of justice with a view to constructing a, possibly specifically European, theory which is in tune with European values and reflective of the achievements and shortcomings of the European integration process. In particular, such conceptualisations should adopt a historical and philosophical perspective in various European countries and consider not only how conceptions of justice and fairness have evolved and developed in European politics, societies, cultures and economies, but also whether novel, alternative conceptions of justice fairness are called for and conducive to reinvigorating democracy. Such attempts should take into account the growing sense of exclusion and marginalisation felt inter alia by ethnic and religious minorities. Apart from (re)distributive approaches and rights, other resources for building just and fair societies such as the significance of recognition in society and of individual and collective capabilities and the practice of the rule of law should also be considered. Research may ponder 'post-secular' approaches to democracy and justice. The meaning of 'equal opportunities' should be normatively reassessed and substantiated. Whilst the focus of the research should lie on theory building and development, the ambition of the theory should also be to serve as an inspiration and reference point for policies designed to reverse inequalities. The research should take into account the international and third countries perspectives.

2) How Europeans perceive, experience, relate to and contest inequalities

Building on existing data, including projects financed by the European Union, in particular the European Social Survey, research should conduct comprehensive empirical, quantitative and qualitative investigations on the scale of inequalities accepted and acceptable to Europeans as well as the psychological processes leading to the perception of inequalities and innovative methods for studying these phenomena. This should encompass the attitudes regarding inequalities at least in relation to debt, wealth, income, access to financial services and to the labour market, education, age, gender and health. The study should cover a representative range of EU countries. If justified, non-European countries may also be covered, especially with a view to comparing them with European perceptions. The central questions that should be addressed are how much inequality people accept, find appropriate or perhaps regard as beneficial and why. Evidence on people's attitudes should be set into relation to their real-life experience with inequalities. Research should also explore attitudes about the precept of 'equality of opportunities' versus 'equality of outcomes'. How do people understand these notions? What expectations do people harbour about it? Apart from drawing on survey data, research should gather new data, in particular in the field of psychology, to explore preferences for redistribution and related questions. Current and previous policies aiming at redressing inequalities



Call – Reversing Inequalities and Promoting Fairness

should be critically assessed in the light of the findings of the research. Research should combine quantitative and qualitative methods.

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 comprehensive data and analysis on the extent to which inequalities are regarded as acceptable across a range of dimensions and Member States. Research will lead to a greater understanding and reassessment of the notions of justice and fairness and should aspire to formulate a European theory of justice which is conducive to providing political guidance for the political challenge of reversing inequalities. In particular, research is envisaged to considerably enhance and deepen the knowledge base on the foundations of the concepts of justice and fairness. Research should inform policy makers at various levels on how to implement policies.

Type of action	Research and Innovation action
Deadline	4 February 2016
Call identifier	H2020-SC6-REV-INEQUAL-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2300-rev-inequal-01-2016.html



REV-INEQUAL-02-2016

Contemporary radicalisation trends and their implications for Europe

Specific challenge

Radicalisation is on the rise, not just in Europe. It is manifest not only in the increased success of radical political parties and movements at both ends of the political spectrum. Whilst many if not most expressions and manifestation of radicalism are peaceful and often driven by idealistic conceptions of a better world or life, this topic is inspired by recent developments which have seen small minorities resorting to violence seemingly motivated by extremist ideologies and in some cases religion. Thus, the focus lies on forms of radicalisation that lead to violence, intolerance, racism and hate crimes. Stark examples include the involvement of radicalised young people born and raised in the EU in atrocities committed in the name of the so-called Islamic State as well as highly visible terrorist attacks of political nature. In parallel to these trends, xenophobic, anti-Semitic and islamophobic radicalism and violence are also increasing. The reasons for these trends seem multifarious and complex in Europe: growing inequalities in European societies and their expressions such as unemployment and the absence of concrete life perspectives for younger populations, the increasing and permanent exposure to social media and life in a virtual world as well as disappointments with existing democratic regimes. Outside Europe, inequalities, poverty, vulnerability, conflicts and political ideologies lead to rising trends in various kinds of radicalisation. The challenge for research is to better and more fundamentally understand the scope of these phenomena, as well as their origins, causes, psychological and emotional dynamics as well as socialisation processes at play in radicalisation. Solutions and practices conducive to preventing this radicalisation should be identified.

Scope

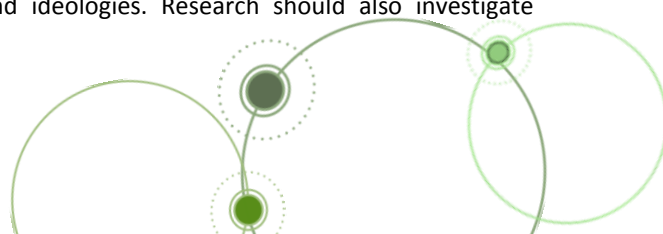
The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed. They may include additional aspects which are relevant to addressing the specific challenge.

1) Radicalisation, violence and hate crime

Research should map out and provide a sound overview of the scope of recent radicalisation trends, in Europe and possibly beyond, also through comparisons across time. It should explore the origins, psychological and emotional dynamics and drivers of radicalisation, as well as effective barriers to its spread, in particular in relation to the young. In this context, the phenomenon of self-radicalisation specifically needs to be much better understood. Research needs to investigate both structures and agency, also in relation to each other: it should ask, on the one hand, which contexts, ideologies and environments, and, on the other hand, which mind-sets and individual, including psychological and affective, dispositions and ideas of 'grievance' are conducive to self-radicalisation. The influence of inequalities and discrimination and their connections with ideologies ought to be scrutinised as well as the direct and indirect communication channels by which the radicalising messages reach their audience, especially the young. In particular research should address the question of whether enduring societal polarisation and sustained inequalities of certain groups lead to stigmatisation and discrimination and how this impacts upon radicalisation. Research also needs to enhance the understanding of preparedness to commit acts of (extreme) violence and atrocities, sometimes deliberately conducted to maximise visibility and even media attention. The drivers which push individuals beyond a certain threshold to commit violence and hate crimes need to be studied, also as a basis for identifying possible remedies and strategies aimed at preventing radicalisation or at favouring de-radicalisation. Socialisation processes linked to these crimes as well as re-socialization processes which can reverse them should be considered and gender aspects included. Research under this topic requires a multidisciplinary effort involving a wide range of disciplines including for instance psychology, criminology, anthropology, cultural studies, ethnology, history and law.

2) Radicalisation and religious fundamentalism

Projects under this dimension should study the possible roles and significance of religions in radicalisation in various guises, e.g. religion as a radicalising ideology in itself, as a potential (ideological) justification or legitimisation for violent attacks against others, including groups and/or entire cultures and ideologies. Research should also investigate



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whether, how and to what extent religion is instrumentalised for political pursuits. This may require investigation of the evolution of religious fundamentalism in and outside of Europe and its embeddedness into broader global phenomena. Research also needs to examine the contexts and dynamics of recruitment strategies and initiatives, including the motivations and receptiveness of targeted groups and individuals. The role of networks, organised crime, prisons, social media and the internet in general must be explored, too. Due regard must be had to the gender dimension. At a policy level, possible migration, asylum and integration policies need to be examined in a comparative perspective and solutions identified for preventing and countering radicalisation in the name of any religion. This requires multidisciplinary collaborative research, drawing from psychology, criminology, anthropology, sociology, economy, political sciences, political philosophy, law, and cultural and religious among others. The Commission considers that proposals requesting a contribution from the EU in the order of EUR 5 million 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 will considerably enhance the knowledge base on the scope, origins, causes and cognitive as well as emotional dynamics of radicalisation. Projects will also devise new methods for studying radicalisation beyond traditional perspectives in particular in relation to young people. Research will provide the basis for future evaluation of policies, envisaging innovative solutions, in particular with regard to their effects on radicalisation and (dis)integration. Research will also furnish recommendations on how to address religious fundamentalism in and outside of Europe. Projects will also produce profiles of recruiters and targeted individuals and groups such as young women. Recommendations on effective strategies, practices and new options of de-radicalisation and for the prevention of radicalisation will be made not least in relation to education policies.

Type of action	Research and Innovation action
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Dedicated Topic

REV-INEQUAL-04-2016

Intra-EU mobility and its impacts for social and economic systems

Specific challenge

Free movement is not only a fundamental principle of the European single market, but also a fundamental right of European citizens entitling them to move freely across borders and reside anywhere in the EU. With the 2004 and 2007 enlargements and, more recently, with the lifting in 2014 of the last transitional restrictions on free movement of Eastern Europeans to move to the EU-15, the issue of intra-EU mobility, and particularly the mobility of EU citizens, has become heavily politicised. Negative portrayals of internal migrants, whether EU citizens or third country nationals (TCNs), in terms of economic and social costs are prevalent in the media and have also been widely used in national and European electoral campaigns.

Scope

The research to address this challenge should in particular focus on the following key dimensions. Proposals can comprehensively address one dimension or combine them. They may include additional aspects which are relevant to addressing the specific challenge.

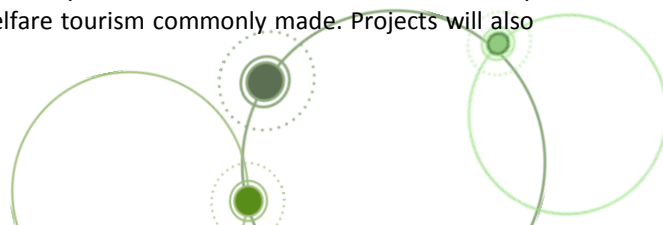
1) Social and economic impact of intra-EU mobility

Research should investigate patterns and networks of intra-EU mobility, i.e. of all EU citizens who are currently residing in another Member State than the Member State of citizenship as well as mobile third country nationals (TCNs), both legal and 'irregular' and their family members, possibly including involuntary migration. It should map the paths of their geographical mobility and devise a set of innovative comparative cross-country indicators of mobility. Research also needs to investigate the causes of mobility and to address the legal, economic, social and cultural factors that influence patterns and routes of mobility of male and female EU citizens and TCNs (current and emerging push and pull factors, location-specific utility). In terms of geographical distribution, the overwhelming majority of mobile EU citizens and mobile TCNs reside in the EU-15 countries. Research should investigate the scale and impact of this group on the social and economic systems of these receiving countries. Special consideration should be given to collecting data on employment and welfare benefits. Such data could include, but should not be restricted to, the type of jobs taken on by mobile EU citizens and TCNs, whether they substitute or complement local labour, the effect on local wages and tax collection, and the use of social benefits. The responsiveness of migration flows to changes in the minimum wage should also be considered. Issues of language, including language barriers and multilingualism may also be explored. Research should consider the law relating to intra-EU migration, welfare, and the tension between social and economic rights under EU law. Projects should ascertain whether and to what extent intra-EU migration constitutes a burden on receiving state's welfare systems and job markets. The wider socio-economic spill over effect of negative trends in the job markets should also be considered.

Research may also consider the socio-economic impact on (predominantly) sending Eastern European countries including reverse migration. In this regard, issues to be explored may include remittances, loss of human capital, impact of migration on family life (separations, impact on children and the elderly) and local communities, gender, equality, demographic trends as well as the impact on the tax base and labour market. Research could compare migration flows and impacts following the so-called Eastern enlargement round with migration effects after previous accession rounds. Research could also consider whether and to what extent intra-EU mobility relates to inequalities, in particular whether and to what extent it helps to reverse or exacerbates existing inequalities and/or generates new ones.

2) Perceptions on and politicisation of intra-EU mobility and representation in the media

Research should survey and examine discourses and perceptions on intra-EU mobility. The role of the media, including social media, and of political parties and other groups in opinion formation must be analysed. A representative range of Member States ought to be studied comparatively. Research could also compare, and if opportune contrast, these discourses with those following previous accession rounds and assess the connections with the development of xenophobia in Europe. It should also consider whether and to what extent discourses distinguish between intra-EU mobility and migration into the EU. Awareness and knowledge of the historical and current realities of migration, including and in particular with regard to the actual costs on the welfare systems, should be tested, and if necessary contrasted, with claims regarding threats to local employment or 'welfare tourism' commonly made. Projects will also



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consider the role of educational systems in the EU in this regard. Research should analyse the underlying processes and dynamics of the politicisation of intra-EU mobility. It should analyse whether and how this politicisation relates to increasing inequalities in Europe. Finally, it should be explored whether and how perceptions of and attitudes towards migration are related to support for the welfare state.

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 will considerably enhance the knowledge base on the socioeconomic impact of intra-EU mobility in general and on national welfare systems in particular. Projects will inform on the necessity of any additional regulation on intra-EU mobility and develop practical solutions. Research should make recommendations on how sending countries can harness the talents and resources of their citizens abroad. Research will reveal whether and to what extent there is synchronicity or divergence between the socioeconomic effects of intra-EU migration and its perceptions and politicisation.

Type of action	Research and Innovation action
Deadline	4 February 2016
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Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2294-rev-inequal-04-2016.html



REV-INEQUAL-05-2016

Inequalities in the EU and their consequences for democracy, social cohesion and inclusion

Specific challenge

While a core value of all democratic countries in the EU is equality, inequalities have increased in recent decades. Democracies seem powerless to stop the trend and may sometimes even seem to encourage such inequalities. There is however considerable controversy on whether and how rising inequalities impact upon democracy and social and political inclusion. Inequalities are not only economic and social phenomena, but they also empower and constrain individuals' and groups' political capacities and therefore provide indicators as to how we live together as a community and organise politically. Faced with the growing feeling among citizens that the political institutions in European democracies have become less powerful and allow for inequalities to grow instead of reducing them, it is important to enquire to what extent the increase in social and economic inequalities affects the cohesion of society, the future of our democratic systems and the European project as a whole. It is often claimed and/or assumed that a flourishing middle class constitutes the backbone of European democracy and that its demise at the centre leads to the rise of more polarised, and possibly populist, politics which threatens to undermine the stable and predictable democratic state which emerged gradually after WWII and became characteristic and indeed an essential prerequisite of European Integration. Given that high concentrations of wealth and income among a small proportion of society impacts negatively on social cohesion, the EU and its Member States have to reassess and reappraise the democratic effectiveness and functioning of their political systems. The specific challenge is to consider and evaluate the political ramifications of increasing social and economic inequalities and polarisation for democracy in Europe and the types of policy interventions available, including in terms of democratic revival and participatory and inclusive innovations. Whenever relevant, comparative work on case studies outside EU is encouraged.

Scope

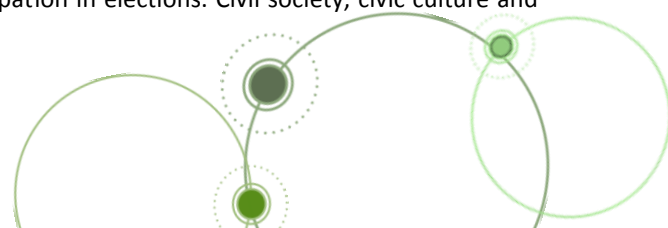
The research to address this challenge should in particular focus on the following key dimensions. Proposals can comprehensively address one dimension or combine them. They may include additional aspects which are relevant to addressing the specific challenge.

1) The relation between democracy and the 'middle class'

Over the last decade, a polarisation of income by education has been noticed in most EU Member States as well as in North America. Recent research has found that the share of employment in jobs located in the middle of the skills distribution has declined considerably. At the same time, the proportion of employment at the upper and lower ends of the occupational skills distribution has increased substantially. In the face of this evolution, the so-called 'decline of the middle class' has come to the forefront of the debate. As 'middle class' is itself a contested concept, research should attempt to define it more precisely on the basis of relevant comparative and historical work and also be open a critical reassessment of the continued appropriateness of the notion. It should also test whether the common assumption that increasing inequalities and a growing polarisation between 'rich' and 'poor' are likely to lead to an erosion of the middle class. It will also critically reappraise the claim that a solid and flourishing middle class is a precondition for and guarantor of a thriving democracy. Research should also consider the implications of a declining middle class on levels of trust and cohesion in the EU as well as traditional democratic and political structures more broadly.

2) Increasing inequalities and their impact on classical and non-classical political participation

As analysed by European research projects, the links between income, voter turnout, institutional factors, psychological factors and other forms of democratic participation and citizenship are complex. Historically, the rise in inequalities has coincided with a decline in voter turnout and membership of political parties in most Western democracies. A potential further evolution is therefore that, as inequalities increase, several segments of the population in European democracies cease to engage in public participation and become depoliticised, indifferent or even hostile to democracy, at least in its current forms. Research should study correlations between increasing inequalities in its various dimensions and electoral participation and consider causalities in both ways. Due regard should be had also to participatory action repertoires beyond participation in elections. Civil society, civic culture and



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social participation are important in this regard, but research should be open towards genuinely alternative and innovative, including digital, forms of participation in public discourses too. The impact of these forms of participation on (shared) identities should also be considered. Research should compare, and if opportune contrast, the impact of heightened inequalities between traditional democratic participation on the one hand and engagement in alternative, including more ad hoc action repertoires on the other. Particular attention should be paid to links between non-institutionalised forms of participation and inequalities with regard to education whereby marginalized and vulnerable groups should be taken into account. Research should combine qualitative and quantitative methods and develop causal explanations rather than mere correlations.

3) Young people and the future of European democracies

While young people seem to have a fairly substantial interest in politics and political issues, this seems to translate less and less into comparable levels of engagement with formal politics and the political system in the orthodox sense. This is an alarming sign for the future of European democracies. A more differentiated policy approach is needed, taking into account and responding to social structural inequality affecting young people as well as diversity. Young people's conceptualisation and access to power should also be studied. Research should explore new ways of political engagement and interaction, with the aim of countering the de-politicisation of socially excluded young people. On the basis of qualitative and quantitative empirical work on young people and their links to democracy, it should assess how to "reinvent" democracy in Europe and make our political systems evolve, whereby existing action repertoires and the role of technology may also be considered. Finally, it should also look at how children in Europe, as future citizens, consider the central values of democracy such as equality and solidarity and how such views can determine their future political participation and level of support to various forms of democracy.

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 will increase the knowledge base on the effects of increasing socio-economic inequalities and ensuing polarisation between different parts of the citizenry and European democracy(ies). The relationships, understandings and interplay between democracy, politics and inequalities will be considerably elucidated. Research will make recommendations on the future role of a shrinking middle class for democracy and social cohesion and the ramifications this will have for political engagement and social cohesion. Research will also inform policy makers on how more novel, including ad hoc and digitally supported participation repertoires may or may not qualify to substitute for more traditional democratic, especially electoral, participation. Most importantly, research will provide a critical assessment of current democratic practices in order to build more inclusive and reflective societies and reinvigorate democracies. Research will also inform policy makers of different future scenarios of the development of democracy and political participation in Europe in the light of varying trends in inequalities, putting particular emphasis on implementing new democratic models

Type of action	Research and Innovation action
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REV-INEQUAL-06-2016

Tackling inequalities at their roots: new policies for fairness in education from early age

Specific challenge

Despite ample analysis and many recommendations, educational inequalities remain pervasive in all European education systems regarding access, treatment and outcomes. European education systems need to cater for considerable diversity and enable all citizens to succeed and develop their full potential, irrespective of their background and according to their specific learning needs. Yet, whole social groups or sub-sets of the population persistently perform less well in education. There are also wide geographic disparities in education, between and within Member States, also regarding early-childhood (pre-primary) education. Finally, many learners with disabilities and/or special educational needs are still placed in segregated institutions or in mainstream settings with inadequate support, frequently leaving school with insufficient qualifications. The role of pre-primary and primary education has been recognised as being of fundamental importance in the educational cycle, as they lay the foundations for future educational and professional attainment. However, huge disparities exist within Europe also at this level. The goal of reducing inequality and discrimination in European education systems is particularly challenging and relevant. However, it is both more efficient and equitable to invest in education in the very stages. Correcting failure later on is inefficient in comparison. Early childhood education facilitates later learning, and can produce large socio-economic returns, especially for disadvantaged children. Moreover, innovative practices for increasing the efficiency of education systems could also play an important role for equity.

Scope

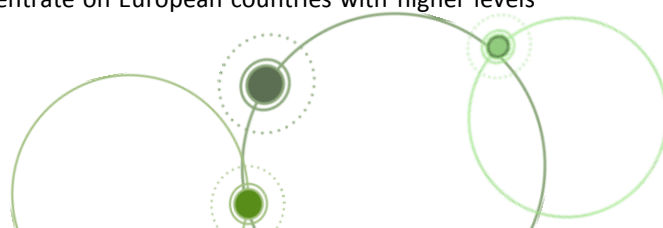
The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed. They may include additional aspects which are relevant to addressing the specific challenge and they should take stock of most recent research in the field.

1) Reducing educational disparity and disadvantage from an early age

How can better or more enhanced educational and early childcare experiences for children improve the quality of their life? What policies are needed to reduce educational poverty in early childcare and early-childhood education? The research will focus on early childcare and early childhood education (pre-primary) and primary education. Proposals should build on the evidence of the successful contexts in which educational and care practices are demonstrating to be effective, considering the diversity of structures and agents influencing children's learning and psychosocial capacities. Research will assess the successes or failures of educational and care policies against inequalities in a comparative way and analyse institutional, cultural and ideological resistance to changes towards equality. It will seek to generate concrete policy guidance for system-wide, integrated and - where necessary – cross policy strategies for effective intervention at an early age. Particular attention should be devoted to strategies for strengthening inclusive care and education, and providing for the successful inclusion of learners in early childhood education and care. This could include combating social, economic, gender and spatial segregation and discrimination; promoting the success of migrant-background learners; better equipping institutions and educators to deal with diversity and social inequality; providing active and inclusive pedagogies and psychosocial care policies; promoting citizenship and enhancing democratic values; better measuring and monitoring inequalities in education, including at the regional and local level, whereby microsimulation could be envisaged as a tool. Research will help define the roles of care and education at an early age as an essential tool against inequalities, taking into account the wider context of societies and education in Europe, and also adequately addressing the specific problems encountered by marginalised people (for example Roma).

2) The contribution of innovative forms of organisation management or professional practices in educational systems to equity and efficiency

Research should investigate how innovative forms of organisation and management or innovative professional practices (e.g. teachers' training and professional development) in educational systems and institutions may contribute to equity and efficiency. The research should address barriers, including cultural ones, to innovation in education systems and propose strategies for overcoming them. It should concentrate on European countries with higher levels



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of educational poverty and include comparisons with countries outside of Europe when relevant. The focus should lie on (long term) outcomes in terms of level of competence of pupils and students, taking into account all relevant dimensions of outcomes and the pupils' background in European educational systems (ISCED 0 to 4). Possible dimensions to be analysed include: governance issues (decentralisation of responsibility for expenditure, decision-making, assessing results, allocating public funding); teachers training; organisation of the curriculum; degree of autonomy of schools; level of segregation; accountability issues; availability and quality of facilities, including ICT, innovative teaching/learning methods; gender balance, and learning environments, including the role of teachers and community members.

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

Expected impact

Education is one of the five key objectives targeted by the Europe 2020 strategy for growth essential to combat (social) inequality and social exclusion by equipping the next generation with the skills and qualifications needed to build a socially and economically strong Europe and to provide for social cohesion and democratic values. Further specific research, taking into account the recent economic, demographic and social developments in Europe, and recent advances in approaches to teaching and learning practices will contribute to the identification, transferability and up-take of effective and efficient measures to combat inequalities in education right from the early age, increase educational outcomes, promote social and inclusive innovation and foster broad cross-policies cooperation among researchers, stakeholders, practitioners and policy-makers. Research should provide knowledge, evidence and propose practical options of e-learning and pedagogical methods that will improve the educational systems across Europe. The research will advance knowledge and options for the educational system and its potential for reform in order to become more creative and cost effective.

Type of action	Research and Innovation action
Deadline	4 February 2016
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Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2299-rev-inequal-05-2016.html



Call – Reversing Inequalities and Promoting Fairness

Dedicated Topic

REV-INEQUAL-07-2016

Spatial justice, social cohesion and territorial inequalities

Specific challenge

Location matters. This could hardly be truer than with regard to the place where people live, including neighbourhood, city, region, and country. Where one is born and raised (still) determines to a considerable extent one's opportunities and constrictions and it also impacts on one's personality. Spatial influences on the quality of life, development and opportunities of children and the elderly are also significant in this regard. Attention should be paid to access and quality of health as well as to the gender dimension. Despite technological developments which are making the notion of 'space' somewhat more relative, social mobility is constrained by many spatial and institutional factors, especially for the young and those living in precarious conditions. Yet, from an equality and spatial justice perspective, the place of birth or living should have as little impact as possible on socio-economic chances and public policies should be in place to lessen such inequalities. At a political level, it seems that regional, and sometimes sectarian, movements and parties appear to be gaining ground in Europe, whereas Member States and the European Union are losing political credit. After a long period of catching-up for most of the disadvantaged regions, inequalities among regions within Member States are now growing again. As 'hollow' States find it hard to develop appropriate answers to increasing inequalities, citizens are seeking locally and socially inclusive innovative solutions within their immediate environment or communities. Territorial patterns are shifting and some cities are taking the lead in global challenges (e.g. with regard to sustainability, transport and climate change) while others are lacking behind.

Scope

The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed. The research may also cover other issues relevant for addressing the specific challenge.

1) Territorial Cohesion, Spatial Justice and Solidarity in Europe

Research should explore links and tensions between territorial cohesion, sustainable development and spatial justice in Europe at times of crisis. Different concepts of spatiality ought to be considered inter alia in the light of their institutional contexts. In particular, research should assess whether and if so how and why territorial cohesion could or should be understood as a prerequisite for achieving sustainable economic growth, including environmental sustainability, and maintaining democratic capacities for adaptation and change. Research will survey empirically existing and emerging spatial and territorial inequalities and evaluate them normatively from perspectives of justice and fairness. A representative number of divergent spatial entities in Europe (and beyond, where appropriate) have to be studied. Research should in particular explore and appraise the socio-economic and political consequences of the financial strains for territorial cohesion in times of austerity. The links between socio-economic disparities, regional inequalities, the urban/rural divide and identities should also be considered. Conceptual connections between social and economic cohesion, the European Social Model and human rights should be explored. The distribution, size and availability of public services in the fight against spatial inequalities should be thoroughly assessed.

2) Regionalism, a question of political and social equality?

Research should explore whether, and under which circumstances, claims to (more, or partial) regional autonomy or decentralisation are - or are not - justifiable on account of economic, political and social justice. Cross-country comparisons of different concepts of regional development are invited, especially in the context of a growing North-South divide in Europe. In particular, research should explore whether and why a relatively high degree of regional distinctiveness in terms of economic development, social structures and, where appropriate, culture and identity, may require certain degrees of autonomy. Research should consider whether and to what extent the quest for regional autonomy could be seen as an alternative for EU social cohesion policies. The relationship between the use of the potentials of distinctive spatial resources on the one hand and equality, equal opportunities and justice on the other ought to be considered.

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 5 million would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of



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proposals requesting other amounts.

Expected impact

Research will contribute to conceptually and empirically enhancing the knowledge base on spatial justice and territorial inequalities. It will also contribute to identifying policies promoting spatial justice and socio-economic well-being at various levels of governance (incl. local organisations and stakeholders). Research will reappraise existing cohesion policies and instruments, as well as the essential role of public services and make recommendations for their continuation under conditions of austerity. Research will also make a contribution to conceptualising the European Social Model. Research will improve the knowledge base on the relation between regional policy and political claims to regional autonomy and decentralisation. Solutions for a more cohesive European territory should be proposed.

Type of action	Research and Innovation action
Deadline	4 February 2016
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Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2297-rev-inequal-07-2016.html



Call – Reversing Inequalities and Promoting Fairness

Dedicated Topic

REV-INEQUAL-08-2016

Fighting inequalities through policies against tax fraud and tax evasion

Specific challenge

Tax fraud and tax evasion represent a complex challenge for European countries. Also voluntary schemes for tax optimization and tax heavens in Europe and globally are significant in this regard. The scale of the lost revenue is staggering, with possible consequences for the fight against inequalities. First, unpaid taxes limit the capacity of Member States to invest in and implement social and economic policies and services as well as social protection systems. Second, tax fraud and tax evasion also constitute a direct impediment to equal treatment and in fact exacerbate inequalities as they lead to additional and potentially excessive fiscal burdens on those who fulfil their tax obligations. The foregone revenue could help to stimulate economic growth, prevent cuts in public services and mitigate fiscal and social inequalities. Moreover, the fact that well-off or well-connected people benefit from privileged tax treatment decreases and potentially undermines the trust citizens have in the fairness of policies and democratic institutions. The specific challenge is to identify and analyse deficiencies in tax law and enforcement at EU level and across Member States in a context of economic globalisation, including the role of (off-shore) tax havens and to obtain a clearer picture on perpetrators' attitudes.

Scope

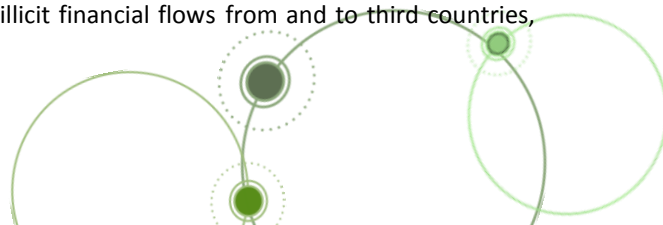
The research to address this challenge should in particular focus on the two dimensions described below. Proposals can comprehensively address one dimension or combine them. They may include additional aspects which are relevant to addressing the specific challenge.

1) The state dimension: the role of governments; tax law and tax enforcement regimes

Research should identify deficiencies at governmental level, in tax laws and in tax collection and enforcement regimes, whereby the role of the banking and tax advisory sectors should also be considered (see below point 2). A good range of Member States' legal regimes and tax collecting practices including statistical capacities and methodologies should be comparatively surveyed, their strengths and shortcomings analysed and evaluated. Due regard must be given to all forms of corruption as well as systemic, including voluntary, deficiencies. The research should provide a comparative cross-analysis of tax fraud and tax evasion prevalence in European countries. Attention should be paid to the analysis of money laundering techniques. Research should also identify deficiencies in tax enforcement and tax administration practices, technical setup and legal frameworks at national, regional, local, European and global levels. Due regard must be given to the international dimension of taxation. This relates, on the one hand to interconnectedness of economies and markets, and on the other hand to international initiatives and standard setting notably on undue transfer pricing, base erosion and profit shifting (BEPS) and transparency. Based on these insights, research should compare the impact of strategies to enhance tax compliance such as adjusting tax laws including rates, altering sanctions and sentencing provided by law or putting in place amnesty programmes and better information exchange between countries. Innovative and reliable methodologies to study the effects and effectiveness of different government policies are called for.

2) The perpetrators' side: practices, motivations and attitudes across Europe

Research should inventory practices, mechanisms and strategies and attitudes of perpetrators comparatively. It should investigate the economic, social, psychological, ideological, historical and cultural drivers behind fraudulent tax practices behaviour. Variation in terms of location, income brackets, sector of activity and any other relevant variables should be explored. In addition, research should analyse fiscal non-compliance through the lens of ethics, morality and social justice. This research requires, if and where possible, a temporal dimension, assessing whether and to what extent practices and especially attitudes have been changing in particular in recent years in the wake of the financial crisis.¹⁶ Research should also assess whether and to what extent the prevalence of tax fraud, optimisation, evasion and avoidance might be socially and/or culturally or gender embedded. Regard should be had to amnesty programmes where applicable and their impact should be assessed. Due regard must be given to the international dimension of fraudulent tax practices behaviour. This relates, on the one hand to illicit financial flows from and to third countries,



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notably resource rich developing countries and on the other hand to differences in European legislation concerning tax avoidance, corruption and bribery in third countries. Special attention should be paid not only to tax fraud and evasion, but also to tax avoidance, especially regarding individuals in top income brackets and corporations. These groups have access to more sophisticated means of non-compliance or 'bending the rules' such as storing money in tax havens, moving to a different tax jurisdiction or using shell companies to hide profit, in particular through targeted tax and finance advisory services. In turn, combating tax evasion in these cases will require investigating and developing sophisticated methods of data sharing and administrative collaboration at trans-national level and a better understanding of the interplay of tax authorities, tax payers and tax consultants.

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 will significantly enhance the knowledge base of various tax law and enforcement systems among Member States in general and identify their deficiencies in a comparative way in particular. It will make recommendations and suggest practical options which help redress and reverse tax fraud, optimisations, evasions and avoidance. Furthermore, research will considerably improve understanding of practices, motivations and attitudes of perpetrators, both individual and corporate, with the role of the intermediary financial sector better understood. Recommendations will be made on how tax compliance can be improved, and how it could to a greater extent be portrayed and seen as a virtue. Research is expected to propose readily applicable instruments and strategies to reduce tax fraud, tax optimisation, tax evasion, money laundering and to incentivise tax compliance, whereby national circumstances should be taken into account. The quantitative and qualitative data collected will contribute to increasing the efficiency of tax administrations in European countries by enabling them to better target their compliance and inspection efforts on the individual and company level as well as in sectors of economy with a higher probability of non-compliance. Research should also set out best practices for enhancing cooperation, trust and confidence between tax administrations and taxpayers.

Type of action	Research and Innovation action
Deadline	4 February 2016
Call identifier	H2020-SC6-REV-INEQUAL-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2296-rev-inequal-08-2016.html



Call – Reversing Inequalities and Promoting Fairness

Dedicated Topic

REV-INEQUAL-09-2017

Boosting inclusiveness of ICT-enabled research and innovation

Specific challenge

The deployment of information and communication technologies induces changes that impact individuals, societies and the environment in profound and pervasive ways. Harnessing the expertise of social sciences and humanities (SSH) in ICT-related research and innovation is key to contribute, notably, to cohesion, fairness, and inclusiveness. Although the need for a constructive, reflective and critical interactions between social sciences and humanities, on the one hand, and technological disciplines, on the other hand, is widely acknowledged, it is a challenge to make it happen and ensure that insights and innovation stemming from both perspectives join up in order to deliver inclusive ICT-enabled innovation. It calls for a smart approach to multiple disciplinarity that combines different tools and relies on the dynamic uptake of social sciences and humanities' perspectives. With this in mind, a structured distributed approach to the mainstreaming of social sciences and humanities across all topics aiming at ICT-related research and innovation has been set up. This approach strives to nurture a horizontal and mutually enriching relationship between SSH and ICT communities. For responsible and inclusive innovation to come true, one has to move beyond a reactive and risk-based approach, and encourage ongoing critical accompaniment of this innovation, rather than seeking mere acceptance of technological artefacts. This expands the remit of what is expected from SSH expertise. Instead of being confined in a "watchdog" or an "airbag" role for S&T developments, SSH is itself a source of innovation.

Scope

This topic calls for the coordination and support action that will bring life to the distributed and structured approach designed to ensure a responsible approach to research and innovation through the uptake of SSH expertise across all H2020 areas leading to ICT-related innovation. It should act as a "hub" and activate the constructive interactions of SSH research with the ICT-related projects across H2020.

The purpose of the hub is to stimulate responsible and inclusive ICT research and innovation by encouraging the uptake of the SSH expertise in ICT-related projects and by coordinating and supporting the embedded expertise within the H2020-funded ICT-related projects, as well as linking these H-2020 projects with the relevant SSH expertise and initiatives both in Europe and in the world, to ensure that this important knowledge basis is fed into the H2020-funded ICT related research and innovation. The coordination and support action is expected to generate in a collaborative way a shared understanding what it takes for ICT research and innovation to be responsible and inclusive, and to make it happen.

In terms of coordination efforts, the hub is expected to ensure an active dialogue and the sharing of experience among ICT developers, SSH researchers and other stakeholders (NGOs, citizens and users e.g.) across H2020 ICT-related projects. It is also expected to channel the fruits of this dialogue into discussions with policymakers, into the shaping of future research agendas, and into a reflexive assessment of the SSH research practice in the remit of the digital transition.

In terms of its supporting function, the hub will catalyse information sharing about activities in Europe that are enhancing responsible and inclusive approaches to ICT-related research and innovation. Drawing on ongoing developments, it will provide tools and advice for fostering responsibility and inclusiveness of ICT research and innovation. It will support the visibility of the relevant activities through sustained communication efforts (annual conferences, awareness raising, interactive web-based platform e.g.). It will encourage debates on the challenges raised by hyper connectivity and support experimental activities in interactive labs to stimulate reflection on cutting-edge issues.

The Commission will select one proposal only and considers that proposals requesting a contribution from the EU of EUR 3 million would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of proposals requesting other amounts.



Call – Reversing Inequalities and Promoting Fairness

Expected impact

- Improved level and efficacy of the interaction between SSH and ICT disciplines with a view to harnessing ICT-related innovation for reversing inequalities and contributing to responsible and inclusive innovation processes through SSH expertise;
- Improved take-up of societal concerns in ICT-related research and innovation;
- Increased worldwide visibility and influence of a European community with a shared vision for inclusive ICT research and innovation;
- The proposals themselves are expected to identify key measurable success indicators –to be further framed in the course of the project- that measure impact in community building and engagement, and uptake of inclusive responsible ICT research and innovation approaches within and beyond the consortium.

Type of action	Coordination and Support Action
Deadline	2 February 2017
Call identifier	H2020-SC6-REV-INEQUAL-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2291-rev-inequal-09-2017.html



Call – Reversing Inequalities and Promoting Fairness

Dedicated Topic

REV-INEQUAL-10-2016

Multi-stakeholder platform for enhancing youth digital opportunities

Specific challenge

Today's children and young people lack opportunities to participate actively in policy and decision making, as well as in designing their digital agenda. Children and young people are major users of the internet and online services, it needs to be ensured that they are equipped with the right and trusted environments to take advantage of this as active participants in the digital society. The online environment is rapidly changing and we need to develop the tools to identify and understand the needs of the young generation. Young people in Europe need not only the space to discuss and to engage with multiple stakeholders and decision makers across borders and boundaries, but also to be given the instruments to actively shape the research agenda as well as to participate in research related to their use of digital technologies. Innovative research methods are needed to empower children and young people by giving them an active role in research. Efforts need to be undertaken to give a voice and to empower children and young people who are marginalised or at risk of exclusion. Only an active participation of all citizens, and especially of all young people in shaping policy and broader societal developments, can create the basis for a well functioning European society.

Scope

This coordination and support action should aim at the creation of an online platform to engage children and young people, framed by research according to their needs and behaviours. Children themselves will be able to take initiatives on the research topics and methods, while the researchers will act as facilitators. Children and young people will be given more active and participative roles that allow empowerment. The vulnerability of children and young people in the online environment and how to build online resilience will also play a role in this action. Gender issues will be paid particular attention. Furthermore, gender and diversity balance among the participating children and young people will be ensured. The platform should bring together stakeholders from research and policy makers, together with children and young people around Europe. Synergies with the existing platforms such as the participation platform on the European Youth Portal should be envisaged. Specifically it should:

- allow for child and youth-directed research, where researchers and policy makers act as facilitators;
- conduct research and develop a knowledge base as well as critical perspective on the use and interactions with the digital world of children and young people. This will be done in collaboration with interdisciplinary researchers and social scientists;
- discuss within peers but also with decision makers, industry and civil society on their needs and expectations from the digital society;
- co-create with multiple stakeholders research and policy priorities.

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

Expected impact

- Stimulate children and young people's civic engagement through online participation;
- Allow for innovative research methods on children's and young people's use of internet and digital technologies through their active participation in the research;
- Empower children and young people by allowing them to take an active role in policy making and societal developments;
- Leverage youth participation and dialogue with stakeholders and decision makers;
- Ensure full and safe participation of children and young people in accessing and creating online content and services.

Type of action	Coordination and Support Action
Deadline	4 February 2016
Call identifier	H2020-SC6-REV-INEQUAL-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2293-rev-inequal-10-2016.html



ENG-GLOBALLY-01-2017

Strengthening Europe's position in the global context: science diplomacy and intercultural relations

Specific challenge

Europe is faced with numerous challenges that are increasingly global in nature and that have become of more immediate importance: peace and stability, migration, climate change, resource efficiency, health pandemics, etc. In many cases, responding to these challenges requires science-based evidence to inform decisions and joint international efforts that often include also scientific and technological cooperation. This is where science and diplomacy can join forces to form a 'soft power' tool in external policy – science diplomacy.

A main challenge is how to best link scientific expertise and cooperation with diplomacy and political influence to tackle major global challenges, promote knowledge and improve international relations. Science diplomacy has a particular added value in providing additional communication channels, particularly in stalemate situations and relations where few other mechanisms are feasible as well as on sensitive bilateral and multilateral issues. It promotes cooperation and conflict prevention, rebuilds trust and fosters shared understanding across countries, regions and cultures.

At the same time, the global context is characterised by competing understandings of central values and organising principles of society, including the meaning and direction of politics, economics, culture and ultimately human life. This context, and Europe's place in it, needs to be better understood and accounted for, from both a contemporary and a historical perspective, if the European Union and its Member States want to continue to constructively take part and strengthen their position in global discourses about what constitutes a "good society" and to understand how European policy interventions have been understood and perceived globally.

Addressing this challenge requires a great dose of (self) reflexivity about European diplomacy, Europe's own history and its interactions with third countries, regions, cultures and religions. It calls for a continued investment in fostering scientific, political, economic, social and cultural relations with other non-European global actors on all continents, and for ways in which to sustain scientific and intercultural exchanges that effectively enhance mutual understanding despite differences.

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 two or three of them. The research may also cover other issues relevant for addressing the specific challenge.

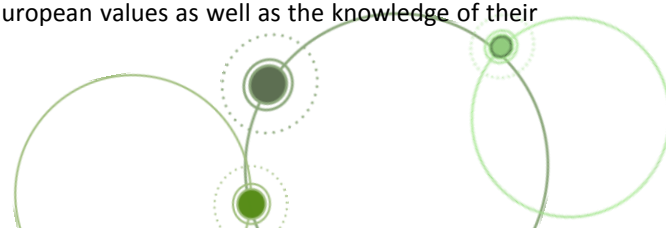
1) Using science in the context of European diplomacy

In an increasingly complex global context, diplomacy as a social practice and profession is undergoing considerable changes. In both bi- and multilateral contexts, it is no longer sufficient for diplomats to be skilled in the art of negotiation, but they also need to have the capacity - alongside specialist knowledge – to take better advantage of science and scientific cooperation. How to better prepare and employ 'science diplomats' remains a particularly unexplored research area. The research efforts should focus on examining the interface between scientific advice and expertise and diplomats' performance and capacity. It should analyse where science diplomacy can have the biggest impact and how it can be instrumental in strengthening EU capacities and strategic awareness and in establishing better mechanisms so as to anticipate events early and to swiftly identify common responses. This should involve 'practitioners' of science diplomacy.

Research should explore under which conditions science and scientific cooperation have contributed positively or negatively to reaching foreign policy objectives (peace, security, trade, development, humanitarian aid) in various challenging contexts and draw recommendations for the development of new actions at EU and Member States levels.

2) European culture, values and reflections of Europe's colonial past in contemporary European societies

European values are to a large extent determinants of behaviour. As values stay behind many societal patterns and organising principles of society, the knowledge of the past development of European values as well as the knowledge of their



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contemporary status could help to understand many aspects of behaviour of contemporary European populations.

Multidisciplinary research associating scholars from the humanities and social sciences should adopt an outside-in perspective on contemporary European societies and trace the manifold non-European and European colonial era-related determinants of present-day societal and cultural diversity in Europe. In so doing, it should pay particular attention to the way societal and cultural influences from outside of Europe have historically been framed, contested, transformed, refused or taken up in European societies. It should elucidate how and why some of these influences were able to strongly impact European societies, values, activities and culture, and why others were less successful. Research under this topic will lead to a sound understanding of the social, cultural, linguistic and political legacies of colonialism within Europe and globally. It will assess their implications for policy-making, EU values and intercultural and interlinguistic dialogue, including the construction of plural cultural identities in nations and countries of Europe.

3) Global trends of secularisation and religious radicalisation and the role of Europe

Over the centuries the relations between the state and religion were of key importance for the functioning of state and society. Today's world is divided between secular states where government is officially separated from religion and states where this distinction is blurred, in addition to a few theocratic states. Whereas secular states are spread all over the world, and the religions professed and practiced by their citizens represent the widest possible spectrum of beliefs, the majority of countries which have embraced religion as their central norm are predominantly, although not exclusively, following Islam and are located in Africa, the Middle East, the Mediterranean region and Asia. A wide array of differences between official norms and practices still exist and should be taken into account in order to avoid undue generalisations between such countries and states. Taking account of the diversity of forms of secularism and religion, and adopting a historical perspective, this multidisciplinary social sciences and humanities research should investigate and compare various types and experiences of the functioning of secular and religion-based states in and outside Europe. Its findings should clarify reasons for, and pathways of, transformation of the role of religion in state governance, and should explain differing perspectives of cultural and political co-existence within the polity. Specific attention should be paid to the analysis of the impact of religious radicalisation all over the world and its consequences on states' peaceful coexistence as well as of the foreign fighter phenomenon. Research should also focus on what these trends mean in terms of internal and foreign policies for the European Union, its Member States and the state-religion relationships on the European continent. In this perspective, it could also include the possible forms of injustice, inequality and exclusion that may contribute to societal tension and marginalisation of certain minority groups, as well as the common elements between religion-based values system and secular systems that could help to counter radicalisation.

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 impact the foreign policies of the EU and its member states and provide enhanced coordination between them and between the EU and its international partners. It will provide in-depth insights into the multiple ties and mutual influences between Europe and its neighbours, former colonies and other countries and regions, especially in the scientific, socioeconomic, historical cultural and religious spheres. It will also provide a sound understanding of contemporary European societies, of the multiple sources and expressions of diversity in the EU and of how non-European influences impact on the formation of European identities. Acknowledging the multiple sources of today's European diversity will have strong policy implications, not just for scientific and cultural policy, but also for immigration, integration, education and external policies. It will also facilitate Europe's future engagement with third countries.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2305-eng-globally-01-2017.html



ENG-GLOBALLY-02-2017

Shifting global geopolitics and Europe's preparedness for managing risks, mitigation actions and fostering peace

Specific challenge

Europe's strategic and geopolitical environment is evolving rapidly, will always be an area of change, and in a manner that increasingly raises concerns. In recent years, violent conflicts have agitated the planet, many of them located in Europe's immediate neighbouring regions. These developments take place at a time when global geopolitics is undergoing long-term transformations challenging the traditional predominance of the West, while policies of economic austerity oblige EU Member States to manage scarce resources more effectively. These trends seriously challenge the Union's capacity for guaranteeing its citizens' security - one of its principal *raison d'être* - while also jeopardizing its aspiration of promoting European values and interests abroad. In order to evaluate and promote its preparedness for playing its role as an effective security provider, to prevent escalation, to manage and understand risks and mitigation strategies for peace beyond its borders, the EU needs to understand the implications of recent global developments and assess them against its own capacities and willingness to make synergetic use of them.

Scope

The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed. The research may also cover other issues relevant for addressing the specific challenge.

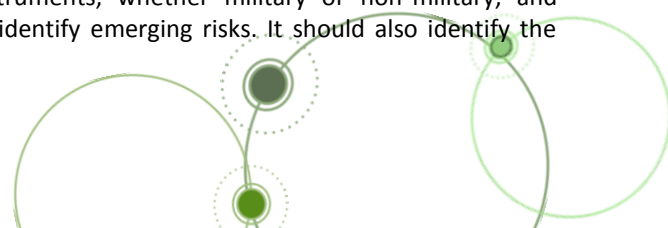
1) Recent global geopolitical developments and their implications for the European Union

Research under this dimension should adopt a comprehensive understanding of security and explore uncertainty. Based on this, it should identify and investigate long-standing and novel - global and regional - external risks facing the EU and its Member States, in connection with ongoing initiatives and programmes for risk identification and early warning. Crises in its neighbourhood (in particular East Europe and the southern Mediterranean), such as the rise of radical Islamic groups exemplified by the expansion of the "Islamic State" in Syria and Iraq, but also conflicts and risks in other regions of the world such as in South Asia (e.g. Afghanistan) and Sub-Saharan Africa (e.g. Mali) should be examined. Research should identify the most pressing risks and areas of uncertainty and unravel the causes, expressions and security-relevant consequences of such instable contexts.

It should examine possible inter-linkages between various geographically limited conflict situations as well as their embeddedness into regional and overarching global geopolitical developments. This necessitates a sound understanding of the political, socioeconomic, cultural and military contexts in which patterns of insecurity and uncertainty emerge, also from a historical and philosophical perspective. An inventory of contemporary risks should form the basis for identifying their implications for Europe and its security needs. Research should examine how potential risks, mitigation strategies and opportunities are perceived, and how they can, do and even should become part of novel approaches and policies in the EU, its Member States and its partners in geostrategic matters. It should investigate how the EU, its Member States and other relevant partners can act to better anticipate, prevent and respond to the identified risks, mitigation strategies and opportunities, and develop scenarios on possible EU activities using a range of policy actions and instruments, including diplomatic, economic, civilian and, if needed, military means.

2) European Union's preparedness for managing risks and opportunities, fostering peace in a crisis-ridden context

Research under this dimension should comprehensively examine the European Union's and its Member States' willingness, capacities, instruments and channels for anticipating and responding to a large array of external threats. It should contrast the EU's legal basis for external security policies, including risk analysis and management, conflict prevention and resolution, post-conflict management and peace-building, to the actual practice, both prior to and after the onset of the economic and financial crises. Analyses should draw on comparative case studies from the EU's handling of various conflicts and crises (including humanitarian ones) across the globe. Research should develop criteria for effective security cooperation in the EU, distinguishing between objectives and instruments, whether military or non-military, and contribute to the ongoing development of early-warning systems to identify emerging risks. It should also identify the



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political, socio-economic, technological and cultural conditions that enable or hinder the emergence of effective security cooperation in the EU. Based on this evidence, research should develop information sharing and decision support systems that facilitate cooperation, identify gaps and align the interests of diverse actors towards effective EU security policies, especially in the framework of its Common Foreign and Security Policy (CFSP). It should also provide insights on whether and how the EU can work synergistically together with individual third countries or international institutions like NATO.

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 5 million 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 will lead to an up-to-date appraisal of global and regional risks and, as such, of Europe's evolving security agenda in the light of recent geopolitical developments affecting its neighbouring regions (in particular East Europe and the southern Mediterranean), and the entire globe. It will generate critical and forwardlooking evidence of Europe's preparedness for effectively facing these threats, guaranteeing its citizens' security while managing risks and fostering peace abroad. Based on this evidence, it will provide recommendations on how to improve the EU's effectiveness as a domestic and global security provider.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2309-eng-globally-02-2017.html



ENG-GLOBALLY-03-2017

The European Union and the global challenge of migration

Specific challenge

Migration is a central and common phenomenon in human history. The international migrant population in Europe is expected to increase in the future, due to economic and demographic factors, political unrest, conflicts and climate change. One aspect that has become increasingly clear in recent years is that, if the EU wants to successfully manage immigration flows at home, it needs to strengthen its cooperation with third countries of origin and transit of migrants, by fully addressing the root causes of migration and exploiting the potential of migration as a development enabler. In this vein, the European Council conclusions of June 2014 stress that migration policies need to become a stronger integral part of the Union's external and development policies through intensifying cooperation with third countries, while also calling for improving the link between the EU's internal and external policies. Particular account should be taken of the European Agenda on Migration²⁵ and the European Council Conclusions of 23 April 2015 and 25/26 June 2015.

The migration crisis in the Mediterranean has put the spotlight on immediate needs. But it has also revealed much about the structural limitations of EU migration policy and the tools at its disposal. This is an opportunity for the EU to face up to the need to strike the right balance in its migration policy and send a clear message to citizens that migration can be better managed collectively by all EU actors. In recent years, important steps have been taken in this direction but their success, in areas like asylum/international protection, treatment of refugees, visas, control of borders or detention regimes, remains contested. It is thus essential that the EU continues to engage in a broad debate on the links between its migration policies and other policies with an external dimensions including, but not limited to its foreign and development policies. The European policy for asylum, refugees, visas, external border regime, detention centres should be assessed. Research should also make recommendations on how to tackle migrant smuggling and those who profit from it.

Scope

The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed. The research may also cover other issues relevant for addressing the specific challenge.

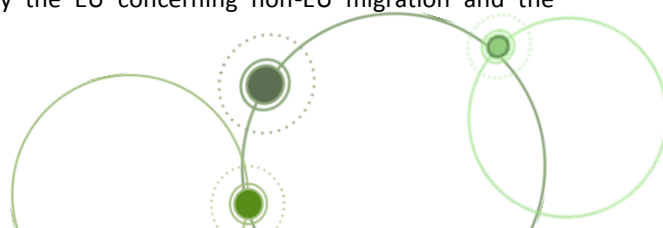
1) An integrated approach to migration and development

Building on existing studies, research should further elucidate the complex interrelation between and the implications of demographic trends, socio-economic development, environment and good governance on the one hand, and migration flows on the other, both in third countries of origin and transit of migrants, refugees and asylum seekers. Research should cover existing migration management experiences in origin and transit countries focussing on compared practices and policy solutions for effective migration management including the gender dimension. In this perspective, cultural and religious traditions, local knowledge and practices that may affect attitudes to and practices of migration should also be taken into account.

Consortia are encouraged to target geographic areas of current and future strategic relevance for the EU, including those most likely to generate irregular flows. Researchers should be careful to capture the two-way relation between migration determinants and the impact of migration on the broader socio-economic infrastructure and processes of transformation in the sending countries. Given its increasing relevance, climate change and its effects, as well as other or environment-related reasons for migration, could also feature in the analysis of drivers of migration when relevant.

2) EU policy coherence and migration

Research should focus on the interplay between the Global Approach on Migration and Mobility (GAMM) and the deployment of EU foreign policy tools and processes and other European policies with an external dimension, in particular the European development, humanitarian and neighbourhood policies. Research should examine and clarify the links between the existing legislative framework developed by the EU concerning non-EU migration and the



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increasing use of new types of policy tools to achieve migration management related goals as well as their legal consequences for involved parties. The analysis will encompass the implementation of these policies in selected geographic areas of interest for the EU and the combined effects that such policies have on countries of origin and transit of migrants. Pre-departure policies, programmes and related activities could be the object of specific attention, along with other tools promoting mobility and descent treatment of migrants, in a legal and secure environment. Finally, the effectiveness and coherence of the overall EU approach to third-country cooperation on migration will be assessed, including aspects of inter- and intra-Member States cooperation and coordination, along with areas where further synergies are needed to create greater leverage effects between different EU policies (e.g. trade and labour markets, agriculture and fisheries). In selected cases, consortia should look at the role of bilateral migration policies conducted by Member States vis-à-vis third countries and their complementarity with EU level actions.

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

Expected impact

The results of research under this topic, with its focus on sending and transit countries, should enhance policy coherence on migration between the EU and its member states. Research is thus expected to bring about greater policy coherence and effectiveness in the field of migration management and relations with third countries by clearly identifying and depicting good practices and effective ways to manage incoming and transiting migration at the benefit of local communities and immigrants. It should also allow a better understanding of the root causes of migration, their interplay with other determinants and the two way interaction between migration and development processes. Research will give EU and national policy-makers stronger conceptual tools to better interpret the role of the EU and its Member States as global actors in the field of migration.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2306-eng-globally-03-2017.html



ENG-GLOBALLY-04-2017

Science diplomacy for EU neighbourhood policies

Specific challenge

The European Union's neighbouring regions are, in various ways and for a number of reasons, in turmoil. To the East, the Eastern partnership has been called into question, especially by the long-standing crisis in Ukraine and difficult and uncertain relations with Russia. In the South-East, the EU's relationship with Turkey has increasingly come under strain, while at Turkey's border the conflict in Syria and the ravage of Islamic State armies have created high degrees of instability. In the Western Balkans, the accession processes of several candidate countries remain challenging. Finally, the East and South Mediterranean region has been the theatre of profound and intricate transformations ever since the "Arab revolutions" of 2010/11.

Against this backdrop, it is fair to observe that the aim of the European Neighbourhood Policy (ENP) to develop closer relations between the EU and its neighbours, to avoid the emergence of new dividing lines and to strengthen the prosperity, stability and security of all, remains unfulfilled. More than ten years after its inception, the European Neighbourhood Policy (ENP) is under review in 2015 . The challenge is therefore to coordinate all available scientific information on these countries in order to better inform the definition and implementation of the new ENP and develop concrete actions for cultural and science diplomacy as an instrument for reinforcing co-ownership and shared understanding with and within the EU Neighbourhood. Considering the protracted conflicts both in the East and in the South, it is expected that science diplomacy can help build bridges across borders and cultures, particularly where other mechanisms are not feasible or less effective .

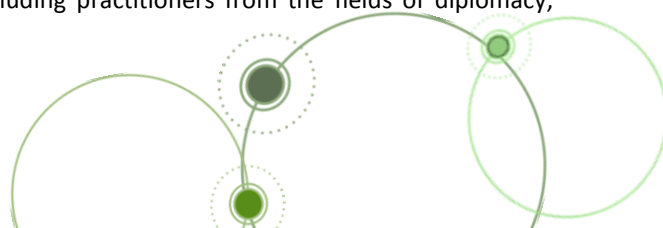
Scope

This coordination and support action should provide a stock-taking and critical review of all available research results on the European Union's neighbouring regions, including on science diplomacy related actions. It should synthesise knowledge regarding each of the neighbouring countries and regions, taking full account of the diversities of the studied entities, and compare transformation experiences both from an EU and a third country perspective, across time. In so doing, it should understand the success and failures of diplomatic efforts in the regions. It should also consider relevant results of international cooperation projects involving neighbourhood countries and all relevant existing legal instruments in various policy areas (e.g. energy), take into account the role of other state (e.g. US, Russia, and neighbours of the neighbours) and non-state actors in the various neighbouring regions.

On this basis, this coordination and support action should analyse the role science diplomacy can play and where it could be best deployed in contributing to stability, security and prosperity. It should identify concrete obstacles for science diplomacy in the concerned regions (e.g. the issue of reduced academic mobility due to on-going or frozen conflicts, visa restrictions and security controls, etc. which leads to very limited opportunities for visiting scientists and scholars). It should also provide insights into the role and relevance of the neighbours of the neighbours and non-state actors in the various neighbouring regions as well as to whether science diplomacy should be 'silent diplomacy' (low profile) or could be more effective with more visibility. Supplementary research could be envisaged in order to cover the internal-external policies nexus and the role of science diplomacy in tackling some of the most urgent common challenges e.g. conflict prevention and management, job creation and migration, food and energy security, environment and climate change, radicalisation, health pandemics.

Based on lessons learnt, first elements of policy recommendations should be provided.

It should liaise between projects, provide fora for debate and discussion, and disseminate project findings to relevant stakeholders, including policy-makers, social partners and civil society organizations in Europe and third countries. It should draw lessons and provide policy-making recommendations that combine general observations about the Union's neighbourhood strategies and policies with regional and country-specific scenarios. The differences and similarities between the studied regions and their historical ties with Europe and the EU Member States should be duly accounted for. Wider participation of the targeted region/s is encouraged, including practitioners from the fields of diplomacy,



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policy making and media.

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

Expected impact

This coordination and support action will result in a consolidated corpus of knowledge on science diplomacy in service of the European Neighbourhood Policy as well as research insights in how it could be best deployed in the challenging context of the EU Neighbourhood. It will put together a set of recommendations for EU science diplomacy strategies, policies and concrete actions in these regions and provide an assessment of these activities against criteria that it will develop. Based on these policy-relevant insights, the coordination and support action will feed research insights into the future development of EU science diplomacy in the neighbourhood with an eye to reinforcing stability, promoting democracy and prosperity in its near abroad. It will ensure a wide dissemination of these results to the relevant stakeholders including policy-makers.

Type of action	Coordination and Support Action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2302-eng-globally-04-2017.html



ENG-GLOBALLY-05-2017

Dedicated Topic

The strategic potential of EU external trade policy

Specific challenge

In its "Strategic Agenda for the Union in Times of Change" for the period 2014 to 2019, the European Council identified the need to "maximize the EU's clout" in global affairs, notably by "ensuring consistency between Member States' and EU foreign policy goals and by improving coordination and coherence between the main fields of EU external action, such as trade (...) development and economic policies". One area which definitely promises maximised EU clout in global affairs is trade. Given the European Union's significant weight as the world's largest trading block, its external trade policies can be a major source of a reinforced European role as a global actor if they are strategically deployed and contribute to a broader, coherent foreign policy approach. EU trade policy has to find the right balance between promoting the EU's economic interests while also taking into account broader EU policy objectives (e.g. promotion of human rights, sustainability, interlinking climate and energy policy objectives, etc.). Such a balance is difficult to achieve and the EU has sometimes been criticised either for letting its economic interests prevail or for being naïve over conditionality in the international trade battles. Coherence between the EU's and Member States' trade policy should be ensured, as well as coherence between trade and other (external) policies. To reap the strategic potential of EU external trade policy, its current functioning, as well as its intended and unintended consequences, need to be fully understood from a multidisciplinary perspective, and forward-looking perspectives have to be developed on how to make it more effective.

Scope

Research under this topic should take stock of the European Union's and its Member States' bilateral and multilateral trade strategies and policies, comparing various regional and country-specific trade policy approaches and assessing the coherence and consistency of their objectives, strategies and instruments. Bilateral trade relations with key economic players such as the United States and China, but also developing countries from various continents should form part of such comparisons, alongside the Union's multilateral engagement in relevant international institutions, such as the World Trade Organization and its related negotiation processes and the G-20 summit as a major global economic forum. This analysis should in particular comprise detailed scrutiny of the coherence and consistency between the EU's trade policies and those of its Member States.

The results of these stock-taking should lay the foundation for an investigation of the coherence and consistency of trade policies with other EU external policies such as economic (e.g. security of energy supply, green growth), developmental (e.g. trade-related policy coherence for development), environmental (e.g. climate change mitigation, biodiversity), social and labour (e.g. international labour standards, cooperation on decent work) and human rights policies. Research should ultimately evaluate whether and how EU external trade policies can and do serve wider foreign policy objectives, identify the institutional, organisational and behavioural drivers of and obstacles to a coherent and effective strategic use of EU trade policy, and formulate propositions on how to combine trade and other external policies into a comprehensive European foreign policy. A comparative perspective, contrasting the EU's approach with the strategic use of trade policy by other major global players, could be envisaged.

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

Expected impact

Research under this topic will lead to a set of novel insights into the evolving EU and Member States' bi- and multilateral trade strategies and their inter-linkages with other external policies, their coherence and effectiveness. Placing trade at its centre, it will revisit and innovate the debate on coherence and consistency in EU foreign policy so as to provide an understanding of whether and how trade can be utilized strategically in the context of broader EU foreign policy agendas and in support of its foreign and economic policy objectives. Based on these policy-relevant insights, it will formulate recommendations on the institutional, organisational and behavioural adaptations needed to reinforce the EU's clout in global affairs via enhanced coherence of its foreign policy.



Call – Engaging together globally

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2308-eng-globally-05-2017.html



ENG-GLOBALLY-06-2017

The Asia-Pacific as a strategic region for Europe

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

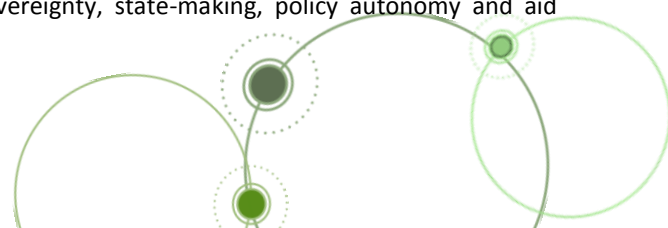
The research to address this challenge should in particular focus on the following key dimensions. It is expected to either comprehensively address one of these dimensions or to combine them. The research may also cover other issues relevant for addressing the specific challenge.

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, interethnic 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.

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



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dependency, by paying close attention to issues such as trade and transport, fisheries management, climate change, biodiversity, social inclusion, democracy, blue/green growth 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 socioeconomic aspects surrounding their implementation.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2307-eng-globally-06-2017.html



Call – Engaging together globally

ENG-GLOBALLY-07-2017

The European Union and Central Asia

Specific challenge

In spite of its undisputable importance as a region located at a strategic crossroad to the Far East, as a rich reservoir of natural resources and as an area of traditional trade relations with Europe, Central Asia has been rather neglected by the major global players in the post-Soviet era. Only in more recent years, the political and economic developments in the five countries of the region - Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan - have received more attention. Challenges related to weak governments, abuse of power and corruption, divided societies, border disputes and ethnic tensions have led to increasing political and religious militancy and the creation of extremist groups which potentially represent non-negligible suppliers of forces to the radical political and religious movements in the neighbouring countries. Today's relevance of Central Asia in general and to the trade, security and development strategies of the European Union³³ and other world powers in particular is, however, not reflected in the level of attention which the region is given from a scientific, social sciences and humanities point of view. Not only are Central Asian Studies less of a priority for European research centres, but European researchers in this field are also not sufficiently coordinated and their work is not adequately linked to policymaking.

Scope

Taking into account the need for a more intensive and properly coordinated research in the field of Central Asian Studies and the need for closer links to EU policy making, a network of European researchers will be created which, in cooperation with researchers from Central Asian countries, will:

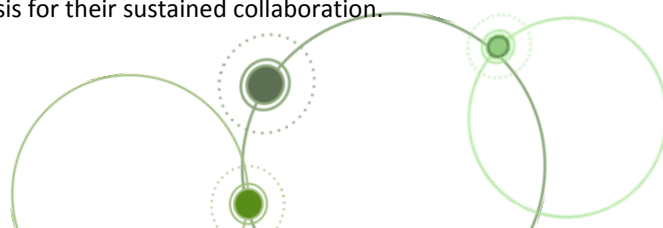
- through mapping the current state of affairs in the field of Central Asian Studies in Europe and European Studies in Central Asia, recommend relevant new forms and priorities for future EU scientific cooperation in social sciences and the humanities with the region;
- through mapping the current state of political, economic, trade, cultural and any other relations between the EU and its Member States with Central Asian countries as well as between Central Asian countries and countries in the rest of Asia, and analysing results of the existing measures and tools supporting them, recommend future priorities for European policy making. These recommendations should be prepared in close cooperation with any other relevant European and Central Asian stakeholders (e.g. local, regional and state authorities, not-for-profit sectors, representatives of businesses, etc.);
- prepare an awareness-raising dissemination and communication strategy for the promotion of Central Asia and its role for Europe, which could be used by a variety of stakeholders (e.g. education, media, EU public sphere in general).

Any consortium submitting a proposal to this call should ensure a balanced representation of partners from countries in Central Asia.

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

Expected impact

The coordination and support measures of this action will contribute to improving the ties of the EU with the region and countries of Central Asia in all socioeconomic, political, security as well as cultural and scientific areas. Its findings will primarily be focused on the formulation of short- and long-term priorities for EU policies towards the region, as well as on proposing methods for their achievement. They will be further used for education and media purposes and thus contribute to raising awareness among EU citizens of today's reality of the countries of Central Asia and of their importance for Europe. By creating a network of European researchers in the field of Central Asian Studies and by proposing new forms of cooperation with counterparts in Central Asia, the action will reinforce mutual research ties between the EU and Central Asian countries and establish a robust basis for their sustained collaboration.



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Type of action	Coordination and support action
Deadline	2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2303-eng-globally-07-2017.html



ENG-GLOBALLY-08-2016/2017

EU-China cooperation on sustainable urbanisation

Specific challenge

The importance of innovation and socio-economic aspects in sustainable urbanisation has been recognised by the EU and China in their Joint Declaration on the EUChina Partnership on Urbanisation signed in 2012, as well as in the conclusions of the EUChina Innovation Cooperation Dialogue of 2013. This topic therefore covers two specific challenges:

a) In China and elsewhere, the management of an exceptionally rapid urban growth poses considerable challenges to policy-makers and city planners. In such a delicate context, physical city planning cannot be considered in isolation from governance aspects, related for instance to land use and resources for city financing but also to the environmental human and cultural dimensions of cities. Urban infrastructures and public services also call for a balanced and integrated planning so as to minimise or avoid the negative socio-economic, human and environmental impacts on city-dwellers, migrants, and seniors. Cities are also viewed as engines of growth and innovation, often attracting large shares of R&D investments and an innovative service sector.

b) The challenge is to bring together a wide-ranging partnership of stakeholders in Europe and China to create an innovation platform for developing and piloting innovative solutions in sustainable urbanisation that rely on advanced knowledge and technologies, taking into account and adding value to the manifold on-going activities on various aspects of urbanisation. The platform should build on the activities carried out on an intergovernmental level (JPI Urban Europe) and via the EU-funded projects in support of joint funding initiatives (ERA-Net Smart Urban Futures, ERA-Net Smart Cities and Communities) and seek to use events and networks created by projects in support of the policy dialogue.

Scope

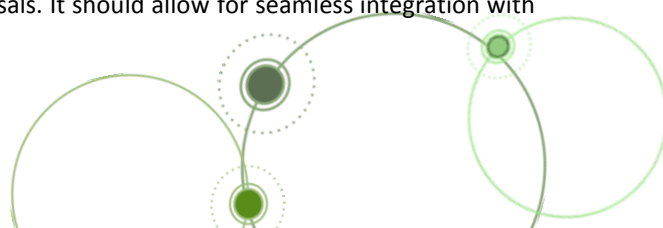
a) Cultural and socio-economic aspects of urban issues in China (Research and Innovation Action)

(2017) The development of cities in China is taking place at impressive pace and has affected millions of citizens. Many aspects of city planning and development, such as infrastructures, regulatory regimes, taxation, health, education and culture, have therefore a bearing on the framework conditions within which innovation occurs and which shape living conditions of residents. Joint European-Chinese research taking into consideration these essential elements of city development could contribute to an improved reciprocal knowledge on urbanisation processes between the EU and China. Through the joint format, research will benefit from access to data and expertise from both EU and China, with a view to proposing new models of sustainable urban development adapted to local socio-economic, cultural and political specificities.

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

b) EU-China innovation platform on sustainable urbanisation (Coordination and Support Action)

(2016) Proposals shall establish a platform bringing together policy makers, national authorities, industry, academia and other stakeholders in EU and China in sectors important for sustainable urbanisation. The platform should develop joint strategies, be the 'nursery' of joint projects and a broker of science-industry partnerships between Europe and China. It should mobilise key urbanisation related initiatives such as the European Innovation Partnership on Smart Cities and Communities and the Joint Programming Initiative on Urban Europe. Proposals shall develop, as core element, a joint EU-China strategic R&I agenda on sustainable urbanisation, in consultation with relevant stakeholders (national, regional and municipal public authorities, industry, academia, financiers, city networks etc.). The agenda should contain collaborative research projects and large scale demonstration projects, including joint activities that may be financed partly through coordinated EU-China Calls for proposals. It should allow for seamless integration with



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initiatives financed by EU Member States and Associated Countries, regional governments in China, or by industry. Framework conditions for cooperative innovation should be addressed as necessary. Finally, the platform should promote linkages between sustainable urbanisation demonstration projects in European and Chinese cities, including by running a competition that will lead to the selection of a small number of demonstration sites in China and in Europe, including also suggesting the network infrastructures (energy, transport, ICT, water, waste management, compact urban development, municipal finances etc.) that would need to be put in place in these sites and possible financing means, as well as designing demonstration projects with conditions that encourage co-investment by Chinese and EU partners in intelligent solutions for sustainable urbanisation, building as much as possible on existing initiatives.

As such, the platform is expected to contribute to creating the conditions for large scale science-industry cooperation on sustainable urbanisation that can address the challenges China and Europe face in this area. The platform should be open for participation by all stakeholders that can make a contribution to its objectives. On the European side, this should result in broad involvement across Member States and Associated Countries.

A maximum of one proposal will be supported. The Commission considers that a proposal requesting an EU contribution of EUR 1.5 million for a duration of 3 years would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of proposals requesting other amounts.

Due to the specific challenge of this topic, in addition to the minimum number of participants as set out in the Rules of Participation, proposals shall include at least one participant from China. Under this topic, legal entities established in China are eligible for funding from the Union.

Expected impact

This topic is expected to provide in-depth insights on EU-China cultural and socio-economic aspects on urbanisation highlighting the common challenges and possible solutions that may apply in both EU and China. Specific impacts are expected in the field of city planning, policy making, regulatory regime, governance and public services. Negative externalities (e.g. environment and public health) should be particularly addressed and exchange of best practices for citizen's well-being should be encouraged. The Coordination action is expected to increase stakeholder awareness, exchanges and synergies between Chinese and European industrial, academic and public players engaged in sustainable urbanisation research, innovation and application. Improved complementarity and coordination between different sustainable urbanisation funding programmes supported by the EU, the EU Member States and China should be achieved. The CSA should ensure a better match between the supply of innovative technological solutions and the needs of city planners and managers in charge of organising services linked to sustainable urbanisation. It is also expected to increase the capacity of industrial actors to develop and provide more effective solutions for the needs of sustainable urbanisation, and of city planners and managers to make informed choices on innovative technologies.

Type of action	Research and Innovation action, Coordination and support action
Deadline	2016: 14 April 2016 2017: 2 February 2017
Call identifier	H2020-SC6-ENG-GLOBALLY-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2304-eng-globally-08-2016_2017.html



Call – Engaging together globally

Topics with minor SSH relevance

ENG-GLOBALLY-09-2016

Centres/Networks of European research and innovation

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2310-eng-globally-09-2016.html>



Call - Understanding Europe

Promoting the European Cultural Space

Dedicated Topic

CULT-COOP-01-2017

Democratic discourses and the rule of law

Specific challenge

Discourses on the legitimacy of the EU, and especially its democratic deficit, have been a perennial issue for many years but have become significantly more urgent and pressing in times of crisis and austerity. At both ends of the political spectrum, claims about the illegitimacy of current EU governance and regulation have found broader resonance, expressed both in public manifestations of discontent combined with claims for alternative forms of legitimacy and in electoral successes of radical right and radical left parties across Europe. In this context, questions of justice, fairness and European solidarity have equally been raised. The concept of justice is inherently connected with the rule of law and entails a right to justification. Fundamental rights are also key in this regard. The European Stability Mechanism and the Fiscal Compact have been regarded by some as emblematic challenges not only to the rule of law but also to democratic governance. What is more, especially in the light of some recent election results in EU Member States, it seems as if not only the legitimacy of certain policies and institutions have been questioned, but also fundamental issues concerning the locus and exercise of popular sovereignty have been placed on the agenda. The specific challenge is to take the cues from such developments and ensuing contestations over sovereignty and legitimacy in order to reappraise discourses about democratic legitimacy on the one hand, and the rule of law and justice as increasingly thorny issues for the European public space on the other.

Scope

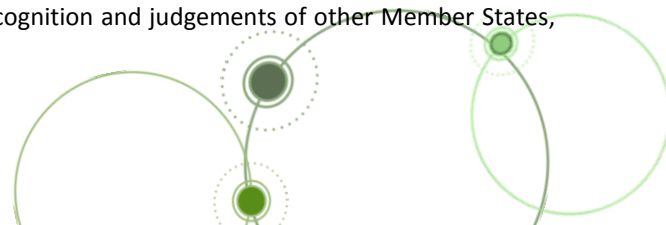
The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed taking into account the global context. The research may also cover other issues relevant for addressing the specific challenge.

1) Sovereignty and democracy

In light of the increasing number and growing popularity of alternative discourses about EU legitimacy and the locus of sovereignty, research should re-examine what is meant by sovereignty considering its wider context. Common democratic deficit arguments, in particular in relation to a possible decline of democratic control and participation in Europe, should be examined. This requires inter alia a historical comparative investigation of the sovereign and democratic powers of Member State parliaments and governments, not least in the light of a possible de-legalisation of the (Economic and) Monetary Union. It is of specific importance to clarify questions related to sovereignty and the ultimate source of authority in contemporary EU governance: who does, can and should possess this authority and how is it legitimately exercised at EU level. Research will also assess comparatively new patterns concerning the usage, transformations and popular understandings of various arguments about European legitimacy and sovereignty in public political discourse and in civil society and the conditions under which they do or not resonate among European citizens. It should also revisit the inter-institutional relations in the EU with specific attention to the position of the European Parliament through a thorough analysis of its practices in the legislative process and its functioning. In particular research must normatively assess the constitutional implications of the European Stability Mechanism and the Fiscal Compact for Parliament on the one hand, and the assertion of the Parliament to install the winning party's candidate as Commission President after the 2014 European Parliament elections on the other. Contributions from disciplines beyond law and political science are particularly welcome.

2) Legitimacy through the rule of law, delivery of justice and fundamental rights

Research should reappraise the significance of the rule of law and discourses on justice with regard to the legitimacy of the EU in times of crisis. Of particular importance in this regard is the jurisprudence of both the European Court of Justice and Member States' courts in upholding the rule of law. Research should ascertain whether and to what extent calls for simplification and better laws have any impact on the regulatory activities of EU legislators and the European agencies. The increased importance of the Charter of Fundamental Rights in the wake of the Lisbon Treaty and the nomination of a First Vice President of the Commission with responsibility for Fundamental Rights ought to be considered. The role of mutual recognition, also in relation to the recognition and judgements of other Member States,



Call - Understanding Europe

Promoting the European Cultural Space

needs to be explored in this regard. The evolution as well as the strengths and weaknesses of judicial cooperation among Member States should also be examined, whereby it should be considered whether existing justice and home affairs agencies need to be strengthened, and if so how, and/or whether new tools ought to be instituted. Research should critically assess whether and how there is any risk of undermining the rule of law and/or of justificatory discourses by recent and contemporary fiscal governance.

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

Expected impact

Research will inspire and inform future debates on the locus and exercise of sovereignty at EU level and the democratic credentials and deficits of the EU in particular with regard to the new fiscal governance instruments outside the Treaties. Research is also envisaged to feed into future debates on the constitutional arrangements of the EU taking due account electoral developments which appear to pose challenges to those arrangements. Research will deepen the understanding of the significance of the rule of law in general and justification discourses in particular, both at national and supranational level and inform whether and how they can contribute to fostering legitimacy of the EU and to creating a new narrative for Europe.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3084-cult-coop-01-2017.html



Call - Understanding Europe

Promoting the European Cultural Space

Dedicated Topic

CULT-COOP-02-2017

Improving mutual understanding among Europeans by working through troubled pasts

Specific challenge

The European integration project was conceived as an antidote to a troubled past, especially during the first half of the 20th century. In fact, its very *raison d'être* was to overcome this burdensome heritage and to avoid once and for all future wars and authoritarian regimes. This was true not only in relation to and in the aftermath of WWII and the Holocaust, but also with regard to the Southern and Eastern enlargement rounds, which were *inter alia* motivated by embracing European countries that had left behind the yoke of authoritarian and/or totalitarianism - right wing and communist regimes respectively.

In times of crisis, this original *telos* of European integration is often lost from sight, even though it seems particularly opportune to bring it back into focus when reconsidering the fundamentals of integration in order to overcome the crisis. This integration is not limited to the expansion of the union, migration and global conflicts mean the narrative of troubled pasts in the context of Europe is continually evolving. At both a national and European level we have to look at how we accommodate co-existing narratives on the past. Historical discourses can contribute to cultural dialogue, mutual understanding and enhanced inter-comprehension between European states, nations, communities, minority and migrant groups and individuals. However, they might also be used to deepen perceived divisions and legitimate radicalisation or exclusion. Commemorating and teaching the past as well as preserving and cultivating the memory of troubled pasts are important in this regard. A critical engagement with negative heritage may also facilitate the construction of more value-oriented identities. More knowledge is needed on whether and how such discourses occur in various European countries. The specific challenge is to explore how uncomfortable histories are reflected and reappraised especially with a view to enhancing mutual understanding (and reconciliation when relevant) among Europeans.

Scope

Research should comparatively explore evidence and narratives of critical reflection and engagement with troubled pasts across Europe. Research will examine phenomena such as commemorations, apology, reconciliation and reparations and will identify major gaps or divergences in historical discourses and representations which might make it difficult to understand and overcome past conflicts or troubled historical legacies. 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) Formal education, curricula and teaching practice

Research will survey and compare school curricula in a good range of relevant states with a view to identifying patterns and trends in presenting and interpreting difficult periods of history in a European perspective. It will also analyse whether, and at which stages of formal education, how, and with which intensity, openness and criticism troubled and uncomfortable historical heritage resulting from *inter alia* wars, conflicts, oppressions, genocides and dictatorships are covered in curricula by educational institutions at the levels of primary and secondary education and in cultural institutions providing services to education. The comparative approach could contribute to exploring differences between historical imageries of neighbouring countries, state majorities and minorities or communities considered as autochthonic or immigrant. Research will not focus solely on history teaching, as historical interpretations might be conveyed by many other disciplines from geography (e.g. implanting symbolic historical geographies) to sciences through arts and especially literature. Research should pay particular attention to primary and secondary education, because of their overwhelming importance in transmitting historical interpretations, bearing in mind that vulnerable or disadvantaged groups may be less represented in higher levels of formal education. Apart from the curriculum, research should also assess the actual practice of teaching such topics, and determine whether there is any discrepancy between the curriculum and its implementation with regard to covering troubled heritage. Crucially, research should develop criteria and indicators to measure how discursive, reflective and critical teaching is and assess teaching practices according to these criteria. Furthermore, it should be explored how these educational efforts, to the extent they exist, influence and impact upon national self-understanding and identity as well on perceptions of European integration.



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2) Civil society, informal education and political discourses

Research under this strand should investigate how troubled periods of history are related to informal forms of education. Of particular importance is to survey and investigate comparatively how discourses in civil society and the media, including social and digital media, are informed by such legacies, and how in turn civil society and the media conduct such discourses. Research needs to unearth how national narratives are influenced by difficult pasts and how civil society, politics and the media constructed discourses, and which factors and acts such as commemorations, apology, reconciliations, reparations but also non-action informed both the construction and the evolution of such narratives. The gender dimension of these discourses and their transmission should be also considered. Interconnections between and disparities of national and European historical narratives and symbolical geographies equally ought to be studied. Of interest are also discourses in the profession of historians in the post-war/post-authoritarian period and how they might have evolved over time. Also artistic appropriations of memory in relation to troubled pasts and their receptions by the media and wider public should be explored. In addition to this, research should investigate whether and how such discourses and narratives have impacted upon Member States governments' and citizens' attitudes to European integration and EU membership, both before and after accession to the EU.

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

A deeper knowledge base - on the significance of memory, interpretations and teaching (or silencing) periods of troubled pasts for the construction of historical narratives in contemporary Europe - will inspire and inform specific initiatives. These include appropriate changes in national educational curricula – and innovative educational material on how to critically and constructively reflect and act upon troubled historical heritage and facilitate the development of more nuanced and reflective approaches to interwoven local, regional, national and European histories. Research will also deepen the knowledge base on the significance and impacts of commemoration and cultural representation as well as public discourses on these for civil societies. This will help European policy makers and citizens to re-connect if and where necessary with the raison d'être of European integration.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3085-cult-coop-02-2017.html



Call - Understanding Europe

Promoting the European Cultural Space

CULT-COOP-03-2017

Cultural literacy of young generations in Europe

Dedicated Topic

Specific challenge

Cultural diversity is one of Europe's most valuable assets and European educational and cultural systems need to cater for diversity and enable all citizens to build the skills and competences needed for effective inter-cultural dialogue and mutual understanding. The challenge is about understanding how young people make sense of Europe and its differing cultures. The influences on young people are wide ranging including formal education, family and cultural background and media. The aim is to gain a greater understanding of cultural literacy itself as a non-normative concept covering relevant culture-related knowledge, skills and competences and how young people in particular acquire it.

Scope

The research to address this challenge should focus on one or two dimensions that have to be comprehensively addressed. The research may also cover other issues relevant for addressing the specific challenge.

1) Promoting cultural literacy through formal education

Research under this topic should address concepts of cultural literacy by performing a comparative analysis of cultural literacy of young Europeans of diverse origins and backgrounds as well as their inter-cultural competencies. It should address the role of formal education regarding knowledge, skills and competences needed for effective inter-cultural dialogue and mutual understanding as well as for becoming informed and responsible users and producers of the European cultural heritage and culture. It should study whether "European culture" as a possible common set of cultural and conceptual models is emerging for young generations. It should pay particular attention to early childhood (pre-primary), primary and secondary education, due to their importance in building cognitive, emotional and civic bases and study also how cultural literacy developed in formal education influences actual attitudes and behaviours of young people.

2) The role of non-formal and informal education and others factors in the development of cultural literacy Based on a comparative analysis of cultural literacy of young Europeans of diverse origins and backgrounds as well as of their "inter-cultural" competencies, research should investigate the role and impact of informal education in the broadest sense, by family, gender, communities of origin, peer-groups or society at large on the development of cultural literacy. Representations of culture and the role of the Internet, social and digital media in the development of cultural knowledge and skills should equally be investigated, as many ideas related to issues of cultural diversity, popular culture, ethnic groups, minorities, discrimination and segregation are conveyed by such media. Research should identify successful actions that have already proven to have improved cultural literacy and awareness in order to provide recommendations on best practices and make suggestions on how informal forms of education can contribute to enhancing the level of cultural literacy among the young.

The Commission considers that proposals requesting a contribution from the EU in the order of EUR 5 million 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 will contribute to better understanding and enhancing cultural literacy for the young generations, which will lead to greater appreciation of diversity. It will moreover contribute to reinforcing demand for sustainable and creative uses of European cultural heritage. The research will involve policy-makers, stakeholders and educational practitioners for the development and uptake of teaching material and tools both for formal and informal education. This will also include testing innovative practices for enhancing cultural and inter-cultural competencies in their real-life context making reference also to the fight against stereotypes.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3081-cult-coop-03-2017.html



Call - Understanding Europe

Promoting the European Cultural Space

Dedicated Topic

CULT-COOP-04-2017

Contemporary histories of Europe in artistic and creative practices

Specific challenge

Culture is the most cherished and valued shared European asset of EU citizens according to surveys. Europe has been associated with and represented by iconic artistic and literary works since Antiquity. From the ancient Greek myth of Europa to Tolstoy's depiction of Napoleonic Europe in "War and Peace" and to Beethoven's 9th Symphony passing by medieval sacred arts or iconic European films, the list of artistic and literary expressions that represent Europe for many Europeans or non-Europeans is openended. Even without an official consensus about a repertory of these artistic and literary representations of Europe, they form the backbone of a European cultural identity and cultural heritage for many Europeans and for visitors coming to Europe for admiring its unique cultural heritage. However, the creation of cultural heritage is a never ending process. Today's culture is tomorrow's cultural heritage in the making. In this perspective, the specific challenge of the topic is to critically investigate - with the help of social sciences and humanities - the evolving representations of Europe in contemporary artistic and creative expressions in the light of changing societal, historical and cultural contexts

Scope

Research under this topic will examine various contemporary artistic and creative practices such as literature, cinema, music and dance, in order to identify and assess their representations of Europe, European identity and Europeanisation. It should have a comparative approach and a wide European geographic coverage. Research should clearly distinguish between positive and negative depictions of Europe and the European Union, and investigate the reasons for such representations. The definition and selection of the artistic, literary and creative manifestations representing Europe should cover various European regions, including post-2004 EU Member States, and potentially from neighbouring countries. Research should consider the role of curation, language, translation and digitalisation in terms of accessing these representations. It should consider implications for perspectives on European culture and cultural heritage and the possibilities to channel research results into formal and informal education in Europe through innovative learning material adapted to contemporary media and art consumption patterns. The early involvement of networks of cultural and/or education institutions should contribute to the efficient uptake of research results. T

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

Expected impact

Research will result in better knowledge of cultural Europeanisation in the making and in new, innovative tools and material for formal and informal education. The results and their dissemination will contribute to the renewal of cultural narratives of Europe that speak to Europeans of different languages, cultures, religions and origins beyond national borders. It will contribute to enhanced cultural inter-comprehension among Europeans. Research outputs and dissemination means will be adapted to contemporary art and literature consumption patterns in Europe.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3082-cult-coop-04-2017.html



Call - Understanding Europe

Promoting the European Cultural Space

Dedicated Topic

CULT-COOP-05-2017

Religious diversity in Europe - past, present and future

Specific challenge

Religious beliefs and affiliation to religious groups and communities were historically the cornerstones of the functioning of societal relations in Europe. Acknowledging the rich tradition of the co-existence of diverse religions in Europe, the Charter of Fundamental Rights of the European Union enshrines the right to freedom of thought, conscience and religion. Despite this strong commitment to the freedom of religion in Europe, religious tensions still exist in many European societies, and have sometimes been exacerbated by the instrumentalisation of religion for political ends by extremists. It is therefore indispensable to understand better the new landscape of religions, secularism and spirituality in Europe and analyse both the roots of radicalisation and religious intolerance and peaceful co-existence and dialogue in Europe in order to support the values and practices of peaceful co-existence and rationality. Contextualising religious co-existence from a historical perspective can contribute to the promotion of a European public and cultural space and to enhancing mutual dialogue and understanding.

Scope

Using a broad historical and geographical perspective, the proposed comparative and multidisciplinary research will examine various types and elements of co-existence of diverse religious and non-religious communities in Europe today and in the future. It should deepen knowledge about the relations, cooperation, tensions within and among these diverse communities or social groups. The gender dimension of these issues should be also considered. This research will further survey the position and role of religiosity, non-religiosity or other philosophical convictions in today's European society as well as their role for today's, especially young, Europeans. It will assess the development of various forms of spirituality as a potential combination/compromise between secularism and religion in modern and post-modern democracies. It will broaden the European comparative perspective of the historical roots of today's religious tolerance and intolerance by also taking into account the historical and present experiences of those countries and territories that joined the EU after the fall of the Iron Curtain.

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

Expected impact

By providing a historical and comparative perspective, research will enable European citizens to better grasp the conditions needed for religious and non-religious co-existence in Europe. It will be translated into innovative dissemination tools in order to be used for education purposes of any type (e.g. formal, informal) and discipline (history, political science, civic education) and in proposals for appropriate changes in national educational systems. The conclusions will also inform policy recommendations targeted at policy- and opinion-makers of different levels in preparing future strategies of cooperation with religious communities as well as in coping with anti-religious animosity. Research outcomes will also reach out to the broadest range of media.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3079-cult-coop-05-2017.html



Call - Understanding Europe

Promoting the European Cultural Space

Dedicated Topic

CULT-COOP-06-2017

Participatory approaches and social innovation in culture

Specific challenge

Recent conclusions of the Council of the European Union recognised cultural heritage as a "resource for a sustainable Europe" and highlighted that "participatory governance of cultural heritage offers opportunities to foster democratic participation, sustainability and social cohesion and to face the social, political and demographic challenges" in Europe.³⁸ The European Commission has also highlighted that the contribution of cultural heritage to economic growth and social cohesion is undervalued in spite of growing scientific evidence, and called for an integrated approach to cultural heritage for Europe.³⁹ It is recognised that cultural heritage is a shared resource for everyone and set the objective of continuing to develop more participative interpretation and governance models that are better suited to the contemporary European context, through greater involvement of the private sector and civil society. Europe's dense network of cultural institutions needs to adapt to changing societal, demographic and economic circumstances. Greater understanding is needed on how the different approaches to participatory governance work in this diverse sector including governance models, consideration of and access to different types of heritage, intergenerational equity etc. It is thus of paramount importance for urban and rural development, tourism, education, creative industries and cultural heritage professionals to understand how to integrate European tangible and intangible cultural heritage into sustainable development, hence the crucial role of social and inclusive innovation. This will also help to promote innovative ways in which to manage increasing flows of EU and non-EU tourists, which are currently largely limited to a number of urban destinations only ("theme park Europe").

Scope

a) Research and Innovation Actions

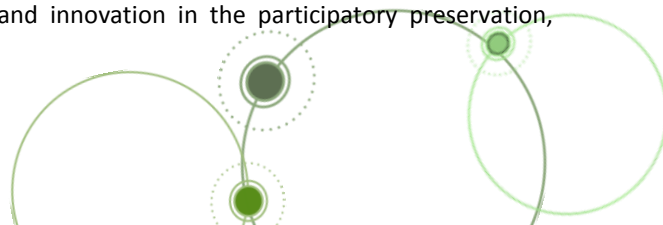
Research under this topic will critically assess the current state of cultural institutions and investigate new ways to develop the role of European culture ministries, cultural institutions and their networks as cultural service providers and hubs of social innovation. It should take into account recent international, European and national research results and best practices. It should have wide European geographic coverage and stakeholder involvement from citizens and cultural institutions that enables innovative research, case studies, pilot actions and smooth uptake of research results. The research should investigate innovative ways in which cultural institutions can engage with younger and more mature audiences, with minority, migrant or socially disadvantaged groups and include them in their governance - and how local communities organise themselves in order to co-create a better use of the local heritage. It should look into the challenges faced by cultural institutions with regard to the necessity to balance needs for managing material collections and opening culture and cultural heritage to new audiences. Research should also investigate the issue of how to combine traditional cultural services with innovative new cultural or social services like adult or lifelong learning, career support, access to and assistance to digital services and e-administrations flexible work arrangement. The gender dimension of these issues should be also considered. The role and potential of enhanced European and international cooperation and networking of culture ministries, cultural departments of local governments and cultural institutions (from traveling artefacts and exhibits to joint curatorial work and other types of sharing resources, expertise and best practices) should also be addressed. The proposed research will draw on comparative perspectives.

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

b) Coordination and Support Action

A social platform will bring together relevant heritage stakeholders' representatives from research communities, heritage practitioners from public or private cultural institutions (heritage sites, libraries, archives, museums, and other public or private collections) and organisations (NGOs, associations), as well as policy-makers at European, national, regional or local levels. For improving the excellence of European heritage management and related policy making the platform should also harness the potential of networking among the growing number of European cultural heritage and cultural studies departments at higher education and research institutions.

Based on a focussed, critical mapping of existing research and practice, the objective of the social platform is to develop an understanding of the challenges and opportunities for research and innovation in the participatory preservation,



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(re)use and management of cultural heritage. The platform should pay particular attention to the sustainability and employment dimensions of new approaches to cultural heritage, taking into account the issues of data collection and measurement. The platform will map and share European and extra-European best practices, identify emerging new European heritage communities, evaluate bottlenecks and opportunities in the financial and legal environment and create new European networks around the participative preservation, (re)use and management of cultural heritage.

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

Expected impact

The actions will form the basis for new institutional strategies to engage new audiences and communities and to combine culture, informal culture and cultural heritage demonstration and preservation with innovative ways of cultural transmission and creative re-use. The findings will help culture ministries, cultural institutions and other relevant actors to reinvent and modernise their policies and their roles as centres of culture, cultural heritage, information, learning and gathering. Results will give guidance on how to promote European culture and further democratise access to it in a way that enables mutual and intercultural understanding. In addition to new academic results, the activities will also provide analytical tools or toolkits, description of best practices and policy recommendations that can facilitate the direct uptake of research and other insights by stakeholders.

Type of action	Research and Innovation action, Coordination and support action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3080-cult-coop-06-2017.html



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Dedicated Topic

CULT-COOP-07-2017

Cultural heritage of European coastal and maritime regions

Specific challenge

This RIA complements previous and on-going EU research on cultural heritage in rural, mountainous and urban settings. European coastal and maritime regions have - over several millennia - developed a rich, multi-layered and varied cultural heritage. At the crossroads of different types of contacts of European peoples with each other and with other regions of the world (from commerce to conquest, from cultural exchange to mass tourism) they represent an extremely rich tangible heritage (coastal towns and villages, submerged landscapes and underwater artefacts, harbours, dams, light houses, arsenals, buildings of the fishing and marine industry, boat builders, etc.). As a result of a combination of natural landscapes and human ingeniousness, including unique types of transcultural communication and ethnic diversity, specific coastal cultural landscapes emerged on the shores and sea beds of Europe. This tangible heritage is intimately embedded into the multiple layers of intangible heritage, from myths to daily practices, languages, traditions and crafts of local cultures of communities of sailors, fishermen, boat builders, merchants, etc. Today, coastal cultural landscapes are very much exposed to environmental challenges such as climate change (rising sea levels), other forms of pollution, dense or scattered urbanisation, tourism pressure, the fundamental transformation of the European fishing industry due to over-exploitation of fish stocks and erratic policies of sea or shore conservation at national level. With several coastal zones being among the densest populated areas, mixed metropolitan coastal landscapes have emerged around historic port cities posing new challenges for conservation, management and transmission of existing tangible and intangible values. Against this backdrop, research should provide local communities and local, national and European policy-makers with a coherent framework for risk assessment and sustainable management of European coastal cultural heritage in a way that involves local stakeholders.

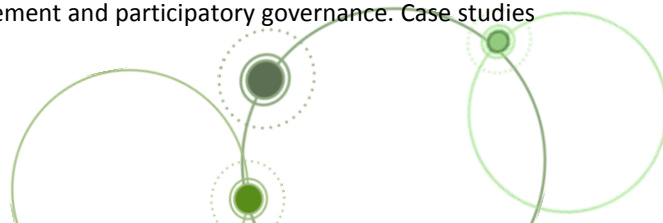
Scope

The research will aim at providing a comprehensive framework for the preservation of European coastal and maritime cultural landscapes. It should be geographically balanced and cover different types of European coastal and maritime cultural landscapes taking into account various historical backgrounds and the current state of these regions, as they range from the most popular destinations of mass tourism to the most peripheral regions of Europe. The research - multidisciplinary to the extent required by its inherent and explicit research approach - might combine approaches and methodologies of cultural heritage preservation, social sciences and humanities, spatial and environmental sciences. It will cover both tangible and related intangible cultural heritage in order to provide a full picture of the societal importance of the cultural heritage of the landscapes under investigation. The research should involve and further develop networks of scholars, local stakeholders and policy makers. It will contribute to European efforts to promote evidence-based research on the impact of participatory approaches in cultural heritage policies and governance, as suggested by the Council of the European Union's conclusions on participatory governance of cultural heritage (2014/C 463/01). In addition, it will contribute to a better implementation of European policies on coastal zones and maritime areas, referring both to the 'Integrated Coastal Zone Management ICZM' ('Recommendation concerning the 'Integrated Coastal Zone Management' (2002/413/EC)) and to the 'Establishing a framework for maritime spatial planning' (Directive 2014/89/EU), thus providing evidence on how to link environmental and cultural policies.

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

Expected impact

As a result of its reasonably multidisciplinary approach and mapping efforts, the research will significantly deepen knowledge on the cultural heritage of European coastal and maritime regions. It will lay the basis of a comprehensive framework for the documentation and sustainable management and preservation of European coastal and maritime cultural landscapes taking into account cultural, environmental, spatial and broader societal aspects. The research will provide policy advice and create networks, concepts and tools on how to maintain and preserve this rich and diverse element of the European cultural heritage based on stakeholder involvement and participatory governance. Case studies



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and tailor-made pilot projects of the research will allow putting in practice the proposed new tools, concepts and methodologies. Special attention will be given to the preservation and exploitation of both tangible and related intangible cultural heritage like traditional skills and know-how embodied in practices and corresponding knowledge systems. The project(s) will also explore the possibilities of new, sustainable, cultural heritage-related career and business opportunities in the studied regions.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3083-cult-coop-07-2017.html



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Dedicated Topic

CULT-COOP-08-2016

Virtual museums and social platform on European digital heritage, memory, identity and cultural interaction.

Specific challenge

ICT changes the way cultural digital resources are created, disseminated, preserved and (re)used. It empowers different types of users to engage with cultural digital resources, for example through web discovery interfaces representing a wealth of information from collections (archives, scientific collection, museums, art galleries, visual arts etc.) enabling their re-use and re-purposing according to users' needs and inputs. The Virtual Museum (VM) is not a real museum transposed to the web, nor an archive or a database of virtual digital assets but a provider of information on top of being an exhibition room. VM provide opportunities for people to access digital content before, during and after a visit in a range of digital 'encounters'. Virtual museum is technologically demanding especially in terms of virtual and augmented reality and storytelling authoring tools which must covers various types of digital creations including virtual reality and 3D experiences, located online, in museums or on heritage sites. The challenge will be to give further emphasis on improving access, establishing meaningful narratives for collections and displays and story-led interpretation by the development of VM. It will also address the fundamental issues that are required to make this happen e.g. image rights, licencing and the ability of museums to support new ICT technology.

The emergence of new social paradigms in the area of European Heritage induce the creation of specific social platforms that will encourage an active participation of a large number of stakeholders aiming at a better understanding of the European cultural heritage. Moreover it should facilitate and support a better understanding of the past to better build our future. The challenge is to support the multidisciplinary awareness needed for providing a comprehensive framework for the accessibility, preservation, participatory and sustainable management of cultural resources and assets, based on a holistic, social understanding of European culture and cultural heritage. This challenge will contribute to the debate over these issues and opportunities by facilitating an open dialogue on how technological changes, new business models and scientific progress impact and accelerate developments, including social change, determine policy changes, and support new investments (both private and public) involving diverse actors with different stakes and agendas. Researching digital cultural heritage is of key, long-term importance to Europe in order to form a robust knowledge base on how cultural heritage may develop in the 21st century. This will enable creative and innovative partnerships between museums, creative industries and public-domain areas such as education with transfer value to other socio-cultural areas and will advance strategies for heritage institutions, including museums, to harness transversal citizen resources and thus enhance their benefit to wider society.

Scope

a) Research and Innovation Actions

European cultural heritage is being radically transformed with the wide adoption of digital media used for engagement, participation and inclusion. Researching these transformations encompass the engagements of citizens in their own formation of heritage and the options for heritage institutions to capitalize on the new forms of communication and interaction. The real potentiality of a virtual museum is in the creation of a personalized, immersive, interactive ways to enhance our understanding of the world around us. The audio-visual narrative is one of the best means to effectively communicate about objects in a museum to the ordinary visitor. Therefore, actions will focus on the development of highly innovative technologies, methods and ICT tools to significantly improve the 'digital encounter' including quality of images, sonic narratives, the display and interactivity with digital objects. Besides, actions should research and create new ways of personalised storytelling, interactivity and adaptive guidance, bridging the physical and the digital world. The technology resulting from the research should be validated in real life environments. During test and validation phases, due attention has to be paid to scalability, portability, transmedia and interoperability of the technologies proposed and the support needed when implemented. Furthermore, social media tools should be integrated into the VM platform in order to facilitate exchange of information among users.

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



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b) Coordination and Support Action

The scope of this action is to develop and maintain a sustainable platform engaging a large number of key actors, stakeholders and communities of practices on how to improve the collaboration and comprehension among the entire community, in order to build up a common roadmap for future activities and explore how these new encounters can be evaluated to understand the models. The platform should engage - and be open to all - practitioners and stakeholders wishing to contribute to decision making processes, agree on objectives and priorities, share experiences, policies and practices. Partnership and collaboration between public and private stakeholders should be encouraged. The platform will concretise its action through the organisation of workshops, conferences or any other awareness-raising actions.

The Commission considers that proposals requesting a contribution of EUR 1 million would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of proposals requesting other amounts.

Expected impact

Virtual Museums and Social Platform are accessible for everyone, breaking the restrictions of geography and time. VM & SP will help to increase European citizens' curiosity for art and their understanding of cultural heritage. VM & SP will support access to culture and citizens' engagement with culture in less developed regions. Researchers and scholars will benefit from the new possibilities to shape, access and study European Culture.

Synergies between virtual and traditional museums and cultural institutions will support the economic growth of the sector as measurable impacts will be achieved beyond the beneficiaries of the funded projects.

Type of action	Research and Innovation action, Coordination and support action
Deadline	4 February 2016
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3089-cult-coop-08-2016.html



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CULT-COOP-09-2017

European cultural heritage, access and analysis for a richer interpretation of the past.

Specific challenge

Collections in **archives, museums, and at cultural heritage sites** contain a wealth of digital texts, images, audio-visual content and 3D representations of objects or scenes as well as other information such as multispectral or thermal imaging revealing the actual state of conservation, which are largely inaccessible to both computers and humans. In addition, **human beings as members of their societies can be regarded as natural archives entail information about the complex semantic and conceptual knowledge organizing a society in its cultural settings and stored in non-verbal practices and rites as well as in language.**

Humans can easily extract meaning from individual digital assets but are quickly overwhelmed by the sheer number of items which are usually spatially and/or temporally disconnected and of different digital quality. New technologies can be a valuable instrument to process large amounts of data in order to identify new correlations and interpretations and extract new meaning from our **cultural and intellectual heritage. To close, or at least narrow, the "semantic gap" would present a major step forward in digital humanities and other sciences related to European heritage, memory, identity and cultural interaction.** Likewise, it is of immediate relevance to find new ways of **accessing the complex information embodied in culture-related human 'natural archives'.** In addition, the increase and growing complexity of digital cultural material raises new challenges as regards its preservation over time, an essential condition for re-use and study.

Scope

In order to better understand and inform the present by **richer interpretations of the past**, actions should create affordable and efficient digital access, **documentary methods analysis and preservation services for cultural resources.** This should be achieved by tackling issues such as automatic contextualisation and identification of content and by developing analytical tools, including methods for automatically finding content which is semantically similar to a given item, or content which is related to a given high-level concept. This aspect also calls for fundamental work related to **the philosophy of meta-data designs especially of language-based data that should be in close coherence with the architecture and typology of human conceptual systems.** Actions should also develop innovative tools and methods to extract meaning from **digital artefacts** (including video recordings, audio recordings, digital images, text, multispectral and thermal information and 3D representations of objects or scenes) considering also **the spatio-temporal dimension and the quality of the digital content in order to allow the study and preservation of European heritage.** The work must fundamentally address the issue of data quality and interoperability.

Work will be performed in close collaboration with Humanities and Social Sciences researchers.

The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 3 million would allow this specific challenge to be addressed appropriately. This does not preclude submission and selection of proposals requesting other amounts.

Expected impact

New ways of taking into account the state of the art in computer science and big data management, of searching European digital content which used to be inaccessible, buried among huge amounts of data and not sufficiently tagged with adequate metadata.

Improve the understanding of the rich diversity of European cultural heritage and create added value for the society by providing humanities researchers, journalists, policy makers and the interested public with new ways of finding answers to their questions about European cultural heritage and history.

Type of action	Research and Innovation action
Deadline	2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3087-cult-coop-09-2017.html



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CULT-COOP-11-2016/2017

Understanding the transformation of European public administrations

Specific challenge

Public administrations are important actors in the European society to deliver public goods and values, from **protecting vulnerable people to finding out information on waste collection**. They have a complex and varied function, providing essential support, defining rules in a complex society. **Due to different historical backgrounds, they are also organised very differently and play different roles across Europe**. Today, the continuous improvement of public administrations, public services and policies is at the heart of the agenda of policy-makers. While new organisational structures, concepts and digital tools have contributed to increasing the efficiency, effectiveness, **inclusiveness and quality of public administrations, today's societal challenges are ever more complex and inter-linked**. **Simultaneously, economic and budgetary pressures constrain the public sector, while governments need to renew their legitimacy, addressing the increasing and ever more complex expectations from citizens and businesses**. Citizens call for more efficient and accountable use of public funds, meaningful participation in public affairs and for services that are as easy to use and personalised as for example electronic banking. There is a need to find ways that more effectively create public value - related to quality of public service delivery, public sector efficiency, **social inclusion and participation, public trust and good governance** - in an environment of constant change. Addressing these complex issues requires holistic responses, which in turn call for the transformation of public administrations and its role in society.

Effective collaboration across government departments and with non-governmental actors is essential to good governance. It requires working across portfolio boundaries to jointly achieve integrated responses to the issues of policy development. In addition, effective **collaboration with societal actors** in public service delivery and policy-making can help governments improve their ability to address user needs and innovate their problem solving capacity. ICT is a key enabler to facilitate this. **Effective engagement with societal actors can help unlock societal assets**, thereby easing the resource needs on governments, **allow new services and new businesses to be born and help citizens to actively participate in the decisions that affect their lives**. It allows them to be involved in the co-creation of services, including their design and delivery, as well as in finding solutions to societal challenges. Collaboration, sharing and re-use between public administrations can help reduce administrative burden, waste and duplication and drive efficiency.

This calls for innovative and collaborative mechanisms with new institutional arrangements, leadership and human resources' capacities and structures for greater collaboration among government agencies and departments and with other actors. It requires reflecting upon the likely changes in people's expectations about their relationships with governments, their role and their ability to deliver public value - and this calls governments to re-examine their governance approaches and strategies. **It requires understanding the legal, political and cultural aspects of this transformation and prepare for the necessary organisational, administrative, technical human resource and legal changes to link departments internally together**, but also to effectively engage with users, citizens, businesses, social partners, civil society organisations, non-profit organisations, social enterprises, communities and all those who want to interact. It raises questions about how governments can organise themselves around user expectations, needs and associated requirements, rather than their own internal logic and needs. How can they create an open environment and ecosystem, where public administrations make tools supported by ICT, assets, data, information and resources available for re-use, invite all actors to collaborate within clear frameworks? How can governments still they remain accountable for public value generation? How can co-creation and collaboration transform the way public and collective issues are explored and **how services and policies are designed, produced and delivered?** Which role can professional communicators, e.g. journalists, play in this process? What is the impact of different country contexts? What sectors of public policy are potentially the most concerned by this transformation? What new rules and standards, organisations, resource allocation, institutional capacities are needed? Measured impacts, recommendations and lessons can inform policy-makers' judgement on whether and how they would be able to embark on the transformation towards the open and collaborative government 'environment'. What are the underlying conditions, enablers, risks and barriers?

Through understanding the future role of government and the public sector in Europe, we can **enhance European cohesion, well-being, welfare and unity, while challenging the narratives of voices which question the relevance of European values**. In order to **contribute to individual and societal development**, we need to consider how to embrace the positive potential of digital technologies to **strengthen the cohesion of European society, through shared values and to facilitate active participation in the democratic system**.



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Scope

a) Research and Innovation Actions

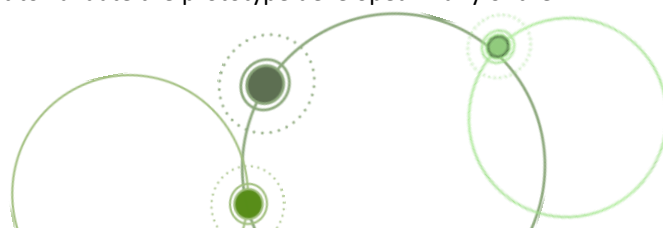
(2016/2017): Research is needed to explore and analyse how the public administrations can become open and collaborative, encouraging the engagement and participation of public, private and civil society stakeholders - such as for example other public authorities, users, citizens, businesses, researchers, civil society organisations, social innovators, social entrepreneurs, media actors, artists and designers - for effective, appropriate and user-friendly public service design, delivery and policy-making.

The research proposals should present evidence of previous experience in creating environments fostering co-creation through engaging different societal actors in addressing research and impact goals (scientific, **political and social**) and their planned research should go beyond the existing theories and empirical evidence. **The actions need to engage multidisciplinary and multi-sectoral teams** to explore the complexity of public services, enablers for public administrations, identify the necessary changes, risks and barriers to implementation, assess the potential of different policy domains and explore feasibility in different public administration contexts (across a representative set of Member States and different levels of governments). The actions need to provide a set of concrete recommendations for policy-makers at local, regional and national level. The actions need to address the transferability and sustainability of their results.

Proposals need to address several of the below aspects:

- Exploring what the role of governments in an open and collaborative government setting may be and how this could be embedded in an EU setting (**taking into account shared European values, diversity as well as principles of subsidiarity**);
- Developing methods and approaches to understanding community assets, needs and requirements in order to provide meaningful public services;
- **Understanding the demographics, appropriateness of participatory practices** and their feasibility for scaling up, so as to generate civic participation on all levels, ensure level playing field in public engagement and legitimacy of the process;
- **Analysing the necessary cultural attitudes, roles, skills, expertise, knowledge as well as incentives and drivers (such as for example possibilities for wellbeing, healthy life, employment, democracy issue, etc.) of those involved in this process (including civil servants, service providers and users)**;
- Exploring how innovative processes and mechanisms (e.g. through scalable open platforms or open architectures, etc.) can be embedded in public administrations to create an open digital government environment and ecosystem for improving service delivery and citizen engagement;
- Analysing the conditions under which user-knowledge input is fully integrated in the services/policy development/design process;
- Analysing what co-creation in the public sector can learn from the private sector in terms of critical drivers and enabling factors;
- Exploring the suitability of different institutional frameworks for collaboration both within the public sector and with external actors that allow sharing data, information and services internally between departments and with external parties for re-use;
- Exploring the suitability of innovative technologies that facilitate for example co-creation, sharing relevant information between stakeholders, address issues of privacy, data protection and security or improve communication;
- Analysing the drivers and enabling factors for societal actors to engage in public service or policy co-creation and identifying different sustainability models (such as for example Public Private Partnerships, government spin-offs, hybrid government teams, etc.);
- Exploring, monitoring and measurement approaches, methods and tools to understand the impact of open, innovative and collaborative government for public administrations, **for growth and societal well-being** and for substantiating the link between innovative public sector service and public sector efficiency.

Actions may want to strengthen their recommendations for prioritisation of reform steps to be taken by relying on insights through perception data with respect to the public sector in general or the public administration in particular (e.g. bottlenecks perceived by both the citizens and businesses in dealing with the public sector, etc.) It is essential that users are a fundamental part of any proposed project and proposals may want to validate the prototype developed in any of the above.



Call - Understanding Europe

Promoting the European Cultural Space

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

b) Coordination and Support Action

(2016) The aim is to bring together actors inside and outside public administrations, including policy makers, politicians, civil society organisations, users, businesses, researchers, social innovators, social entrepreneurs, initiatives, good practices both in the EU and internationally to identify good practice cases, discuss and exchange on the transformation of public administrations in Europe and discuss the future role of government in this context. Proposals will need to develop a strategic stakeholder engagement plan and a roadmap for future research directions.

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

Expected impact

The actions will form the basis for new institutional strategies and mechanisms to enhance collaboration among government departments and with other actors to collaboratively design, produce and deliver public services and policies. The findings will help public administrations at all levels to rethink their roles in the European society. Results will give guidance to governments and policy makers on how to transform public administrations to become open, innovative and collaborative. The policy recommendations will **provide guidance on the cultural, legal or procedural changes** needed to facilitate the direct uptake of research and other insights by stakeholders. The actions will also improve **the understanding of the effectiveness of related public policies in different democratic models**. Taking up the policy recommendations will ultimately lead to improved public service delivery and policy effectiveness, higher quality services, **improved societal evidence**, improved user experiences and **inclusiveness** as well as increasing level of civic participation, **transparency, trust, social inclusion, accountability of institutions and good governance**.

Type of action	Research and Innovation action, Coordination and support action
Deadline	2016: 4 February 2016 2017: 2 February 2017
Call identifier	H2020-SC6-CULT-COOP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/3088-cult-coop-11-2016_2017.html





Societal challenge 7

Secure societies

Protecting freedom and security of
Europe and its citizens

SEC-06-FCT-2016

Developing a comprehensive approach to violent radicalization in the EU from early understanding to improving protection

Specific challenge

Radicalisation leading to violent acts can have a huge impact on the society and its citizens: politically (seeding division between communities), economically, emotionally, and in terms of security. The roots of radicalisation are not well-known, whilst well-targeted response to emerging challenges of violent extremism cannot be developed without a full understanding of what drives the process of radicalisation and of how individuals may react to countermeasures. Also, terrorist groups and extremists are capitalising on advances in technology to spread propaganda and radical behaviours, but traditional law enforcement techniques are insufficient to deal with these new, evolving trends in radicalisation. The key in democratic societies is to ensure citizens' rights to free thought – even radical thought – while protecting society from the fallout of illegal actions from violent radicalised groups and individuals.

Scope

Terrorism in Europe now finds its inspiration in a larger variety of ideologies, as described in the 2013 Europol TE-Sat report: nationalist, anarchist, separatist, violent left-wing or right-wing ideologies, or Al Qaida- or Daesh-inspired ideologies. Preventing and countering radicalisation must engage the whole of society, and requires a holistic treatment, and a multidisciplinary approach.

Factors constituting a violent radicalisation process can be many: familial, social, gender-based, socio-economical, psychological, religious, ideological, historical, cultural, political, propaganda-, social media- or internet-based. Events and conditions leading a person from ideas to violent action are also numerous, and mechanisms so complex that they need to be broken down to be understood. Radicalised individuals, including recent converts, Europeans or foreigners, get organized in various ways: centralised and hierarchical organisations; networks; smaller groups based in Europe or on foreign territories; cells; and lone actors operating in a more unconstrained and unpredictable way. It is important to understand how networks and groups act towards the violent radicalisation of individuals. Further to the recommendations of the Radicalisation Awareness Network, and to the work undertaken in the ongoing FP7 and other projects in the area, a better understanding of the causes and processes may lead to innovative, ethical solutions to counter violent actions taken by radicalized male or female individuals (policies for preventing violent extremism; counter communication disseminated either online (YouTube, special forums, Twitter etc.) or offline (in the classroom or in one-to-one interventions for example), since preventing violent radicalisation is also about winning the hearts and minds and countering extremist propaganda; surveillance, investigation, and protection techniques; forensic tools), whilst preserving the fundamentals rights of the citizens.

While Societal Challenge 6 mainly focuses on studying the phenomenon of radicalization, in order to provide input to the successive policy-making, proposals under this topic should focus on developing policy recommendations and practical solutions to be implemented by security end-users. In line with the EU's strategy for international cooperation in research and innovation international cooperation is encouraged, and in particular with international research partners involved in ongoing discussions and workshops, with the European Commission. Legal entities established in countries not listed in General Annex A and international organisations will be eligible for funding only when the Commission deems participation of the entity essential for carrying out the action.

Indicative budget: The Commission considers that proposals requesting a contribution from the EU of € 3million would allow for this topic to be addressed appropriately. Nonetheless this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

As a result of this action, security policy-makers and law enforcement agencies should benefit from a full set of policy recommendations and tools aimed at improving their ability to prevent and detect radicalisation by national and local security practitioners in a timely manner, i.e. before individuals turn towards violent, criminal or terrorists acts, including:



Call – Security

- Comparative analysis of different types of policies (e.g. preventive vs. legal and administrative measures) including counter-propaganda techniques;
- Improved description of competencies, skills and characteristics of the various types of practitioners involved in preventing, detecting or countering violent extremism;
- Improved information exchange between the different actors involved, including security practitioners, family of the radicalised individual, school/workplace of the radicalised individual;
- Field-validation of new approaches to anti-radicalisation directly applicable to support practitioners.

Type of action	Research and Innovation Action
Deadline	25 August 2016
Call identifier	H2020-SEC-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2317-sec-06-fct-2016.html



SEC-07-FCT-2016-2017

Human Factor for the Prevention, Investigation, and Mitigation of criminal and terrorist acts

Specific challenge

The European Union (EU) consists of more than 500 million people across the twenty-eight countries which make up the Union. Economic growth, together with the opportunities provided by a free and democratic society based on the rule of law, generate prosperity amongst Europe's citizens who benefit from increased mobility across national borders, and from globalized communication and finance infrastructure – but with such opportunities also come risks, as terrorists and criminals seek to pursue destructive and malicious ends. There are a number of significant common threats which have a cross-border impact on security and safety within the EU18, and security has become a key factor in ensuring a high quality of life in the European society and in protecting our critical infrastructures through preventing and tackling common threats. The European Union must prevent, and if necessary investigate and mitigate the impact of criminal acts, whilst protecting fundamental rights of its citizens. The consistent efforts made by the EU Member States and the Union to that effect are not enough, especially when criminal groups and their activities expand far beyond national borders.

Scope

The Lisbon Treaty enables the EU to act to develop Europe as an area of justice, freedom and security. The new European Agenda on Security underlines that, an EU-wide approach to security, integrating prevention, investigation and mitigation capabilities in the area of fight against crime is increasingly required.

The definition of a European Security Model which builds upon the analysis of the human factors, at the roots of the design of security strategies and methodologies, is needed. Such a Model would encompass: the development of a common understanding of security issues among EU security practitioners, as well as of the causes and effects of insecurity among EU citizens; common EU methodologies to be implemented by security practitioners (about enhancing prevention and anticipation and/or the timely involvement of all the actors that have a role in protection from the political, economic and social scene).

The globalization of communications and finance infrastructure allows for cybercrime to develop, and corruption and financial crime to take new forms. Cyber criminality is a phenomenon by which criminal acts with new tools and within a new environment, which is not satisfactorily understood, nor properly addressed. The same applies to the innovative technologies and methodologies for financial crime. Law Enforcement Agencies need new equipment to counter such developments.

Proposals should address only one of the following aspects:

Sub-topic 1. New methods for the protection of crowds during mass gatherings;

Sub-topic 2. New methods to prevent, investigate and mitigate cybercriminal behaviours;

Sub-topic 3. New methods to prevent, investigate and mitigate corruption and financial crime to fight the infiltration of organised crime in the European Union (licit) economy;

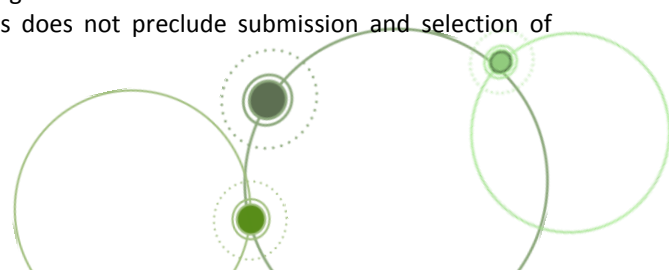
Sub-topic 4. New methods to prevent, investigate and mitigate high impact petty crimes;

Sub-topic 5. New methods to prevent, investigate and mitigate high impact domestic violence.

Only the sub-topics not covered in 2016 will remain eligible in 2017. A list of topics that remain eligible in 2017 will be published in due time in the section "Topic Conditions & Documents" for this topic on the Participant Portal.

In line with the EU's strategy for international cooperation in research and innovation international cooperation is encouraged, and in particular with international research partners involved in ongoing discussions and workshops, with the European Commission. Legal entities established in countries not listed in General Annex A and international organisations will be eligible for funding only when the Commission deems participation of the entity essential for carrying out the action.

Indicative budget: The Commission considers that proposals requesting a contribution from the EU of € 3 million would allow for this topic to be addressed appropriately. Nonetheless this does not preclude submission and selection of proposals requesting other amounts.



Expected impact

The EU law enforcement agencies will benefit from improving and consolidating knowledge about security problems and their remedies. In detail, and for each sub-topic:

- A policy-making toolkit, for security policy-makers, to advance towards a future European Security Model applicable by European law enforcement agencies and/or
- Common approaches, for the long-term, for assessing risks/threats and identifying relevant risk-based security measures, including through acceptance tests (that take due account of legal and ethical rules of operation) and cost-benefit considerations and/or
- Complementing the relevant work of Eurobarometer, better understanding of how the citizens perceive security and how it affects their feeling of insecurity, and in connection with potential limitations to, or risks of violations of privacy, and the consequent challenges for LEAs;
- Toolkits for law enforcement agencies, based and validated against the needs and requirements expressed by practitioners, and improving the perception by the citizens that Europe is an area of freedom, justice and security. The societal dimension of fight against crime and terrorism must be at the core of the activities proposed within this topic.

Type of action	Research and Innovation action
Deadline	25 August 2016
Call identifier	H2020-SEC-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2318-sec-07-fct-2016-2017.html



SEC-18-BES–2017

Acceptance of "no gate crossing point solutions"

Specific challenge

For the traveller it would be ideal to cross borders without being slowed down. It is indeed likely that, in the next 10 years or so, technologies make it possible to implement "no gate crossing point solutions" that allow for seamless crossing of borders and security checks for the vast majority of travellers who meet the conditions of entry, and make sure that those who do not fulfil such conditions are refused entry. There is a broad variety of technologies and systems including information systems and (networks of) sensors that will become available to support border checks based on risk assessment methods. Some are to be deployed in the vicinity of border crossing points, others can be mobile and used to check travellers data along his/her journey. However, in the intensive use of technologies that this will require bears the risk to invading people's privacy, and the **societal and political acceptance of technologies** for "no gate solutions" is required prior to their implementation.

Scope

The assessment of the acceptability of such (combinations of) technologies and systems by citizens (who need to remain in control of personal data) and practitioners is needed, that takes account of **human behaviour, gender, legal frameworks, societal issues, and possible risk of discrimination**. Methods developed to perform such assessments need also to generate information useful for decision makers to take informed decisions about future technology deployments, and for industry to design products that preserve privacy.

Indicative budget: The Commission considers that proposals requesting a contribution from the EU of € 3million would allow for this topic to be addressed appropriately. Nonetheless this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

- Information systems that better manage personal information and support the automated checking and analysing of various entry and exit data, without increasing the risk of loss of privacy thanks to close cooperation with actions resulting from SEC-15-BES–2017: Risk-based screening at border crossing.
- Networks of sensors that better collect information needed for border checks, without increasing the risk of loss of privacy thanks to close cooperation with actions resulting from SEC-15-BES–2017.
- A method, and metrics, to assess **acceptability by the society** of the concept of border control processes based on "no gate crossing point solutions", and of the various technology components that may be required.

Type of action	Research and Innovation Action
Deadline	24 August 2017
Call identifier	H2020-SEC-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2331-sec-17-bes-2017.html



Topics with minor SSH relevance

SEC-01-DRS-2016

Integrated tools for response planning and scenario building

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2312-sec-01-drs-2016.html>

SEC-02-DRS-2016

Situational awareness systems to support civil protection preparation and operational decision making

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2319-sec-02-drs-2016.html>

SEC-15-BES–2017

Risk-based screening at border crossing

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2328-sec-15-bes-2017.html>

SEC-16-BES–2017

Through-foliage detection, including in the outermost regions of the EU

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2329-sec-16-bes-2017.html>



Call – Digital Security Focus Area

DS-01-2016

Assurance and Certification for Trustworthy and Secure ICT systems, services and components

Specific challenge

The constant discovery of vulnerabilities in ICT components, applications, services and systems is placing our entire digital society at risk. Insecure ICT is also imposing a significant cost on users (individuals and organisations) who have to mitigate the resulting risk by implementing additional technical and procedural measures which are resource consuming.

Smart systems, highly connected cyber-physical systems (CPS) are introducing a high dynamism in the system to develop and validate. Hence, CPS are evolving in a complex and dynamic environment, making safety-critical decisions based on information from other systems not known during development.

Another key challenge is posed by domains, such as medical devices, critical infrastructure facilities, and cloud data centres, where **security is deeply intertwined and a prerequisite for other trustworthiness aspects such as safety and privacy**. The challenges are further intensified by the increasing trend of using third party components for critical infrastructures, by the ubiquity of embedded systems and the growing uptake of IoT as well as the deployment of decentralized and virtualized architectures.

In order to tackle these challenges, there is a need of appropriate assurances that our ICT systems are secure and trustworthy by design as well as a need of certified levels of assurance where security is regarded as the primary concern. Likewise, target architectures and methods improving the efficiency of assurance cases are needed in order to lower their costs.

Scope

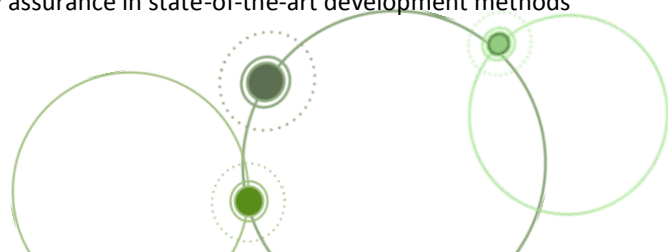
Research and Innovation Actions - Assurance

Providing assurance is a complex task, requiring the development of a chain of evidence and specific techniques during all the phases of the ICT Systems Development Lifecycle (SDLC for short: e.g. design verification, testing, and runtime verification and enforcement) including the validation of individual devices and components. These techniques are complementary yet all necessary, each of them independently contributing towards improving security assurance. It includes methods for reliability and quality development and validation of highly dynamic systems.

Proposals may address security, reliability and safety assurance at individual phases of the SDLC and are expected to cover at least one of the areas identified below, depending on their relevance to the proposal overall objectives:

- Security requirements specification and formalization;
- Security properties formal verification and proofs at design and runtime
- Secure software coding;
- Assurance-aware modular or distributed architecting and algorithmic;
- Software code review, static and dynamic security testing;
- Automated tools for system validation and testing;
- Attack and threat modelling;
- Vulnerability analysis;
- Vendor (third-party) application security testing;
- Penetration testing;
- Collection and management of evidence for assessing security and trustworthiness;
- Operational assurance, verification and security policy enforcement;
- Adaptive security by design and during operation.

Proposal should strive to quantify their progress beyond the state of the art in terms of efficiency and effectiveness. Particular importance within this context should be placed on determining the appropriate metrics. Proposals should take into account the changing threat landscape, where targeted attacks and advanced persistent threats assume an increasingly more important role and address the challenge of security assurance in state-of-the-art development methods



Call – Digital Security Focus Area

and deployment models including but not limited to solutions focussing on reducing the cost and complexity of assurance in large-scale systems. Proposals should include a clear standardisation plan at submission time. The Commission considers that proposals requesting a contribution from the EU between EUR 3 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. The outcome of the proposals are expected to lead to development up to Technology Readiness Level (TRL) 3 to 5; please see part G of the General Annexes.

Innovation Actions – Security Certification Proposals should address the challenge of improving the effectiveness and efficiency of existing security certification processes for state-of-the-art ICT components and products including the production and delivery of the corresponding guidance materials. In terms of effectiveness, proposals should address, amongst other factors, emerging threats, compositional certification and reuse of components in the context of certified systems and certification throughout the operational deployment of a product or a service. In terms of efficiency, proposals should strive to reduce the cost and duration of the certification process. Proposals may address security certification in any area of their choice. Consortia submitting proposals are expected to approach the selected topic as widely as possible including all necessary actors – e.g. industry, academia, certification laboratories - and involve the relevant certification authorities from at least three Member States in order to achieve added value at a European level. Proposals are encouraged to work towards moderate to high assurance level protection profiles as a way to validate their results. The Commission considers that proposals requesting a contribution from the EU between EUR 3 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. The outcome of the proposals are expected to lead to development up to Technology Readiness Level (TRL) 6 to 7; please see part G of the General Annexes.

Coordination and Support Actions - To complement the research and innovation activities in security assurance and certification in this topic, support and coordination actions should address the following: Building trustworthiness: **economic, legal and social aspects of security assurance and certification**

- Study in depth the **economic and legal aspects** related to assurance and certification (including European-wide labelling), EU and International regulatory aspects;
- Explore and identify the interplay of **relevant social, cultural, behavioural, gender and ethical factors** with ICT systems with regards to their trustworthiness and security, actual or perceived
- Identify **barriers and incentives in the market** for certified products in the consumer and/or enterprise market;
- Produce a comprehensive **cost/benefit model** for security assurance and certification; Engage with multidisciplinary communities and stakeholders. The Commission considers that proposals requesting a contribution from the EU of up to EUR 1 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

European ICT offering a higher level of assurance compared to non-European ICT products and services.

- **ICT products and services more compliant with relevant European security and/or privacy regulations.**
- ICT with a higher level of security assurance at marginally additional cost.
- Facilitation of mutual recognition of security certificates across the EU.
- Increased market uptake of secure ICT products.
- **Increased user trust in ICT products and services.**
- Reduction of negative externalities associated with deployment of insecure ICT.
- More resilient critical infrastructures and services.
- Progress beyond the state-of-the-art in the effectiveness and efficiency of the areas addressed by the proposals.

Type of action	Research and Innovation Action, Innovation Action, Coordination and Support Action
Deadline	12 April 2016
Call identifier	H2020-DS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2425-ds-01-2016.html



Call – Digital Security Focus Area

DS-02-2016

Cyber Security for SMEs, local public administration and Individuals

Specific challenge

Europe's SMEs, local public administration and citizens face particular challenges in addressing basic cyber security threats. On one hand, in the case of SMEs and local public administration, their size and budgetary constraints often precludes them from putting in place highly granular organisational structures, retaining dedicated information security personnel and making significant investments in cybersecurity products or services.

Individuals, constantly portrayed as the "weakest link" face the daunting task of having to constantly adapt **their behaviour at home and in the workplace** and the way they use both their personal or work-related IT equipment and devices in order to avoid falling prey to the latest threats and techniques that malicious actors leverage against them. Moreover, whether addressing SMEs, local public administrations or individuals, **few cyber security solutions have been designed with the human factor in mind and therefore present severe limitations in their usability which hampers proper decision making and adequate usage.**

Scope

Taking into consideration the adequate level of security commensurate with the considered use-case, proposals may address one of the following types of end-users:

- SMEs,
- local public administration,
- individual citizens.

To identify the most wide spread threats and cyber security issues facing end-users, proposals should take into account the guidance documents, best practices and standards issued by International Standardisation Organisations, technical forum and Member State Authorities which are tailored for SMEs or Individuals and actively contribute to their development or improvement. Proposals should develop innovative solutions with a high degree of usability and automation while ensuring that the end-users retain an adequate degree of cyber situational awareness and control. **Factors going beyond technological solutions and focusing on psychological and behavioural factors (including gender) that affect cyber security at individual or organizational levels should be addressed.**

Proposals are expected to validate their work through extensive end-user feedback and participation in the consortium where appropriate. Proposals have to address the specific needs of the end-user, private and public security end users alike. Proposals are encouraged to include public security end-users and/or private end users.

The outcome of the proposals are expected to lead to development up to Technology Readiness Level (TRL) 6 to 7; please see part G of the General Annexes. The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 4 million would allow these areas to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

- Increased competitiveness of European ICT security products and services catering to the needs of SMEs, local public administrations and individuals.
- Increased resilience against widespread cyber security threats facing SMEs, local public administrations and individuals.
- Increased effectiveness of cybersecurity solutions through usability advancements and increased automation.

Type of action	Innovation Action
Deadline	25 August 2016
Call identifier	H2020-DS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2423-ds-02-2016.html



Call – Digital Security Focus Area

DS-03-2016

Increasing digital security of health related data on a systemic level

Specific challenge

Full implication of different private and public actors, as well as empowered citizens, is needed in order to unlock eHealth potential in Europe. To achieve the trust of users, measures of safety have to be taken into consideration in accordance with the "privacy by design" approach. This requires secure storage of information including personal data but also guaranteeing safe exchange of these data over a number of architectures of differing security levels preventing unauthorised access, loss of data and cyber-attacks. A systemic approach to security will increase patients' empowerment, help protect their health also while abroad, and possibly encourage a larger number of Member States to apply it and adapt national legislations.

Scope

Proposals would provide a holistic approach to address challenges of secure storage and exchange (including cross-border) of data, protection and control over personal data, and security of health related data gathered by mobile devices combined with the usability of the eHealth solutions. Proposals should build on existing solutions or developments (open NCP, projects DECIPHER, EPSOS, STORK and others) where possible. Development and use of techniques of homomorphic encryption could be considered. **Proposals would also analyse the legal applicable frameworks and societal aspects in the context of deployment of the solution. Existing European and national law including data protection rules, right to be forgotten, giving consent as well as recognized standards have to be respected.** The operational solution should be piloted in three different Member States or associated countries. Technologically, it should be easily adaptable in other countries wishing to use it.

The Commission considers that proposals requesting a contribution from the EU between EUR 3 and 5 million would allow these areas to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. The outcome of the proposals are expected to lead to development to Technology Readiness Level (TRL) 3 to 5 at least; please see part G of the General Annexes.

Expected impact

- **Better acceptance of eHealth solutions among patients**
- Encouraging Member States to widen the use of eHealth
- Ensuring the right of patients to cross-border healthcare
- Supporting the development of European legal and operational standards for cross-border data exchange and patient privacy protection
- **Better protection against unauthorised use of personal data, breach of confidentiality and cybercrime**
- **Increasing the awareness of stakeholders, private and public ones, on the current level of data security.**
- Definition of clear architectures that will promote interoperability between eHealth solutions

Type of action	Research and Innovation Action
Deadline	16 February 2016
Call identifier	H2020-DS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2424-ds-03-2016.html



DS-04-2016

Economics of Cybersecurity

Specific challenge

Many cyber security failures in systems and organisations can only be explained and appropriately addressed by examining the problem through not only from the technical point of view but also through a deep societal, institutional and economic analysis. Moreover, current structures at institutional level (national and international) as well as incentive frameworks (financial or regulatory, positive or negative) don't seem to be able to provide adequate coverage to threats.

Scope

Scope: With a multidisciplinary approach combining economic, behavioural, societal and engineering insights, measurement approaches and methodologies and combining methods from microeconomics, econometrics, qualitative social sciences, behavioural sciences, decision making, risk management and experimental economics, proposals are expected to cover one of the following two strands:

- Cybersecurity cost-benefit framework: o Security and privacy cost models including the pricing of digital assets, modelling and methods for estimation of costs of intangible risks (reputation, non-critical service disruption...) and relevant metrics and indicators; o The proposals should study and take into consideration relevant market sector specificities, and validate their models with relevant actors from these sectors. o Optimal investment in information security, risk management and cyber security insurance;
- Incentives and business models: o Identifying the incentives and striking the right balance between cooperative and regulatory approaches to information sharing regarding incidents and vulnerabilities; o Consider behavioural aspects of security and privacy; o Investigate the opportunities and risks of information security markets (e.g. bug bounties, vulnerability discovery & disclosure); o Develop revenue models for criminal activity and the deployment of cost-effective security measures as necessary disincentive for attacks and cyber-criminal activity. For both strands proposals should also investigate improvements and/or alternatives to current institutional and governance frameworks (market-driven as well as national and international regulatory) with a view to improving cybersecurity. Based on their results, proposals should provide a set recommendations addressed to all relevant stakeholders including policy makers, regulators, law enforcement agencies (where applicable) as well as relevant market operators and insurance companies. The Commission considers that proposals requesting a contribution from the EU between EUR 1 and 2 million would allow these areas to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts

Expected impact

- Improved societal understanding of information security failures and how they should be addressed.
- Improved risk-based information security investment. Increased societal resilience to cyber security risks through more efficient and effective institutional and incentives structures.
- Progress beyond the state of the art in information security economics models.

Type of action	Research and Innovation action
Deadline	25 August 2016
Call identifier	H2020-DS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2421-ds-04-2016.html



DS-08-2017

Privacy, Data Protection, Digital Identities

Specific challenge

The use of modern telecommunications and on-line services involve users' personal information.. For example, using search engines exposes the query terms used, which can be both sensitive and identifying, as illustrated by the exposure of search terms; **social networking services expect users to reveal their social connections, messages and preferences, that could lead to direct privacy violation if exposed.** Browsing the web also leaves traces of where users have gone, their interests, and their actions - meta-data that can be used to profile individuals. The implementation the draft General Data Protection Regulation (GDPR - currently in the law-making process) presents both technological as well as **organisational challenges for organisations** which have to implement novelties such as **the right to data portability, the right to be forgotten, data protection impact assessments and the various implementations of the principle of accountability.** Many services on the Internet depend on the **availability of secure digital identities which play a crucial role in safeguarding the data and privacy of citizens** as well as protecting them and other actors such as private companies or public services from various online threats. At the same time, many European countries already have or are in the process of developing an electronic identity (eID) scheme. Most of these projects are built to be at a very high security level, which makes them very suitable for diverse eGovernment processes. But in turn they may lack usability for commercial applications.

Scope

Privacy-enhancing Technologies (PET): Novel designs and tools to provide users with the functionality they require without exposing any more information than necessary, and without losing control over their data, to any third parties. PET should be available in a broad spectrum of products and services, with **usable, friendly and accessible safeguards options. PET should be developed having also cost effective solutions.** Comprehensive and consistent Privacy Risks Management Framework should be available, in order to allow people to understand their privacy exposure (i.e. helping people to understand what happens to their data when they go online, use social networks etc). Open source and externally auditable solutions are encouraged in order to maximise uptake and increase the trustworthiness of proposed solutions.

General Data Protection Regulation in practice: Tools and methods to assist organisations to implement the GDPR taking into account the final provisions of GDPR and guidance from relevant authorities (Data Protection Authorities, Art 29 WP or its successor). Proposals may also address the need to provide support (procedures, tools) for entities to understand how to operate without requiring unnecessary information (so as to promote privacy respecting practices), in particular when the issue is mainly related to the fact that organizations (businesses, service providers, and government agencies) often require too much information from their target customer/user.

Secure digital identities: With a view to reducing identity fraud while **protecting the privacy of citizens**, proposals should develop innovative, secure and privacy enhancing digital identity platforms beyond national eID systems. Activities may leverage existing European electronic identification and authentication platforms with clearly defined interfaces based on the General Data Protection Regulation (GDPR).

Proposals may:

- Leverage evidence-based identities (using adequate correlation of multiple soft proofs of identity, as opposed to the usage of a central register);
- Provide a function for so called “qualified anonymity”, which means, that the online service does not have any information about the user but a pseudonym. The real identity of the user can only be revealed under specific conditions such as at the request of legal authorities;
- **Consider cost-effective and user-friendly verification methods for mobile identity documents.** For all strands, proposals should **identify and address the societal and ethical dimensions** of the strand they choose to cover taking into consideration the possibly divergent perspectives of pertinent stakeholders. Proposals have to address the specific needs of the end-user, private and public security end users alike. Proposals are encouraged to include public security end-users and/or private end users. The Commission considers that proposals requesting a contribution from the EU



Call – Digital Security Focus Area

between EUR 2 and 3 million would allow these areas to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. The outcome of the proposals are expected to lead to development up to Technology Readiness Level (TRL) 6 to 7; please see part G of the General Annexes.

Expected impact

- Support for **Fundamental Rights** in Digital Society
- **Increased Trust and Confidence in the Digital Single Market**
- Increase in the use of privacy-by-design principles in ICT systems and services

Type of action	Innovation Action
Deadline	24 August 2017
Call identifier	H2020-DS-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2428-ds-08-2017.html



Call – Digital Security Focus Area

Topics with minor SSH relevance

DS-05-2016

EU Cooperation and International Dialogues in Cybersecurity and Privacy Research and Innovation

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2422-ds-05-2016.html>

DS-07-2017

Addressing Advanced Cyber Security Threats and Threat Actors

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2427-ds-07-2017.html>

Call – Critical Infrastructure Protection

Topics with minor SSH relevance

CIP-01-2016-2017: Prevention, detection, response and mitigation of the combination of physical and cyber threats to the critical infrastructure of Europe.

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2301-cip-01-2016-2017.html>





Leadership in Enabling and Industrial Technologies

Information and Communication Technologies

Net **4** Society

ICT-11-2017

Collective Awareness Platforms for Sustainability and Social Innovation

Specific challenge

Today Europe fails to capitalise fully on participatory innovation; more models and blueprints are needed to lead to new ways to produce collective intelligence in key sustainability areas, leveraging on open data, knowledge networks, open hardware and Internet of things. The challenge is to demonstrate that innovative combinations of existing or emerging network technologies enable new Digital Social Innovation which can better cope with emerging sustainability challenges, achieving mass adoption and measurable global impact.

Scope

a. *Innovation Actions*: pilots of Collective Awareness Platforms (CAPs) demonstrating new forms of bottom-up innovation and social collaboration exploiting digital hyper-connectivity and collaborative tools based on open data, open knowledge, open source software and open hardware, harnessing crowdsourcing or crowdfunding models. Within this vision, target areas for pilots include:

- **New participatory innovation models for economy and society, such as the collaborative or circular economy, collaborative public services and collaborative making;**
- **Solutions for sustainable lifestyles such as collaborative consumption and production, smart reuse and low carbon approaches;**
- **Emerging ethics of digital innovation, such as social entrepreneurship, direct democracy, privacy preservation and digital rights.**

Proposals are expected to leverage on fresh grassroots ideas and civil society participation in the broad digital social innovation domain, and should:

- Include in consortia an existing and motivated community of citizens, to drive platform development;
- Base the platforms on an appropriate combination of existing or emerging network technologies (e.g. distributed social networks, wikis, sensors, blockchains);
- **Demonstrate a durable multidisciplinary collaboration by including in the consortia at least two entities whose main focus of interest is beyond the ICT domain.**
- Proposers are encouraged to integrate different platforms, addressing several sustainability challenges at a time, in order to achieve critical mass and measurable global impact.
- Preference will be given to proposals engaging civil society at large, for instance through NGOs, local communities, social enterprises, non-profit organisations, students and hackers.

The Commission considers that proposals requesting a contribution from the EU of 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. Minimum one action per target area will be selected.

b. *Coordination and support Actions*, to coordinate and support the CAPs initiative and the underlying broader digital social innovation constituency, by identifying links and synergies among different projects, and ensuring visibility and contacts at European and international level.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.2 and 0.8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.



Call – Information and Communication Technologies

Expected impact

Proposals should address as many as possible of the following criteria, possibly defining appropriate metrics to measure impact

- Demonstrate increased effectiveness, compared to existing solutions to societal and sustainability challenges, of new bottom-up, open and distributed approaches exploiting network effects and based on open data and open hardware;
- Capability to reach a critical mass of European citizens and to transpose the proposed approaches to other application areas related to sustainability;
- **Achieve effective involvement of citizens and relevant new actors in decision making, collective governance, new democracy models, self-regulation, citizen science and citizens' observatories, new business and economic models.**
- **Achieve measurable improvement in cooperation among citizens, (including elderly), researchers, public authorities, private companies and civil society organisation in the development of new sustainable and collaborative consumption patterns, new lifestyles, and innovative product and service creation and information delivery.**
- **Demonstrate the applicability of concrete and measurable indicators to assess the social impact and the "social return of investment" of the proposed solutions.**

Type of action	Innovation action, Coordination and support action
Deadline	25 April 2017
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5070-ict-11-2017.html



ICT-18-2016

Big data PPP: privacy-preserving big data technologies

Specific challenge

In view of privacy considerations, businesses are often unsure about how to deal with the data collected through their operations. This data is of particularly high value to companies for offering personalised services or developing new business models. Data subjects (citizens, consumers) often feel that they have no control over the use of their personal data. This is aggravated by uncontrolled exploitation, aggregation and linking of personal data by large corporations and advertisers. The resulting lack of confidence undermines efficient and legitimate data sharing and value creation for agreed purposes. **The challenge is to develop technologies that are inherently privacy-preserving and offer the basis for empowering the data subjects to understand and be informed of (and, where appropriate, control) the use of their personal data, and the entrepreneurs to develop and run their data driven business.**

Scope

a. *Research and Innovation actions* will advance the state of the art in the definition of methods that will support protection of personal data for harvesting, sharing and querying data assets. The personal data protection methods shall be implemented in secure and robust software modules and be exposed to publicly administered penetration/hacking challenges, open to participants the world over. **Cross-disciplinary consortia are required to conduct legally and methodologically sound field work and coordinate with the CSA to determine i) if the various formal notions of personal data protection implemented are consistent with EU legislation and with the ethical intuitions of the EU citizens such methods are designed to protect; ii) to what extent privacy protection measures can be personalised in a way that remains intelligible to the data subject while remaining consistent with EU legislation. The diversity (e.g. in terms of age, sex, gender, socio-economic class) of data subjects should be taken into account, as appropriate.** The data experimentation and integration projects (ICT-14) are likely to provide real-world challenges and data to validate the privacy-preserving technologies. The Commission considers that proposals requesting a contribution from the EU of between EUR 2 and 4 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

b. *Coordination and Support Actions* will complement the research by exploring the societal and ethical implications and provide a broad basis and wider context to validate privacy-preserving technologies. **The CSA is expected to liaise with a broad and multidisciplinary community of stakeholders** (including public administrations, research community, companies, civil society, citizens) to advise the research and innovation in privacy-preserving (Big) Data technologies, **promoting an integrated societally and ethically valid approach. Another task is to observe, map and report on ethical and Responsible Research and Innovation (RRI) issues in the field of Big Data, including technology, research, markets and education. The action is expected to organize networking, awareness-raising and consultation among its communities**, connect with the technical RIAs to inform their thinking and issue reports, analyses and recommendations. The Commission considers that proposals requesting a contribution from the EU of about EUR 1 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. No more than one action will be funded.

Expected impact

a. *Research and Innovation actions*

- Substantial improvement of technologies for data access, processing and analysis to better protect consumer and personal data and respect security in line with existing and future EU rules on the protection of personal data, and as measured in terms of improved confidence and satisfaction of data subjects by the end of 2020;
- Substantial improvements towards creating a secure environment for data access, process and analysis, demonstrated in the use situations that arise in the data experimentation/integration projects (ICT-14).

b. *Coordination and Support action*

- Appropriate consideration and attention towards an ethically sound approach to big data processing, and effective involvement of the relevant actors and stakeholders;
- Improving the dialogue between data subjects and Big Data communities (industry, research, policy makers, regulators), thereby improving the confidence of citizens towards Big Data technologies and data markets.



Call – Information and Communication Technologies

Type of action	Research and Innovation action, Coordination and support action
Deadline	12 April 2016
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5087-ict-18-2016.html



ICT-22-2016

Technologies for Learning and Skills

Specific challenge

Learning today takes place in a context of new interactions between formal and informal learning, the changing role of teachers, the impact of social media, and the students' active participation in the design of learning activities. While there is strong demand for (user-driven) innovation in digital learning, the current environment limits development to silo products, creates barriers to technological and market innovation and cross border adoption of new learning technologies. **The challenge is to create an innovation ecosystem that will facilitate open, more effective and efficient co-design, co-creation, and use of digital content, tools and services for personalised learning and teaching. It requires co-creation and co-evolution of knowledge and partnerships between business actors and research players, communities of users, educational and training organisations to develop the appropriate components and services and leading edge learning technologies, which in turn will empower teachers and learners and facilitate (social) innovation in education and training.**

Scope

a. Innovation Action

Develop and test open, interoperable components for a flexible, scalable and cost-effective cloud-based digital learning infrastructure to deliver user-driven innovation in technological solutions and educational services for primary and secondary education, for personalised, collaborative or experimental learning and skills validation. The infrastructure shall enable stakeholders to create, manage and deliver more efficient processes, content, services, applications and contextual data across a wide variety of education and training systems. It should enable stakeholders to discover, mix and re-use different components and to create new learning solutions. It should be scalable to meet rapidly changing and expanding needs and software requirements while maintaining high levels of security and privacy for teachers and students

The proposed solutions should cover one or several of the following areas:

- **easy creation, mix and re-use of content, services, applications and contextual data for interactive learning processes** (e.g. authoring and modelling tools; syndication tools; networked objects; electronic publishing platforms; social and collaborative networks);
- **environments for new learning experiences and experimentation** (e.g. 3D simulation and modelling technologies, visualisation technologies, augmented and virtual reality, location intelligence, intelligent tutors and other adaptive and multimodal technologies);
- **educational support services** (e.g. learning analytics for creating, collecting, storing, sharing learner/educational data in a systematic, secure way).

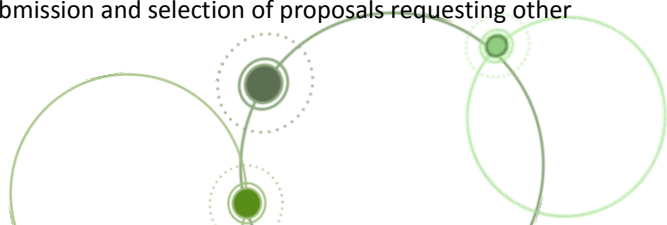
Proposed solutions should have a clearly defined learning context, integrate dynamic real-time assessment of learner's progress and be tested through very large pilots in typical learning circumstances in several European countries to identify strategies for scaling and achieve bigger impacts.

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

b. Research and Innovation Action

Technologies for deeper learning of Science, Technology, Engineering, Mathematics, combined with Arts (STEAM), improving the innovation and creative capacities of learners and supporting the new role of teacher as a coach of the learner. Activities may cover both foundational research (tapping into a mix of disciplines, including SSH disciplines) and/or component and system level design with pilot testing to support (user-driven) real-life intervention strategies with new enabling technologies (e.g. new interfaces, affective computing, mixed reality learning environments, 3D technologies, wearable technology).

The Commission considers that proposals requesting a contribution from the EU of about 2.5 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. The maximum duration is expected to be 2 years.



Call – Information and Communication Technologies

Expected impact

Projects should address the following impact criteria and provide appropriate metrics:

a. Innovation Action

- Availability of new, open cloud-based components, tools and services for use in digital learning scenarios;
- Increased cross-border availability and wider adoption of education technology products/services generating new business opportunities for European providers;
- **More efficient and effective learning, through mainstreaming new ways of learning with digital technologies and more efficient ways of assessing learning outcomes;**
- Scalable solutions, capable of reaching very large numbers of schools and students, and deliver social innovation in education.

b. Research and Innovation Action

- Break-through technologies for learning, through novel research-industry collaborations in emerging areas;
- **Improved ability to innovate in key economic growth areas by fostering intertwined development of creative and scientific/technological skills.**

Type of action	Research and Innovation action, Innovation action
Deadline	12 April 2016
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5086-ict-22-2016.html



ICT-23-2017

Interfaces for accessibility

Specific challenge

Research on user-driven multimodal interface design has advanced the usability and accessibility of many software and devices to the benefits of all people, especially for those with different functional abilities. However, despite progress, **there are still many who are disadvantaged due to lack of accessible and usable systems. Among those are persons with neurological conditions and disorders as well as cognitive disabilities.**

More effective solutions, designed with people with disabilities and their carers, are needed to mediate communication experiences or for more natural interactions, including with their environment. **Technologies aiming at enhancing cognitive accessibility hold the potential to improve attention, executive functions, knowledge acquisition, communication, perception and reasoning. Furthermore, improving the capacity to decode and use brain signals will help to accelerate the development of solutions for people with communication disorders.**

Scope

a. Research and Innovation Actions

Proposals should cover one of the following themes:

- Support the development of intelligent, affordable and personalised interfaces and affective computing for people with cognitive disabilities to enable them to undertake everyday tasks and in particular to improve communication and facilitate the uptake and use of digital services. **Solutions should recognise user's abilities and be able to detect behaviours and recognise patterns, emotions and intentions in real life environments. A mix of expertise is necessary including from relevant social sciences and humanities disciplines (e.g. cognitive sciences, psychology, disability studies) and due attention will be paid to the diversity of users and users' needs (e.g. age, gender, socio-economic status).**
- Develop and test solutions, models and algorithms to improve (and act upon) information extraction from brain and neural signals, including through advances on state of the art electrodes and implantable devices.

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

b. Innovation Actions

Building on ongoing efforts, develop and demonstrate decision support tools for the assessment of compliance to web sites accessibility standards and guidelines. Research should focus primarily on quality and accuracy of automatic support to assessments, detecting accessibility hurdles and assisting developers in repairing accessibility barriers. Solutions shall enable fast processing of dynamic content and large volumes of web pages/content and data, and more effective hybrid combination of automatic /expert reviews.

The Commission considers that proposals requesting a contribution from the EU of about EUR 2 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. No more than one action will be funded.

Expected impact

Projects should address the following impact criteria and provide appropriate metrics

For a)

- **Improved communication and interaction capability of people with disabilities and facilitate social innovation;**
- **More affordable technologies and products that support interactions for people with disabilities;**
- New generation of services that are highly adaptable and personalisable to individual contexts;
- New approaches to brain computer interfaces.

For b)

- Easier and more **cost effective assessment of web accessibility requirements**, at scale.



Call – Information and Communication Technologies

Type of action	Research and Innovation action, Innovation action
Deadline	25 April 2017
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5067-ict-23-2017.html



ICT-24-2016

Gaming and gamification

Specific challenge

The software games business is growing fast. Its technological and methodological underpinnings have been laid down in years of research and development. At a significantly lower scale, they **are now finding their way into non-entertainment contexts, helping deliver substantial benefits, particularly in education, training, research and health.** Recent European research projects have identified comprehensive roadmaps and are creating resources and state-of-the-art knowledge for European players to develop applied games more easily, faster and more cost-effectively. **The challenge is to mainstream the application of gaming technologies, design and aesthetics to non-leisure contexts, for social and economic benefits.** Supporting the expansion of applied gaming and gamification will not only create new solutions and methodologies to address societal issues, but it will also help SMEs to seize new business opportunities.

Scope

Technology transfer through small scale experiments on developing and validating open gaming technologies and mechanics including from sectors other than the gaming industry into non-leisure situations and scenarios for training and motivational purposes. **Actions shall integrate contributions from game developers, researchers from social science disciplines and the humanities, publishers, educational intermediaries and end-users. Activities shall include work on gaming technologies (augmented and mixed reality, 3D audio and video, virtual worlds, interactive storytelling, narratives, modelling and data, etc.), learning and behavioural triggers (pedagogical effectiveness, engagement, creativity, collaborative behaviours, proactive) and social science aspects (potential risks and challenges, privacy, gender and ethical issues etc.).**

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

Expected impact

Increased take up of gaming technologies in non-leisure contexts – and specifically in education and for social inclusion, measured by the number of new businesses and applications generated by the action.

Type of action	Innovation action
Deadline	12 April 2016
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5088-ict-24-2016.html



ICT-28-2017

Robotics Competition, coordination and support

Specific challenge

The global robotics market will change shape significantly in the next few years. As the deployment of robotics technology increases, it is necessary to ensure that robotics actions are flanked by specific measures to optimise market take-up of European research whilst the window is still open.

There are several challenges including the lack of sustained exchanges about robotics between members of the widespread European stakeholders' community and of coordinated European effort towards global standardisation and regulation. **There is also a lack of systematic foresight of developing trends and issues to inform strategy-makers and the robotics community e.g. as relating to a pro-active approach of ethical, legal and socio-economic (ELSE) issues. Understanding and responding to developments in these areas will require engagement with non-robotics experts able to analyse impact within their area of expertise.** Robotics-specific strategy can then be developed from this analysis and used to shape the processes of design, development and deployment of market services and applications. It is also important to disseminate information not only to the robotics community but also externally to those users and organisations impacted by robotics technology. **Furthermore it is important to identify and assess socio-economic weaknesses and threats in the European robotics landscape. These will change over time and long term monitoring actions will be critical to the development of a responsive strategy.**

Potential issues range from the development of supportive and effective regulatory environments to assessing the public perception of robotics and its socio-economic impact, as well as the underlying imaginaries (e.g. pre-conceptions helping to envisage the future) of robotics developers. Broader technology impact issues such as data privacy, legal rights, liability, responsible innovation and ethical issues concerning vulnerable sections of society will also need to be addressed.

An intense user-engagement in the developments of robots designed to perform social tasks, and a wide public debate around the issues and concerns that these developments may raise are key conditions to ensure a societal and socio-economic uptake of robotic technology in an informed way and to enhance market and community development.

Competitions on smart robotics can also play an important role in increasing the levels of public understanding, as well as helping to accelerate progress in a stimulating way.

Scope

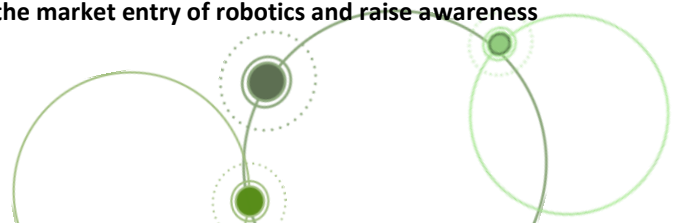
Coordination and Support Actions focusing on one or more of the following topic areas and taking into account ongoing actions:

a. Non-technical barriers to robotics take-up:

- **Promotion of entrepreneurship skills specific to robotics and the provision of non-technical early stage support for SMEs and spinouts. Analysis of funding mechanisms, including follow-on funding support for take-up of research results and the effectiveness of public funding;**
- **Addressing non-technical market barriers in a pro-active way such as ethical, legal and socio-economic issues affecting take-up, including the impact of robotics on the labour market, ethical concerns about safety, informed consent, clear legal responsibility and insurance structures. The engagement and coordination with non-robotics experts, for example in law, social sciences and economics, will be sought;**
- **The effective promotion of responsible research and innovation (RRI) in robotics and the assessment of societal readiness for robotics products;**
- **Given the fast-moving evolution of RAS research and innovation, develop dynamic strategies to anticipate new skills requirements, reduce skills shortage and provide responses to economic change through training, skills development, and education from pre-school to university level.**

b. Standards and Regulation:

- **Coordination of standards harmonisation and regulation across Europe in all domains to enable the development of supply chains and certification processes;**
- **Dialogue with regulatory bodies and policy makers to support the market entry of robotics and raise awareness of the impact of robotics.**



Call – Information and Communication Technologies

c. Community support and outreach:

- **New mechanisms to improve information exchange across the diverse sections of the European robotics community (including networking between EC projects), to provide open access resources, for example brokerage for design information, communicating the outcomes of EC-funded research projects and to improve the public level of understanding and societal uptake of robotics through two-way public engagement activities.**

d. Competitions:

- **Organisation of robotic competitions to speed up the advance towards smarter robots, demonstrating progress in the field and raising the awareness of the general public towards intelligent robots.**

The Commission considers that Coordination and Support Actions proposals covering all or an appropriate mix of topic areas (a), (b) or (c) above are expected to require up to EUR 3 million; nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Minimum one action will be selected. Competition proposals addressing topic area (d) are expected to require up to EUR 2 million each; nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Minimum one action will be selected.

Expected impact

- Strengthen collaboration between diverse robotics communities;
- **Gain a higher level of European involvement in global robotics regulatory policy and standard-making;**
- **Lower non-technical market barriers to robotics market readiness and take-up; increase the uptake by entrepreneurs and end users through e.g. skills acquisition and training;**
- **Clearer understanding by the community and non-technical experts of the impact of robotics technology through two-way engagement, which helps to better inform related strategy and policy decision-making;**
- **Significant and measurable evolution in the public awareness and understanding of robots, especially amongst broad demographic groups, as shown by surveys, greater media coverage and increased take up of robotic products in domestic applications;**
- Increase public and private investment interest in robotics technology for all stages of company formation and growth, from start-up to mature company, as measured by levels of grant and investment activity by national, regional or private-sector bodies.

Type of action	Coordination and support action
Deadline	25 April 2017
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5072-ict-28-2017.html



ICT-35-2016

Enabling responsible ICT-related research and innovation

Specific challenge

The development and deployment of digital technologies and services induces pervasive and radical changes in our lives and in the societal system. The explosion of the number of devices, their increased "intelligence", autonomous behavior and connectivity are changing significantly the life conditions of Europeans. **Beyond the benefits brought about by technological innovations, there are also challenges, and sometimes threats, that need to be addressed to ensure that technological innovations go hand in hand with societal needs and expectations. Including SSH (social sciences and humanities) expertise provides a constructive and critical accompaniment of the scientific and technological developments for the projects funded under LEIT-ICT, and enables responsible research and innovation in the digital age.**

SSH engagement in ICT research can both address proactively the impacts of the take-up of novel technologies, and contribute to innovation by proposing alternative approaches. For example, considering that there is a trade-off between privacy and security refers to conceptions that can be challenged. Reconsidering underlying assumptions or taking a new and broader view to ICT related research and innovation can lead to other options that inspire different and more responsible technological R&I, with new benefits for the society.

Scope

a. Research and Innovation Actions should **take a fresh look on the relationship between information and communication technologies, on the one hand, and social phenomena, on the other hand. They should contribute to ongoing ICT-driven research and innovation by providing best practice in collaborative research between SSH and ICT communities.** The projects are expected to have direct relevance to ongoing ICT-related research and innovation, in particular in the area of robotics, cyber-physical systems, internet of things, big data and cybersecurity.

From this wide range of issues, proposals are expected to focus on one or both of the following clusters:

- **How can we avoid the traps of ICTs ending up in isolating humans behind their screen, or harnessing them in a passive role? In the forthcoming hyperconnected era, it is essential to acknowledge the dual human aspirations for relationships and for freedom, and the dynamic nature of the relationships between humans and artefacts.**
- **What are the conditions for ICT-enabled innovations to generate interesting and rewarding jobs, and reduce the risk of excluding sections of society from the labour market? What economic models can ensure a fair sharing of the created added value?**

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

b. Smaller short-term Research and Innovation Actions are **expected to engage SSH expertise and, potentially other actors, to reflect and challenge the way ICT-related research and innovation is currently approached in a specific area and/or reflected in the call text. This approach opens new ways for interactions between SSH and ICT. SSH expertise is called for to unveil and challenge the implicit assumptions underlying broader technological research agendas, with a view to propose constructive alternative framings which enhance considerations for responsible ICT research and innovation.** These so called "sister projects" should clearly describe how they intend to bring an innovative research perspective for one or more LEIT ICT topic areas. These projects are expected to have a light project structure, accommodating for its exploratory experimental nature and its relevance beyond disciplinary boundaries.

The Commission considers that proposals requesting a contribution from the EU of between EUR 300.000 and 500.000 and running for 12 months would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts and/or proposing other durations.

Minimum one action will be selected for each of the areas (a, b) described above.



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Expected impact

- **Alternative approaches and new perspectives for future societal relevant ICT research and innovation activities.**
- **Increased research collaboration and common agenda between ICT and RRI-SSH communities.**
- **Improved take-up of responsible ICT research and innovation that takes into account human and societal concerns and expectations under new technological conditions.**
- **Increased relevance and usability of SSH knowledge for ICT R&I processes in order to align ICT R&I with human needs and societal expectations.**
- **Increased societal relevance of future research agendas in ICT-related areas.**

Type of action	Research and Innovation action
Deadline	12 April 2016
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5084-ict-35-2016.html



ICT-36-2016

Boost synergies between artists, creative people and technologists

Specific challenge

Innovation, today, is as much about novel solutions that technology and design can provide as it is about understanding needs of society and ensuring wide participation in the process of innovation. In this context, the Arts are gaining prominence as a catalyst of an efficient conversion of S&T knowledge into innovative products, services, and processes. **The challenge is to accelerate and widen the exchange of skills of artists and creative people with entrepreneurs and technologists, thus creating a common language and understanding. This topic supports the STARTS (S&T&ARTS) initiative, fostering innovation at the nexus of 'Science, Technology and the Arts'.**

Scope

The activities are structured in two lines: establishing a structured dialogue between creative people and technology developers and encouraging artists' integration into research and innovation projects, providing visibility of good practices and rewarding them.

a. Innovation Action establishing a structured dialogue between creative people and technologists:

First, it will identify the relevant regional, national and international agencies active in education, research and economic support of the Creative Industries and:

- establish a Europe wide sustainable structured dialogue, ensuring the synchronisation of the efforts; as well as
- promote the replication of successful initiatives across other industries and European countries.

Second, it will directly support creative people and technologists to work together and produce unconventional and compelling new products. Taking advantage of existing structures such as fab labs, creative and innovation hubs, the action should at least combine the following activities:

- **Launch a yearly Europe wide competition for the best creative product ideas and ensure the financial support of their realisation.** The action should cover the promotion of the competition, the selection process and support for the development of the selected ideas into fully functional prototypes. The competitors should be teams of creative individuals and technologists providing novel ideas to be evaluated according to their originality, feasibility and economic or social value potential.
- **Promote the newly selected ideas as well as the prototypes resulting from the selection of the previous year,** through highly visible actions addressing both the general public and potential investors across Europe.
- **Develop a sustainability strategy to ensure the persistence of the experiences gained** and the coordination mechanisms set up during the action beyond the funding period.

The action may involve financial support to third parties in line with the conditions set out in Part K of the General Annexes. The consortium will define the process for selecting the prototype developments to which financial support will be granted (typically below the range of EUR 50.000 per experiment). At least 80% of the funding should be dedicated to the prototype developments.

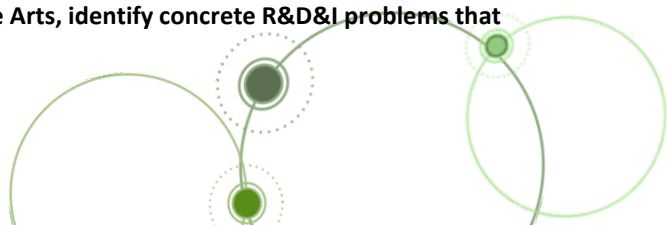
The Commission considers that proposals requesting a contribution from the EU of about EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

b. Coordination and Support Actions

Proposals will cover one of the two areas defined below:

1. Integration of artists in research and innovation projects is encouraged across all ICT objectives in WP2016/2017. To facilitate this integration and help build silo-breaking partnerships between industries, entrepreneurs, and researchers in ICT with the Arts, a Coordination and Support Action will provide a brokerage service that will:

- Fund short-term residencies/fellowships in running H2020 projects or in institutions and sponsor 'matchmaking events' (workshops, hackatons, etc.) that will allow artists and ICT experts to develop common work practices and address concrete problems.
- **Set up an online platform to match partners from the ICT and the Arts, identify concrete R&D&I problems that artistic practices could help address.**



Call – Information and Communication Technologies

- **Organise an annual high visible STARTS event with international outreach bringing together H2020 projects, industrial players and artists and showcasing successful interactions between industry, technology and the Arts.**
- 2. Implementation of a 'STARTS prize' that will showcase vision and innovation in technology rooted in links with the Arts by giving visibility to the most forward- looking collaborations and the impact on innovation that they have achieved,** rewarding outstanding contributions to innovation resulting from collaborations of technology with the Arts. The support action will ensure publicising the prize, handling of submission in a scalable manner, the evaluation procedure for the prize in liaison with the EC services, the award ceremony together with an exhibition and a (travelling) exhibition of shortlisted works.

It is foreseen to hand out two annual prizes (20.000Euros each) covering different aspects of STARTS, one honouring artistic exploration where appropriation by the Arts has altered (the use, deployment, or perception of) technology and one that honours works linking ICT and the Arts (technological or artistic) that open new pathways for innovation and/or society.

To achieve visibility and impact the STARTS prize must be a long-term commitment, must reach out to both technology/industry and to the art world. It might therefore be best linked to an existing high profile prize allowing leveraging existing resources and credentials. This action allows for the provision of financial support to third parties in the form of prize in line with the conditions set out in Part K of the General Annexes.

The Commission considers that proposals requesting a contribution from the EU of about EUR 4 million for area 1 and of about EU 1 million for area 2 would allow each area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. Proposals should target a duration of four years.

Expected impact

- **Provide the European landscape with sustainable structured dialogues between creative people and technologists.**
- **Increase the transfer of knowledge between the ICT and the Creative Industries.**
- **Contribute to a change of culture, appreciating the societal and economic added value of creativity, promoting more innovation-oriented mind-set rooted in silo-breaking collaborations between technology and the Arts.**

Type of action	Innovation action, Coordination and support action
Deadline	12 April 2016
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5092-ict-36-2016.html



ICT-39-2016-2017

International partnership building in low and middle income countries

Specific challenge

To reinforce cooperation and strategic partnership with selected countries and regions in areas of mutual interest.

Targeted countries: Low and middle income countries in sub-Saharan Africa and ASEAN countries.

Scope

a. Innovations Actions

Actions will address the requirements of end-user communities in developing countries. This may include technological improvements and adaptations as well as innovative service creation based on existing technologies.

Proposals could include specific technological targets such as co-design, adaptation, demonstration and validation (e.g. pilots) of ICT related research and innovation in relevant thematic areas addressed by Horizon 2020 including Content Technologies and Societal Challenges. Proposals are expected to address take up and scalability of the proposed solutions.

Activities under this topic should be led by a clearly defined user need/market opportunity for the technology being adapted; they should in particular include requirements of developing countries (at national and local level), and where possible, have the potential for wider impact by involving a number of countries from the same region. **Proposals should feature an explicit element exploring technology adoption, through understanding and evaluating behavioural responses to the introduction of new technologies in different regional settings. Societal and gender issues will be taken into account.** Proposals should be submitted by a partnership complementing each other with a particular focus on the participation of relevant developing country innovation stakeholders and end-user community representatives (e.g. relevant public, private, education and research, and societal sector organisations, Innovation Hubs or Living Labs).

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.

b. Coordination and Support Actions for Africa

One CSA to foster research coordination and support collaborative activities between Europe and Africa, through the organisation of events – if possible synchronised with relevant either policy or research meetings - and monitoring ICT-related activities in targeted countries in Africa providing input on common R&D priorities and future cooperation opportunities; strengthening cooperative research links; supporting greater awareness of research cooperation opportunities and dissemination of results from ICT39-2015 and other relevant developments. Actions should build upon the achievements of similar past or ongoing Support Actions for Africa.

The Commission considers that proposals requesting a contribution from the EU of around EUR 0.8 million would allow this area to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. No more than one action will be funded.

Expected impact

- **Development of relevant technology responding to specific needs and conditions of the target country;**
- Sustainable uptake of results within the targeted countries, beyond the project completion date;
- Reinforced international dimension of the ICT and Innovation aspects of Horizon 2020 and a higher level of international cooperation with low and middle income countries in ICT R&D and Innovation, focusing on areas that are beneficial to the target countries/region;
- Reinforcement of strategic partnerships with selected countries and regions in areas of mutual interest and added value in jointly addressing important issues.



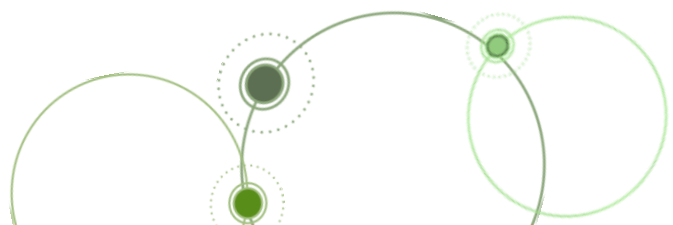
Call – Information and Communication Technologies

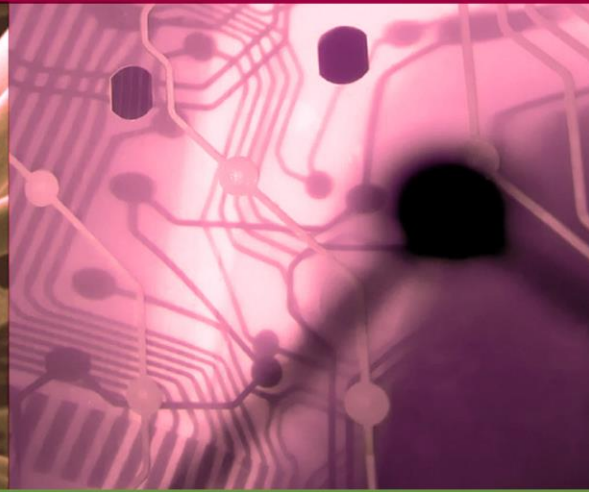
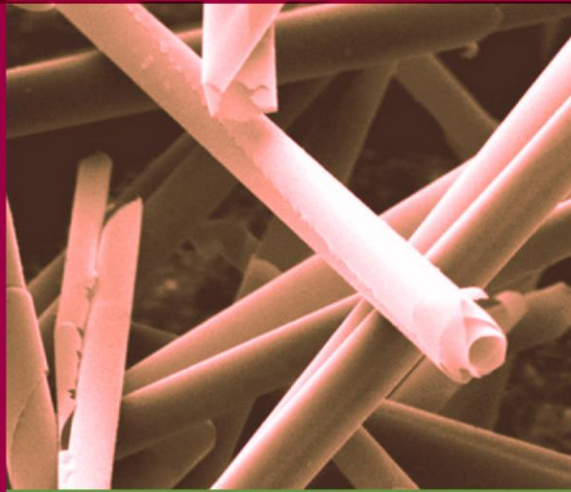
Type of action	Innovation action, Coordination and support action
Deadline	CSA - 19 January 2016 IA - 25 April 2017
Call identifier	H2020-ICT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5078-ict-39-2016-2017.html

Topics with minor SSH relevance

ICT-19-2017 Media and content convergence

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/5063-ict-19-2017.html>





Leadership in Enabling and Industrial Technologies

Nanotechnologies, Advanced Materials, Biotechnology and Advanced Manufacturing and Processing

Net **4** Society

Call - Energy-efficient Buildings

EEB-08-2017

New business models for energy-efficient buildings through adaptable refurbishment solutions

Specific challenge

The most important benefit associated with the refurbishment of an existing building comes from improving the energy performance, which gives an essential contribution to reach the EU 2020 consumption goals, taking into account that buildings represent 40% of the energy use in the EU. A key challenge for its large-scale implementation is the necessity to manage a broader involvement of stakeholders representing different interests and different responsibilities influencing the potential solutions and actions. **This regards not only the choice of technologies, but also the design and renovation methods, as well as a number of socio-economic issues.**

Nowadays, decentralised energy generation technologies have been demonstrated in a number of building applications in Europe and beyond but large scale uptake and business deployment of these technologies is still in its early stage. Currently, the renovation level is about 1.2% of the building stock in Europe per year and it should increase, according to the European Performance Building Directive (EPBD), to 2 - 3 % per year until 2030. Innovative business models which allow consumers and the market to invest with confidence in long term operation, maintenance, reliability and service levels need to be developed.

Scope

Activities should focus on the benchmark and the assessment of innovative business models, evaluating different refurbishment packages enabling the selection of the most attractive and efficient ones for different building types (residential/District Heating Cooling connected) and climatic conditions, **taking the maximum advantage of user behaviour and geo-clustering.**

Adequate assessment tools and the methodological challenges facing analyses addressing the issue of comprehensive analytical approaches in order to inform business decisions in this respect need to be discussed. Life cycle models as input to the decision making process in the feasibility phase of the renovation project also need to be considered.

Proposals need to assess different highly resource-efficient business models for refurbishing buildings including the assessment of the possibilities provided by public procurement of innovative solutions, appropriate combinations of public and private funding, or only private funding. **These concepts need to be developed taking into account the building owners, the socio-economic impacts, and the current EU crisis.**

Proposals should also develop effective methods for steering and governance especially paying attention to the local scale, including the variety of actions by cities and municipalities that can define obligations or encourage voluntary actions. In particular the business models developed should support the preparation of innovation-related public building procurements by local/regional/national authorities or at European level, taking into account the needs of the public sector with regard to high-performance buildings (new or retrofitted ones).

The business models should cover the complete cycle as from the design phase of the building: decentralised energy generation technologies, integration, installation, commissioning, operation, servicing and maintenance, etc. **In this framework, activities should cover business model design and optimisation, market and customer segmentation approaches for decentralised energy generation, consumer behaviour and decision driver research for optimising business model structures, supply chain and concept delivery optimisation, new earning models and financing mechanisms.** In addition, proposers should also seek solutions to increase participation of stakeholders, considering methods to engage end users living in the buildings/neighbourhood and methods to increase the interest and commitment of building owners and market partners.

Socio-economic impacts of refurbishment should be taken into account considering the possibly drastic effects of high renovation costs on house owners and tenants, and seeking possible solutions to reduce costs, as well as addressing the needed commitment by users to energy efficiency after renovation.

Clear evidence of technical, environmental and economic viability should be provided. The possibility to engage municipalities planning to integrate renewable energy sources in the built environment could be an added value.

This topic is particularly suitable for SMEs.

The Commission considers that proposals requesting a contribution from the EU between EUR 500000 and 1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.



Call - Energy-efficient Buildings

Expected impact

- **Cost-effectiveness of the renovation compared to current costs.**
- Adaptive renovation packages with high energy efficiency and low environmental impact.
- Increased awareness of and commitment to improved energy-efficiency of the building stock.
- Increased capacity of municipalities to effect the renovation of building stocks, in particular through the use of public procurement tools.
- Better quality standards and performance guarantees while improving indoor environment and remaining cost-effective.
- **More involvement of customers/users in the integrated–innovative business model solutions.**

Type of action	Coordination and Support action
Deadline	19 January 2017
Call identifier	H2020-EEB-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2280-eeb-08-2017.html



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

NMBP-22-2017

Business models and industrial strategies supporting novel supply chains for innovative product-services

Specific challenge

The current lack of stability in the markets does not create strong incentives for industry for long term investments in tangible fixed assets, and a quick response to market demand is crucial to market success. At the same a new generation of highly flexible production and process technologies and equipment, such as 3D-printing, has become available, enabling industry to adapt faster to the market demand and to produce in smaller series.

All European companies, especially SMEs, need to have access to technology infrastructure with appropriate manufacturing facilities to help them develop their innovative product-services from the early stage of feasibility assessment up to the fabrication of first series of prototype's products. Purchasing is not always the best option. It is also important to develop value systems that take into account the new extended supply chain from the early stage of the design process up to the end-of-life activities. In addition, the real production can nowadays take place anywhere in the world and leave Europe with unused or outdated production capacities. The current overall process does not necessarily take into account economic, social and environmental benefits for Europe.

Scope

Business models supporting the novel supply chains for innovative product-services would need to facilitate the flow of information on free utilisation capacity among service providers, which could be dedicated business set-ups for that kind of product-services, or just existing manufacturers with free production capacity at certain moments in time and business companies seeking short term solutions for their capacity shortages.

New equipment, internet, digital technologies and social media have the potential to support new supply chain models that are focused on business-to-business (B2B) as well as business-to-consumer (B2C) relationships, on improving the use of manufacturing capacity in Europe.

Solutions should facilitate the flow of information on free manufacturing capacity among service providers (which could be dedicated businesses or existing manufacturers with spare capacity).

The research activities should focus on all of the following areas:

- **New, adaptive business models, networks and configurations to optimise the integration of KETs in industrial contexts**, in order to increase the leadership of EU industry in the global markets. The approaches to integrate KETs should lead to a new model for European industrial production and consumption, based on more sustainable and efficient production and consumption patterns, supporting increasingly customised sustainable products.
- **New business solutions for extended supply chains** and the integrated sustainable European framework, which would take into account the needs of design, production, utilisation and end-of-life and overcome the risk of under-utilised capacity.
- **Solutions that would enable businesses in the supply chain** to use new flexible production and processing systems tailored to their needs; to increase connectivity and inter-operability to rapidly coordinate; and to react to market demand as a whole system.
- Solutions for local cooperation and supply, which can reduce the environmental footprint. These solutions should converge into high value-added production capable of responding dynamically to competing global economies demonstrating how the EU could benefit from international cooperation.

Project activities will focus on new concepts and methodologies for knowledge-based, specialised product-service, which can fulfil the requirements of fast changing markets for innovative product-services. The service could be supplemented by after-sale services and extended guarantees provided by any entity from the supply chain base on common agreement.

Social Sciences and Humanities (SSH) elements should be considered, such as economics and business administration. In particular, proposals should address the role of consumers and users as active participants in the innovation process.

Activities are expected to focus on Technology Readiness Levels 4 to 6. This topic addresses cross-KET activities. *This topic is particularly suitable for SMEs.*



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

The Commission considers that proposals requesting a contribution from the EU 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.

Expected impact

- Decreased production costs in Europe, through a better use of the available manufacturing capacity;
- Increased investment in the manufacturing industry in Europe;
- Reduced environmental footprint compared to products produced in traditional value chains, by the use of local and regional product-services capacity;
- Development of novel supply networks for organisations, and of solutions that could be also applied by other industrial sectors;
- Creation of new embedded services supporting the business-to-business supply chain;
- **Possibility for further development of the new supply chains for other business scenarios;**
- **Creation of novel models of work organisation and sustainability-driven networks/clusters**, able to integrate the product-service life-cycle stages in the same industry, as well as across industries.
- Creation of sustainable networks and clusters, by integrating the various suppliers devoted to the collection, disposal, recycling and reuse of critical materials and components into a perspective of sustainability and corporate social responsibility.

Proposals should include a business case and exploitation strategy, as outlined in the Introduction to the LEIT part of the Work Programme.

Type of action	Research and Innovation action
Deadline	1st stage - 27 October 2016 2nd stage - 4 May 2017
Call identifier	H2020-NMBP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2398-nmbp-22-2017.html



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

NMBP-34-2017

Governing innovation of nanotechnology through enhanced societal engagement

Specific challenge

In order to foster responsible research and innovation (RRI) in nanotechnologies, innovative processes are needed to improve the responsiveness of research & innovation processes to public values and concerns, and to **ensure that research & innovation truly respond to societal challenges and take into account the social and environmental consequences from the outset.**

Scope

The proposed action should build on previous EU and national projects in the field of public engagement by addressing the governance and implementation of responsible nanotechnology research and innovation. **It will launch a participatory multi-actor engagement process (i.e. deliberations, workshops and/or working groups) focussing on early-stage product development in order to explore ways in which nanotechnologies can help address societal challenges while considering the needs and concerns of society.** This multiactor engagement process should include researchers, producers, professional users, relevant civil society organisations and consumers/citizens. The proposed action should take into account the diversity of cultural contexts of processes and communication within Europe and should demonstrate state of the art public engagement concepts. The proposed project should also include an ex-post evaluation of the mutual learning process between stakeholders in previous relevant nanotechnology projects as well as societal debates on emerging technologies. Furthermore it will contribute to the concrete realisation of RRI conditions in nanotechnologies, and produce policy recommendations on how to govern research & innovation in nanotechnologies (and other emerging technologies) in a responsible way. The project must ensure a strong degree of policy alignment and be designed to deliver useful outcomes to relevant policy initiatives and innovation partnerships, such as European Technology Platforms.

Supporting activities to be undertaken in the project could include the empowering of stakeholders to co-create nanotechnology research and innovation by enabling them to formulate and communicate their needs and concerns, and designing ways to give them a voice in R&I processes. Additional activities could also include the development of: teaching material and the training of researchers and engineers in ways to include societal considerations in their work; training of researchers/scientists in science communication; establishing a 'journalist in the lab' exchange scheme; the development of balanced, reliable and easily accessible information on how nanotechnology is contributing to solving specific societal challenges and is used in daily life, e.g. published by the mass media with supplements and media micro sites or using existing multimedia and other relevant technology; guidance on how to bring about institutional changes that may contribute to a better engagement of civil society in nanotechnology-relevant R&I organisations; and policy recommendations on how best to integrate societal considerations in nanotechnology research & innovation.

This action is to be based on the concept of Mobilisation & Mutual Learning (MML) platforms. **Proposals should include the appropriate disciplines of Social Sciences and Humanities (SSH).** Gender aspects should be taken into account.

The Commission considers that proposals requesting a contribution from the EU between EUR 1.5 and 2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

No more than one action will be funded.

Expected impact

- **The early and continuous engagement of all stakeholders will be essential for sustainable, desirable and acceptable innovation in nanotechnologies, where R&I is aligned to the values, needs and expectations of society;**
- The outcomes of the project are to be fed back into policy making and innovation partnerships such as European Technology Platforms, aiming to achieve a responsive R&I system and co-production of knowledge;
- **The project will lead to enhanced public understanding of nanotechnology, will build trust and foster mutual understanding between citizens, and public and private institutions, leading to co-creation of new R&I and increased confidence of companies to invest in new technologies.**



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

Type of action	Coordination and support action
Deadline	19 January 2017
Call identifier	H2020-NMBP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2384-nmbp-34-2017.html



NMBP-35-2017

Innovative solutions for the conservation of 20th century cultural heritage

Specific challenge

Europe's highly diverse and rich cultural heritage (CH) is seen as a powerful common background that provides a sense of belonging amongst and between European citizens. **Next to this societal impact, CH has also significant economic impact through activities such as tourism, restoration, maintenance, and cultural industry. However, tangible CH is endangered by significant deterioration of voluntary or involuntary anthropogenic origin and by other threats.**

20th century cultural heritage is often confronted with different deterioration mechanisms than more ancient cultural heritage for reasons such as the use of modern materials. This requires additional research efforts regarding material composition, ageing processes, and the development of appropriate conservation technologies. While modelling and simulation based approaches in the development of advanced materials and devices play nowadays an important role, there is a need for development in the area of CH conservation.

Scope

Two main elements should be addressed:

- **Projects should develop one or more innovative solutions** (functional materials or techniques) **for the conservation of tangible 20th century cultural heritage.** To maximise the impact, the most relevant issues and objects should be identified and addressed. For this purpose, **convergent contributions from relevant Social Sciences and Humanities (SSH) disciplines should be considered;**
- Developments should be based on multi-scale modelling (in the sense of linking different types of models such as electronic, atomistic, mesoscopic and continuum etc.) approaches. Key issues such as compatibility, durability, ageing, and reversibility of interventions should be addressed by the modelling approaches. Modelling modules should be further developed if necessary.

The proposed materials/techniques are expected to ensure long term protection and security of cultural heritage, taking into account environmental and human risk factors. An environmental impact assessment of the proposed solutions is to be included to ensure the development of sustainable and compatible materials and methods. Focus on innovative and long-lasting solutions in the conservation of cultural assets is expected.

Projects are encouraged to base their modelling software development on on-going efforts in the development of open simulation platforms and to use to a large extent existing models. Projects should have an element of model validation based on experimental data. The majority of resources is expected to be invested in the actual material/technology development and testing, rather than the development of new models.

Standardisation and/or the production of (certified) reference materials and/or pre-normative research should be an integral part of the project.

The projects should present clearly measurable objectives for the proposed developments. The core activities regarding the materials/techniques are expected to reach TRL 6 by the end of the project.

A participation of relevant SSH disciplines is expected. SSH research should contribute criteria for targeting specific cultural heritage and analyse the expected long-term societal spill-over effects of the project.

Projects are expected to contribute actively to on-going activities e.g. in the EMMC (European Materials Modelling Council), and EU funded clusters.

The implementation of this topic is intended to start at TRL 4 and target TRL 6.

A significant participation of SMEs with R&D capacities is encouraged.

The Commission considers that proposals requesting a contribution from the EU between EUR 6 and 8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

Expected impact

- Practical and affordable materials/technique solutions in terms of cost and/or complexity of operation by those who will use them;
- Increased quantified efficiency of materials/technique development for CH conservation, also beyond the specific cases selected by the proposers;
- Increased use of multi-scale modelling in the development of solutions for CH conservation;
- Improved modelling-based decision making regarding conservation interventions;
- **Clear prospect for quantified socio-economic gains from the proposed solutions;**
- Effective market uptake of the developed solutions within five years after the end of the project;
- Contribution to open repository of simulation and/or experimental data;
- **Contribution to increased citizens' awareness of 20th century tangible CH.**

Proposals should include a business case and exploitation strategy, as outlined in the Introduction to the LEIT part of this Work Programme.

Type of action	Research and Innovation action	
Deadline	1st stage - 27 October 2016	2nd stage - 4 May 2017 17
Call identifier	H2020-NMBP-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2396-nmbp-35-2017.html	



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

BIOTEC-04-2016

KET Biotechnology foresight identifying gaps and high-value opportunities for the EU industry

Specific challenge

Although Europe enjoys a lead position in science and technology, including biotechnology, in comparison with other world regions European technology base is often scattered and very diverse in terms of regional and national capacities. If Europe is to keep its leadership in Biotechnology, its R&D&I funding agencies, in particular the European Commission, need to stay abreast of progress in the areas they fund to ensure utmost relevance of their activities. In the Biotechnology areas stakeholder roadmaps and scientific publications are often outpaced by rapid progress made in research. The cross-cutting nature of biotechnology also requires targeting the limited funds available in the most efficient way. **It is thus essential to forecast the future of R&D&I needs closely, in order to identify major opportunities that are not only readily feasible but also of high value, while achieving a positive public perception of biotechnologies and the potential they hold.**

Scope

Proposals should use a multidisciplinary approach, including modelling and simulation, to provide comprehensive and dependable information about the future industrial biotechnology scenario (including pharmaceuticals) in the EU in the short and medium-term. **Proposals should consider the potential of industrial biotechnology innovation** for enabling the European industry to deliver high-value products **satisfying evolving consumer needs**, the creation of new commercial opportunities and the possible risks for people's health and the environment. European capacities in terms of human resources, infrastructures, research and development and public and private stakeholders should be taken into account. Proposals should also identify links with policy development, and the preparation of the future programmes beyond Horizon 2020. It should be demonstrated that the proposed activities are complementary to related activities under the Societal Challenges 'Health, demographic change and well-being', 'Food security, sustainable agriculture and forestry, marine, maritime and inland water research'; 'Secure, clean and efficient energy'; and the Bio-Based Industries JTI.

Insofar as possible, proposals will address Social Sciences and Humanities (SSH) elements, for example changing consumers' needs and the public perception of biotechnologies for industrial uses.

The Commission considers that proposals requesting a contribution from the EU between EUR 350000 and 500000 and with a duration of one year would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

No more than one action will be funded.

Expected impact

- A reliable priority-setting scenario for funding industrial biotechnology in the EU in the short to medium-term which is relevant to EU based value chains.
- An instrument to enhance collaboration between all Member States, building on the strengths of each of the countries and allowing weaknesses to be overcome.
- A general vision of European industrial biotechnology capacity and needs that will serve to target and strengthen Europe-wide R&D&I cooperation in particular boosting the participation of smaller countries.

Type of action	Coordination and support action
Deadline	21 January 2016
Call identifier	H2020-NMBP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2377-biotec-04-2016.html



Call - Nanotechnologies, Advanced Materials, Biotechnology and Production

Topics with minor SSH relevance

BIOTEC-06-2017

Optimisation of biocatalysis and downstream processing for the sustainable production of high value-added platform chemicals

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2386-biotec-06-2017.html>

BIOTEC-07-2017

New Plant Breeding Techniques (NPBT) in molecular farming: Multipurpose crops for industrial bioproducts

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2387-biotec-07-2017.html>

NMBP-30-2016

Facilitating knowledge management, networking and coordination in the field of formulated products

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2376-nmbp-30-2016.html>

NMBP-31-2016

Presidency events

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2374-nmbp-31-2016.html>

NMBP-31-2017

Presidency events

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2385-nmbp-31-2017.html>

NMBP-32-2016

Support for National Contact Points

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2381-nmbp-32-2016.html>





Leadership in Enabling and Industrial Technologies

Space

EO-1-2017

Downstream applications

Specific challenge

Copernicus, the Union's Earth observation and monitoring programme entered into force in 2014 and produces a wealth of data and information regarding the Earth sub-systems (land, atmosphere, oceans) and cross-cutting processes (climate change, emergency and security). Copernicus data and information are mainly made available on a free open and full basis. This is expected to unleash unique market opportunities. It is important to foster market development exploiting the added value of integration of EO observation technologies (both satellite, airborne and ground based) with positioning ones and ICT (enhancing new frontiers opened by web) across different market segments through the development of applications, and encourage their insertion into the market.

For such applications and developments to succeed in the market, **the product needs to be shaped according to users' needs and their value to users must be openly demonstrated to the wider user community.** This needs to be achieved in an environment integrated at the level of the user, in order for users to accept the innovative potential which the product promises. **This will require also specific attention to be given to the various processes in place in the users' workflows which incorporate the EO information.** Furthermore, the transition of R&D product prototypes to viable commercial product lines after the end of the EU funded phase remains a challenge to be addressed early on during product development.

Scope

Proposals may address a wide variety of applications stemming from the use of Earth observation and its smart integration with other related technologies. Copernicus should be considered as part of the solution which may include other space or non-space inputs. This is likely to lead to greater value, opportunities and especially market uptake. To this aim, **a business model, which includes the phase of the project following the end of the public funding, should be part of the proposal.**

The outcome of this innovation project should be a commercial service platform, sustained by a production process capable to deliver to the user a product which is validated and accepted as a marketable product. Transnational collaboration has a key role to play in this context, as it enhances access to markets beyond the national borders, notably by enabling space application providers to absorb market-related tacit knowledge and know-how of their partners. Corresponding validations and customisations are to be undertaken, and **the business case for the application is to be demonstrated.** Service level models are to be developed, with appropriate quality of service definitions for the application. Application products are expected to adopt open standards for data documentation, data models and services including data processing, visualisation and cataloguing.

The choice of EO application is left to the proposer.

Applicants are advised to consult further information on availability of Copernicus Sentinel Data, access to Copernicus Contributing Mission data, as well as issues recommended to be detailed in the proposals at the Commission's website²⁶. In projects to be funded under this topic participation of industry, in particular SMEs, is encouraged.

The Commission considers that proposals requesting a contribution from the EU of 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.

Expected impact

- **Establish sustainable supply chains for innovative EO value added products and services with demonstrated commercial value with targeted client communities.** Complete integration, based on international standards, into the customer's existing business processes and processing chains, as well as **the economic viability of the application is to be demonstrated;**
- Enhance the European industry's potential to take advantage of market opportunities and establish leadership in the field, and to boost business activity;
- Lead to new or improved products, processes or services on the market, which are capable of generating within 3 years after the end of public funding a significant turnover for the participants, and create new jobs.



Call – Earth Observation

Type of action	Innovation action
Deadline	1 March 2017
Call identifier	H2020-EO-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2231-eo-1-2017.html

Topics with minor SSH relevance

COMPET-1-2016

Technologies for European non-dependence and competitiveness

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2239-compet-1-2016.html>





Excellence Science

Future and Emerging Technologies

Future and Emerging Technologies (FET)

FET funds interdisciplinary collaborations that seek genuine cross-fertilisation and deep synergies between the broadest range of advanced sciences (including the life sciences, social sciences and humanities) and cutting-edge engineering disciplines.

FET has three main lines of activity:

- **FET Open** supports the early-stages of the science and technology research and innovation around new ideas towards radically new future technologies. It also funds coordination and support activities for such high-risk forward looking research to prosper in Europe.
- **FET Proactive** addresses promising directions for research on future technologies in order to build up a European critical mass of knowledge and excellence around them.
- **FET Flagships** are science-driven, large-scale, multidisciplinary research initiatives oriented towards a unifying goal, aiming at transformational impacts with substantial benefits for European competitiveness and for society.



Call – FET-Open

Novel ideas for radically new technologies

FETOPEN-01-2016-2017

FET-Open research and innovation actions

Specific challenge

The successful exploration of new foundations for radically new future technologies requires supporting a large set of early stage, high risk visionary science and technology projects to investigate new ideas. Here agile, **risk-friendly and highly interdisciplinary research approaches are needed with collaborations that are open to all sciences and disciplines and that dissolve the traditional boundaries between them.** The renewal of ideas is complemented by the renewal of actors taking these new ideas forward. Therefore, this topic encourages the driving role of new high-potential actors in research and innovation, such as excellent young, both female and male, researchers and high-tech SMEs that may become the scientific and industrial leaders of the future.

Scope

This topic supports the early stages of research to establish a new technological possibility. Proposals are sought for collaborative research with all of the following characteristics ('FET gatekeepers'):

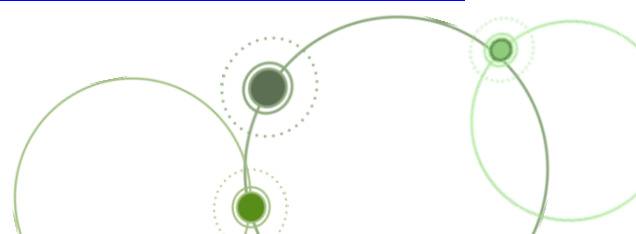
- **Long-term vision:** the research proposed must address a new and radical long-term vision of a science- and technology-enabled future that is far beyond the state of the art and not currently foreseen by technology roadmaps.
- **Breakthrough scientific and technological target:** research must target a scientifically ambitious and technologically concrete breakthrough, argued to be a crucial step towards achieving the long-term vision. The plausibility of the proposed breakthrough(s) to be attained within the life-time of the project must be argued in the proposal.
- **Novelty:** the research proposed for achieving the breakthrough must be based on cutting-edge knowledge, new ideas and concepts, rather than in the mere application or incremental refinement of existing ones.
- **Foundational:** the breakthroughs that are envisaged must be foundational in the sense that, if achieved, they would establish an essential basis for a new kind of technology and its future uses, not currently anticipated.
- **High-risk:** the inherently high risk of the research proposed will be reflected in a flexible but effective methodology for exploring alternative directions and options, supported by open and agile research and innovation practices.
- **Interdisciplinary: the proposed collaborations are expected to go beyond 'waterfall' configurations in multi-disciplinary science- and technology research.** Instead they should seek new solutions through genuine exchanges, mutual learning, cross-fertilisation and **synergistic advances among distant disciplines** in order to open unexplored areas of investigation and new directions for joint research.

The Commission considers that proposals requesting a contribution from the EU of up to EUR 4 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

- Initiating or consolidating a baseline of feasibility or a radically new line of technology and its future uses by establishing the essential proofs-of-principle and their foundational scientific underpinnings.
- Strengthening European leadership in the early exploration of visionary, new and emerging technologies, beyond academic excellence and with global recognition. This impact can be reinforced by involving also new high-potential actors such as young, both female and male, researchers and high-tech SMEs that may become the European scientific and technological leaders and innovators of the future.
- Impact is also sought in terms of the take up of new research and innovation practices for making leading-edge science and technology research more open, collaborative, **creative and closer to society.**

Type of action	Research and innovation actions		
Deadline	11 May 2016	17 January 2017	27 September 2017
Call identifier	H2020-FETOPEN-2016-2017		
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2229-fetopen-01-2016-2017.html		



Call – FET-Open

Novel ideas for radically new technologies

FETOPEN-02-2016

FET-Open Coordination and Support Actions

Specific challenge

The challenge is to make Europe the best place in the world for collaborative research and innovation on future and emerging technologies that will secure and renew the basis for future **European competitiveness and growth, and that will make a difference for society in the decades to come.**

Scope

Proposals should address only one of the following subtopics:

a. **FET Communication** [2016]: raising the visibility and impact of FET through novel and creative approaches for reaching out to various stakeholders and well beyond the research communities. This may include, for example, collecting, aggregating and disseminating information from the entire range of FET projects and activities, and using an appropriate mix of channels and formats to engage with the target audiences, including scientists, students, media, policy makers, the business community and the general public. **This subtopic should include public engagement processes as discussed in the introduction of this FET Work Programme.**

b. **FET Exchange** [2016]: actions for structuring and strengthening an emerging FET-relevant science and technology research and innovation topic and the **interdisciplinary communities involved in this topic. This may include, for example, research roadmapping, stimulating (formal and informal) learning and exchange, expanding the range of disciplines (including the life sciences and humanities where relevant),** involving new actors such as young researchers, entrepreneurs and high-tech SMEs, and broadening stakeholder engagement (multi-actor or citizen). One specific theme that may be addressed is the area of alternative metrics (so-called "altmetrics") to assess research outputs and researchers.

c. **FET Conference** [2016]: supporting the organisation of the fourth European Future and Emerging Technologies Conference and Exhibition (see for example <http://www.fet11.eu/>). The conference shall showcase progress and results from FET research, attract high-tech SMEs, investors and entrepreneurs that might take FET results forward, **seed new ideas across disciplines, foster a dialogue between science, policy and society on future and emerging technologies (through public engagement), explore new ways of combining research and innovation and involve high-potential actors that will make the difference.** Proposals will address pre-conference communication activities, the local organisation, participant assistance and post-conference follow-up. The event shall take place in early 2018.

d. **FET Innovation Greenhouse** [2016]: actions for establishing a Europe-wide capacity for innovation, exploitation and **entrepreneurship stemming from the visionary, high-risk interdisciplinary science and technology research supported by FET.** Greenhouse provides innovation support services to help bridging the gap between FET research and its application in industry and for society. The focus should be on enabling the earlier creative and learning stages of innovation from FET research, for which the classical path of business plans and investors is still premature, many options are still open and a more exploratory, risk-friendly and tailored support is needed. A wide technological scope, a strong specificity to FET and complementarity with existing greenhouse initiatives and innovation services are of prime importance. This subtopic also welcomes support to the actions funded under the FET Innovation Launchpad (FETOPEN-04-2016-2017) and for networking and exchange among them.

For each of the scope items a) and c) at most one action will be funded.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.3 and 0.5 million for scope items a), b) and d), and up to EUR 1 million for the scope item c), would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

- Strengthening globally recognised European leadership in the early exploration of visionary, new and emerging technologies, beyond academic excellence and with a **strong engagement of scientists, citizens, innovators and policy makers.**
- Improved long-term innovation potential in Europe both from the abundance of novel ideas and the range of actors ready to take them forward.
- Improved understanding of the range of possible impact mechanisms for long-term science and technology research.
- Improved readiness across Europe to engage in silo-breaking research collaboration and to take up new research and innovation practices.



Call – FET-Open

Novel ideas for radically new technologies

Type of action	Coordination and support action
Deadline	11 May 2016
Call identifier	H2020-FETOPEN-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2228-fetopen-02-2016.html



Call – FET-Open

Novel ideas for radically new technologies

FETOPEN-03-2017

FET-Open Coordination and Support Actions

Specific challenge

The challenge is to make Europe the best place in the world for collaborative research and innovation on future and emerging technologies that will renew the basis for future **European competitiveness and growth, and that will make a difference for society in the decades to come.**

Scope

Proposals should address one of the following topics:

a. FET Futures [2017]: identifying strategy options, challenges and opportunities to **stimulate and organise interdisciplinary research and innovation towards new and visionary technologies of any kind.** Actions should rely on evidence from FET activities (e.g., portfolio, constituency, results) and from other sources (including other funding bodies or private initiatives worldwide, like those using prize schemes or challenges). **They should aim at open and dynamic stakeholder participation using creative methods and on-line tools/social networks. This topic should include public engagement processes as discussed in the introduction of this FET Work Programme.**

b. FET Exchange [2017]: actions for structuring and strengthening an emerging FET-relevant science and technology research and innovation topic **and the interdisciplinary communities involved in this topic. This may include, for example, research roadmapping, stimulating (formal and informal) learning and exchange, expanding the range of disciplines (including the life sciences and humanities where relevant),** involving new actors such as young researchers, entrepreneurs and high-tech SMEs, and broadening stakeholder engagement (multi-actor or citizen).

For scope item a) at most one action will be funded.

The Commission considers that proposals requesting a contribution from the EU of between EUR 0.3 and 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

- Strengthening globally recognised European leadership in the early exploration of visionary, new and emerging technologies, beyond academic excellence and with a **strong engagement of scientists, citizens, innovators and policy makers.**
- Improved long-term innovation potential in Europe both from the abundance of novel ideas and the range of actors ready to take them forward.
- Improved understanding of the range of possible impact mechanisms for long-term science and technology research.
- Improved readiness across Europe to engage in silo-breaking research collaboration and to take up new research and innovation practices.

Type of action	Coordination and support action
Deadline	17 Jan 2017
Call identifier	H2020-FETOPEN-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2227-fetopen-03-2017.html



Call – FET-Open

Novel ideas for radically new technologies

FETOPEN-04-2016-2017

FET Innovation Launchpad

Specific challenge

FET projects often generate **new and sometimes unexpected opportunities for commercial or societal application**. This topic aims at funding further innovation related work (i.e. activities which were not scheduled to be funded by the original project) to verify and substantiate the innovation potential of ideas arising from FET funded projects and to support the next steps in **turning them into a genuine social or economic innovation**.

Scope

Short and focused individual or collaborative actions to take out of the lab a promising result or proof-of-concept that originated from a FET-funded project and to get it on **the way to social or economic innovation through new entrepreneurship or otherwise**. **The action will support the transformation of that specific research result into a credible offering for economic or social impact, by exploring the feasibility of an exploitation path and by coordinating and supporting the assembling of the right knowledge, skills and resources and thus serves as a launch pad for exploitation.**

This call topic is focused on the early innovation stages from results of an ongoing or recently finished project funded through FET under FP7 or H2020. The complementarity and precise link with the relevant FET project is to be explicitly addressed in the proposal by clearly stating the nature and origin of the results to be taken up, and by adding a confirmation of any necessary agreements with owners or right holders of those results to move towards their exploitation. This call topic does not fund additional research, nor does it fund activities that are/were already foreseen in the relevant FET project. Activities to be funded should be fit-for-purpose (e.g., tailored to the level of maturity of the result to be taken up) and can include, among others, **the definition of a commercialisation process to be followed, market and competitiveness analysis, technology assessment, consolidation of intellectual property rights and strategy, scenario and business case development, developing contacts and support relevant activities with for instance, industrial transfer partners, potential licence-takers, investors, societal organisations or potential end users**.

By focusing on the very early stage of the innovation path, the scope of this call includes situations where an SME or other suitable entrepreneurial context may not yet exist.

The Commission considers that proposals for actions no longer than 18 months and requesting a contribution from the EU of up to EUR 0.1 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals of different duration.

Expected impact

- Increased innovation potential from FET projects by picking up expected as well as **non-anticipated innovation opportunities**.
- Creation of concrete and closer-to-market high-potential innovations from FET projects.
- Stimulating, supporting and rewarding an open and proactive mind-set towards exploitation beyond the European research world.
- Seeding future growth and the creation of jobs from FET research.

Type of action	Coordination and support action	
Deadline	29 September 2016	27 September 2017
Call identifier	H2020-FETOPEN-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/230-fetopen-04-2016-2017.html	



Call – FET Proactive

Boosting Emerging Technologies

FETPROACT-01-2016

FET Proactive: emerging themes and communities

Specific challenge

To mature a number of novel areas and themes by working towards structuring emerging communities and supporting the design and development of transformative research themes. The main benefits of this structuring yet explorative approach are emerging novel areas that are not yet ready for inclusion in industry research roadmaps, and **building up and structuring of new interdisciplinary research communities** around them. It makes the step from collaborations between a small number of researchers, to larger collaborations addressing various aspects of a novel research theme to jointly explore possibilities for, and long-term implications of future technologies that matter.

Scope

Proposals should address research and innovation activities, aimed at jointly exploring directions and options to establish a solid baseline of knowledge and skills, and to foster the emergence of a broader innovation ecosystem for a new technology as well as a fertile ground for its future take-up (e.g., through public engagement processes when relevant, or through formal and informal education). Proposals should address a single of the specific subtopics within one of the following areas:

Area 1: Future technologies for societal change

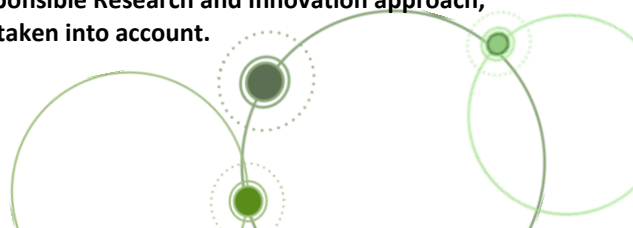
a. **Being human in a technological world: critical interdisciplinary explorations of potentially game-changing impacts of future technologies on humanity, in plausible as well as in extreme scenarios. This can include individual, gender, organisational, economic, cultural and societal impacts, for instance from changes to self- or social perception, to our narratives, or to human development (e.g., cognitive, physical) or evolution. Visions being addressed should be radically forward looking and relatively unexplored, such as hyperconnectivity, human augmentation, hybridisation of nature, life extension, extra-sensorial perception or real/virtual blending. The work should provide fresh perspectives that challenge current thinking, include ethical and social aspects, reflecting on the purposes, impacts and motivations for the research and innovation activity, the associated uncertainties, areas of ignorance, assumptions, questions and dilemmas; and by this crystalize through active stakeholder engagement concrete options for shaping a worthwhile and responsible future.**

b. **New science for a globalised world: tools and methods (mathematical, technological, social/organisational,...) for the collaborative study, projection and engineering of large scale open socio-technological and –ecological systems characterised by complexity and inherent uncertainty due to, among others, partial knowledge, ignorance and conflicting world-views by different actors. These tools and methods should include the study of informal opinion groups emerging on the Internet at a global level, and focusing on global topics such as Global Systems Science as a new integrative science approach, the emergence of global solutions as patchworks of local ones, non-rationality, the impact of open-data, the dynamics of social and cultural divides, of peace and conflict, and various incentives, drivers and enablers of change and innovation, including the arts.**

Area 2: Biotech for better life

a. **Intra- and inter-cell bio-technologies: new technologies to enable the study and engineering of processes within and between biological cells, and their exploitation for purposes such as sensing, signalling, imaging, regulating, curing or for mimicking or re-engineering the intra- and inter-cell physics and dynamics. This can include the use of natural cells, optimised, therapeutic and compound, synthetic ones or combinations of these, as well as cell-free techniques. Where needed, multiscale mathematical modelling and computational simulation can be included. Proposals under this subtopic should also explore the paradigm-changing potential of these technologies, for instance in the bio-medical field.**

b. **Bio-electronic medicines and therapies: using adaptive nerve or brain stimulation for precise regulatory control of organs or other biological processes inside the human body, in order to restore or maintain healthy conditions. This includes technologies for bio-electronic medicines, drug-free therapies, adaptive drug release, closed-loop BNCI, more invasive stimulation, or development of neurotransmitter sensor/actuator systems, all within a setting of personalised and adaptive medicine and the tight integration of diagnostic and therapeutic capabilities (theranostics). A Responsible Research and Innovation approach, including aspects of ethics, as well as social science and humanities should be taken into account.**



Call – FET Proactive

Boosting Emerging Technologies

c. **Cognitive neuro-technologies: integrated interdisciplinary approaches combining theory and novel technology-based experiments for understanding the circuits and pathways of higher-level cognitive functions (such as navigation, goal-oriented behaviour, motivation and reward, memory, knowledge and belief formation, reasoning and decision making, emotion, interaction, communication), the related principles of neural coding and operation within and between brain regions and the role of the physical and social/cultural environment in bringing them about.** Proposals should focus on non-validated, leading-edge methodologies and technologies specifically relevant to cognitive neuroscience. Target applications could include, for example, adaptive human interfaces, specific brain interfaces and neuro-prosthetics to restore or support cognitive functions or to address unmet therapeutic needs.

Area 3: Disruptive information technologies

a. **New computing paradigms and their technologies: new foundations for computing, including bio-, nature- and socio-inspired ones that can encompass also aspects of communication, interaction, mimicry or differentiation (adaptation, learning, evolution), as well as non-technological aspects like organisational or physical/virtual architectural ones, and tailored to future and emerging challenges and requirements in highly interdisciplinary settings and for new kinds of mathematical and computational approaches in science.**

b. Quantum engineering: reproducible, economical and scaleable approaches, architectures and techniques for designing and realising devices and systems that exploit quantum phenomena, such as superposition and entanglement, for achieving new or radically improved functionalities (for instance in sensing, precision measurement, transduction, secure communication, control, simulation and computation) and demonstrated in the context and boundary conditions of a specific application area (for example in the biological, medical, materials, process, energy or standards domain).

c. Hybrid opto-electro-mechanical devices at the nano-scale: new working principles and their first-time validation in nano-, molecular- or atomic-scale devices based on the interaction and mutual control of multiple physical degrees of freedom to achieve new or radically improved functionalities and application scenarios under plausible operating conditions. The interacting degrees of freedom are those involved in e.g. nano-optics, nano-scale electromagnetism, nano-mechanics and phonons and fluctuations.

Area 4: New technologies for energy and functional materials

a. Ecosystem engineering: new models, materials, processes, devices and systems going beyond a single dimension for extreme energy and resource efficiency and recovery, and footprint management into circular ecosystems (energy, raw materials, waste, water,...). New approaches and technologies for extremely efficient energy generation (e.g., artificial photosynthesis or microfluidic conversion), transfer, conversion, high-density storage and consumption. The targeted improvements with respect to the state of the art are to be stated in quantitative terms. Genuine cross-fertilisation and deep synergies between the broadest range of advanced sciences and cutting-edge engineering disciplines for emerging ecological technologies seeking holistic paradigms, striving to reduce or eliminate the environmental impact, and the replacement of toxic/pollutant substances by ecofriendly materials should be considered. First time validation and assessment of these results in the context of integrated synergetic circular economy solutions or other quasi self-sufficient environments.

b. Complex bottom-up construction: new technologies and methods for self-organisation, assembly and adaptation of materials and physical devices/systems with complex functionality (including for instance energy storage, conversion or recovery), complex composition and/or spanning a range of scales (nano, meso) and with superior properties on each of them. Energy and resource/material availability, ecofriendliness and efficiency are to be taken into account). Where needed, multiscale mathematical modelling and computational simulation of materials and related production or self-organisation processes can be included.

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 and 10 million would allow this specific challenge to be addressed appropriately. When appropriate, this allows for proposals to provide financial support to third parties in line with the conditions set out in Part K of the General Annexes, for example to access specific expertise, to enhance impacts or to award an inducement prize following a contest organised by the beneficiaries. The Commission further considers that proposals with a duration up to 5 years would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals of different duration. The funding budget per area is with a maximum of EUR 20 million for each of the areas 1 and 4, and a maximum of EUR 30 million for each of the areas 2 and 3.



Call – FET Proactive

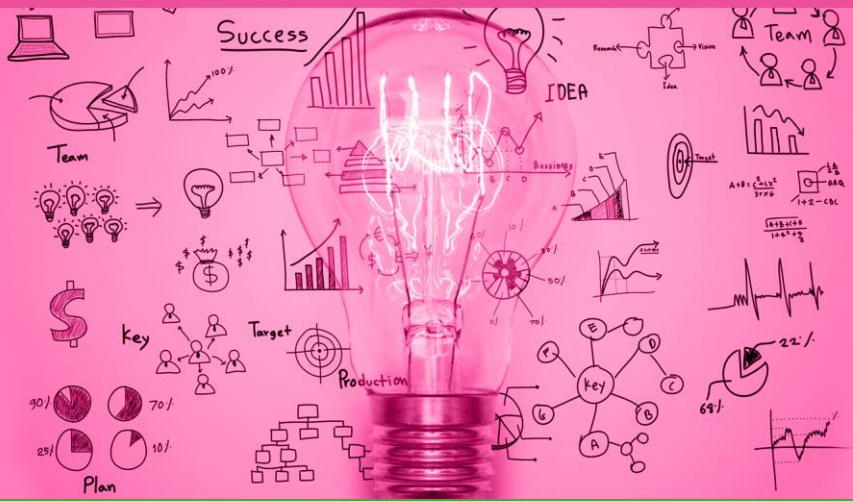
Boosting Emerging Technologies

Expected impact

- Establish a solid baseline of knowledge and skills for a future technology in the theme addressed.
- Goal oriented community structuring and true **interdisciplinary collaboration**.
- Emergence of an innovation ecosystem around a future technology in the theme addressed from outreach to and partnership with high potential actors in research and innovation, and **from wider stakeholder/public engagement**.

Type of action	Research and innovation actions
Deadline	12 April 2016
Call identifier	H2020-FETPROACT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2217-fetproact-01-2016.html





Excellence Science

Research Infrastructures

Call – Support to policy and international cooperation

INFRASUPP-02-2017

Policy and international cooperation measures for research infrastructures

Specific challenge

In the context of the communication for a reinforced ERA partnership for excellence and growth, the focus of the policy support measures is related to the effective investment and use of research infrastructures. Following the communication of the Commission on International Cooperation in Research and Innovation (COM(2012)497), international cooperation for research infrastructures is needed with a number of key third countries/regions seen as strategic for the development, exploitation and management of world-class research infrastructures necessary to address research challenges with a global dimension.

Scope

Proposals will address one of the following areas:

- 1. Develop a model describing the socio-economic leverage of Research Infrastructures in terms of impact of the financial investment for the different types of Infrastructures.** The model should be applicable in a broad range of scientific domains. Major key international players should be involved. The model should support national budget planning exercises for research.
2. Support the cooperation between the EU and international strategic partners for the development of global research infrastructures and, or an enhancement of the current interaction among Research Infrastructures in the global arena. The proposals should build on the requirements deriving from existing policy dialogues such as the Group of Senior Officials (GSO), involve the appropriate high-level policy makers and improve the global outreach of European Research Infrastructures.
3. European support to the Research Data Alliance, RDA: Proposals are expected to support the development of global interoperable research data infrastructures that will greatly benefit the coordination at European level addressing all the points below. The objective is (a) support to the RDA secretariat for logistics, open access to RDA reference documents and dissemination activities (b) support the emergence of building blocks of an open, interoperable data infrastructure fostering interoperability across regions, organisations and scientific disciplines (c) support ESFRI infrastructures and new communities to engage in Open Science and data sharing principles. In particular, the proposal activities should provide financial support of the organisation and coordination of European stakeholders' active participation and contribution to the Research Data Alliance

At least a proposal per area will be selected. The Commission considers that proposals requesting a contribution from the EU of up to EUR 1.5 million for the first two areas and between EUR 3 and 3.5 million for the third area (RDA) would allow this topic to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

Expected impact

This activity will help to:

- Develop cooperation with key international partners for research infrastructures;
- Contribute to the development of a competitive high performance ERA in the global research environment;
- Enhance the role of the Union in international organisations and multilateral fora;
- Support progress towards the development of global research infrastructures;
- **Enhance partnerships between policy makers, funding bodies, academia and industry and promote the development of appropriate monitoring tools for decision making.**

For the third area (European support to RDA) the expected impact of the action is the following: Europe will be in a leading position in enabling the use of the world's store of research data in multi-disciplinary, data intensive global scientific collaborations. It will help the development and adoption of relevant international open standards based on the best practices of a large spectrum of research communities. It will engage research communities at early stages of standards development and **address common data requirements for new services bringing together users and technology providers.** It will **promote sustainable models for research data sharing and install trust in the adopted solutions.**



Call – Support to policy and international cooperation

Type of action	Coordination and support action
Deadline	29 March 2017
Call identifier	H2020-INFASUPP-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2078-infrasupp-02-2017.html

INFASUPP-01-2016

Policy and international cooperation measures for research infrastructures

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2076-infrasupp-01-2016.html>

INFASUPP-03-2016

Support to policies and international cooperation for einfrastructures

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2077-infrasupp-03-2016.html>





Excellence Science

European Research Council

Net **4** Society

ERC – Starting Grant

European Research Council (ERC)

European Research Council (ERC) funding schemes are open to top researchers of any nationality or age who wish to carry out their frontier research in the 28 EU Member States or associated countries. There are three core funding schemes and one additional scheme for ERC grant holders.

ERC Starting Grant

Objectives

ERC Starting Grants are designed to support excellent Principal Investigators at the career stage at which they are starting their own independent research team or programme. Applicant Principal Investigators must demonstrate the ground-breaking nature, ambition and feasibility of their scientific proposal.

Size of ERC Starting Grants

Starting Grants may be awarded up to a maximum of EUR 1 500 000 for a period of 5 years. However, up to an additional EUR 500 000 can be requested in the proposal to cover (a) eligible "start-up" costs for Principal Investigators moving to the EU or an Associated Country from elsewhere as a consequence of receiving the ERC grant and/or (b) the purchase of major equipment and/or (c) access to large facilities.

Profile of the ERC Starting Grant Principal Investigator

The Principal Investigator shall have been awarded their first PhD at least 2 and up to 7 years prior to 1 January 2016. The effective elapsed time since the award of the first PhD can be reduced in certain properly documented circumstances.

A competitive Starting Grant Principal Investigator must have already shown the potential for research independence and evidence of maturity, for example by having produced at least one important publication without the participation of their PhD supervisor. Applicant Principal Investigators should also be able to demonstrate a promising track record of early achievements appropriate to their research field and career stage, including significant publications (as main author) in major international peer-reviewed multidisciplinary scientific journals, or in the leading international peer-reviewed journals of their respective field. They may also demonstrate a record of invited presentations in well-established international conferences, granted patents, awards, prizes etc.

Type of action	ERC-STG Starting Grant
Deadline	17 November 2015
Call identifier	ERC-2016-STG
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/1135-erc-2016-stg.html



ERC – Consolidator Grant

ERC Consolidator Grant

Objectives

ERC Consolidator Grants are designed to support excellent Principal Investigators at the career stage at which they may still be consolidating their own independent research team or programme. Applicant Principal Investigators must demonstrate the ground-breaking nature, ambition and feasibility of their scientific proposal.

Size of ERC Starting Grants

Consolidator Grants may be awarded up to a maximum of EUR 2 000 000 for a period **of 5 years**. However, up to an additional EUR 750 000 can be requested in the proposal to cover (a) eligible "start-up" costs for Principal Investigators moving to the EU or an Associated Country from elsewhere as a consequence of receiving the ERC grant and/or (b) the purchase of major equipment and/or (c) access to large facilities.

Profile of the ERC Starting Grant Principal Investigator

The Principal Investigator shall have been awarded their first PhD **over 7 and up to 12 years prior to 1 January 2016**. The effective elapsed time since the award of the first PhD can be reduced in certain properly documented circumstances.

A competitive Consolidator Grant Principal Investigator must have already shown research independence and evidence of maturity, for example by having produced **several important publications without the participation of their PhD supervisor**. Applicant Principal Investigators should also be able to demonstrate a promising track record of early achievements appropriate to their research field and career stage, including significant publications (as main author) in major international peer-reviewed multidisciplinary scientific journals, or in the leading international peer-reviewed journals of their respective field. They may also demonstrate a record of invited presentations in well-established international conferences, granted patents, awards, prizes etc.

Type of action	ERC-COG Consolidator Grant
Deadline	2 February 2016
Call identifier	ERC-2016-COG
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/1120-erc-2016-cog.html



ERC – Advanced Grant

ERC Advanced Grant

Objectives

Advanced Grants are designed to support excellent Principal Investigators at the career stage at which they are already established research leaders with a recognised track record of research achievements. Applicant Principal Investigators must demonstrate the ground-breaking nature, ambition and feasibility of their scientific proposal.

Size of ERC Starting Grants

Advanced Grants may be awarded up to a maximum of EUR 2 500 000 for a period of 5 years. However, up to an additional EUR 1 000 000 can be requested in the proposal to cover (a) eligible "start-up" costs for Principal Investigators moving to the EU or an Associated Country from elsewhere as a consequence of receiving the ERC grant, and/or (b) the purchase of major equipment and/or (c) access to large facilities.

Profile of the ERC Starting Grant Principal Investigator

ERC Advanced Grant Principal Investigators are expected to be active researchers and to have a track record of significant research achievements in the last 10 years which must be presented in the application. There is little prospect of an application succeeding in the absence of such a record, which identifies investigators as exceptional leaders in terms of originality and significance of their research contributions.

Thus, in most fields, Principal Investigators of Advanced Grant proposals will be expected to demonstrate a record of achievements appropriate to the field and at least matching one or more of the following benchmarks:

- 10 publications as senior author (or in those fields where alphabetic order of authorship is the norm, joint author) in major international peer-reviewed multidisciplinary scientific journals, and/or in the leading international peer-reviewed journals and peer-reviewed conferences proceedings of their respective field;
- 3 major research monographs, of which at least one is translated
- into another language. This benchmark is relevant to research fields where publication of monographs is the norm (e.g. humanities and social sciences).

Other alternative benchmarks that may be considered (individually or in combination) as indicative of an exceptional record and recognition in the last 10 years:

- 5 granted patents;
- 10 invited presentations in well-established internationally organised conferences and advanced schools;
- 3 research expeditions led by the applicant Principal Investigator;
- 3 well-established international conferences or congresses where the applicant was involved in their organisation as a member of the
- steering and/or organising committee;
- International recognition through scientific or artistic prizes/awards or membership in well-regarded Academies or artefact with documented use (for example, architectural or engineering design, methods or tools);
- Major contributions to launching the careers of outstanding researchers;
- Recognised leadership in industrial innovation.



ERC – Advanced Grant

Type of action	ERC-ADG Advanced Grant
Deadline	1 September 2016
Call identifier	ERC-2016-ADG
Topic information	The call opens on 24 May 2016



ERC – Proof of Concept

ERC Proof of Concept Grants

Objectives

Frontier research often generates unexpected or new opportunities for commercial or societal application. The ERC Proof of Concept Grants aim to maximise the value of the excellent research that the ERC funds, by funding further work (i.e. activities which were not scheduled to be funded by the original ERC frontier research grant) to verify the innovation potential of ideas arising from ERC funded projects. Proof of Concept Grants are therefore on offer only to Principal Investigators whose proposals draw substantially on their ERC funded research.

Eligible Principal Investigator

All Principal Investigators in an ERC frontier research project, that is either on going or has ended less than 12 months before the opening date of this call, are eligible to participate and apply for an ERC Proof of Concept Grant.

A Principal Investigator whose proposal was rejected on the grounds of a breach of research integrity in the calls for proposals under Work Programmes 2014 or 2015 may not submit a proposal to the calls for proposals made under Work Programme 2016.

Maximum size of grant and grant assessment

The financial contribution will be up to a maximum of EUR 150 000 for a period of 18 months. The ERC expects that normally, proof of concept projects should be completed within 12 months. However, to allow for those projects that require more preparation time, projects will be signed for 18 months. Given this initial flexibility, extensions of the duration of proof of concept projects may be granted only exceptionally.

The overall level of the funding offered will be assessed during the evaluation. The funding requested by the applicant will be judged against the needs of the proposed activity before award. The funding requested by the Principal Investigator must be fully justified by an estimation of the actual costs for the proposed activities.

The Union financial contribution will take the form of the reimbursement of up to 100% of the total eligible and approved direct costs and of flat-rate financing of indirect costs on the basis of 25% of the total eligible direct costs [[Excluding the direct costs for subcontracting and the costs of resources made available by third parties which are not used on the premises of the host institution.]]. The level of the awarded grant represents a maximum overall figure – the final amount to be paid must be justified on the basis of the costs actually incurred for the project.

The indicative budget for this call for 2016 is EUR 20 000 000 (approximately one-third of which will be for each of the three evaluation rounds following three specific deadlines - proposals submitted before each cut-off date will be evaluated with the proposals submitted before the same cut-off date).

Type of action	ERC-2016-POC		
Deadline	16 February 2016	26 May 2016	4 October 2016
Call identifier	ERC-2016-PoC		
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/1116-erc-poc-2016.html		





Excellence Science

Marie Skłodowska-Curie Action

MSCA – Marie Skłodowska-Curie Action

Innovative Training Networks

Marie Skłodowska-Curie Action

The Marie Skłodowska-Curie actions (MSCA) support researchers at all stages of their careers, irrespective of nationality. MSCA are entirely bottom-up and are open to all domains of research and innovation from basic research up to market take-up and innovation services .

MSCA-ITN-2016: Innovative Training Networks

MSCA-ITN-2017: Innovative Training Networks

Objective

The Innovative Training Networks (ITN) aim to train a new generation of creative, entrepreneurial and innovative early-stage researchers, able to face current and future challenges and to convert knowledge and ideas into products and services for economic and social benefit.

ITN will raise excellence and structure research and doctoral training, extending the traditional academic research training setting, incorporating the elements of Open Science and equipping researchers with the right combination of research-related and transferable competences. It will provide enhanced career perspectives in both the academic and non academic sectors through international, interdisciplinary and inter-sectoral mobility combined with an innovation-oriented mind-set.

Scope

ITN supports competitively selected joint research training and/or doctoral programmes, implemented by partnerships of universities, research institutions, research infrastructures, businesses, SMEs, and other socio-economic actors from different countries across Europe and beyond. Partnerships take the form of collaborative European Training Networks (ETN), European Industrial Doctorates (EID) or European Joint Doctorates (EJD).

Each programme should have a clearly identified supervisory board co-ordinating network wide training and establishing active and continuous communication and exchange of best practice among the partners to maximise the benefits of the partnership. The programme should exploit complementary competences of the participating organisations, and enable sharing of knowledge, networking activities, the organisation of workshops and conferences.

Training responds to well identified needs in defined research areas, with appropriate references to inter- and multidisciplinary fields and follows the [EU Principles for Innovative Doctoral Training](#). It should be primarily focused on scientific and technological knowledge through research on individual, personalised projects. In order to increase the employability of the researchers, the research training should be complemented by the meaningful exposure of each researcher to the non-academic sector. Secondments of the researcher to other beneficiaries and partner organisations are encouraged. Substantial training modules, including digital ones, addressing key transferable skills common to all fields and fostering the culture of Open Science, innovation and entrepreneurship will be supported. In order to reflect on the changing nature of research, training should prepare early-stage researchers for an increased research collaboration and information-sharing made possible by new technologies (e.g. collaborative tools, open access, raw data, etc.).

A Career Development Plan should be established jointly by the supervisor(s) and the early stage researcher recruited by the selected network. In addition to research objectives, this plan comprises the researcher's training and career needs, including planning for publications and participation in conferences. Attention is paid to the quality of supervision and mentoring arrangements as well as career guidance. Joint supervision of the researchers is mandatory for EJD and for EID,



MSCA – Marie Skłodowska-Curie Action

Innovative Training Networks

and encouraged in ETN. In EID, the joint supervision of the researcher must be ensured by at least one supervisor from the academic sector and one supervisor from the non-academic sector. These arrangements will be taken into account during the evaluation of the proposal.

In EID and EJD, fellowships offered to early-stage researchers should lead to a doctoral degree. EJD result in joint , double or multiple doctoral degrees awarded by institutions from at least two different countries. In EID and EJD, enrolment in a doctoral programme and the creation of a joint governance structure - with joint admission (EJD only), selection, supervision, monitoring and assessment procedures - is mandatory. These arrangements will be taken into account during the evaluation of the proposal.

Expected impact

At researcher level:

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

At organisation level:

- Enhanced cooperation and better transfer of knowledge between sectors and disciplines
- Improvement in the quality of training programmes
- Creation of new networks and enhanced quality of existing ones
- Boosting R&I capacity among participating organisations
- Increased internationalisation of participating organisations

At system level:

- Increase in international, interdisciplinary and inter-sectoral mobility of researchers in Europe
- More structured and innovative doctoral training, enhanced implementation of the European Charter and Code and the EU Principles for Innovative Doctoral Training
- Stronger links between the European Research Area (ERA) and the European Higher Education Area (EHEA), notably through supporting the knowledge triangle between research, innovation and education
- Improvement in the working and employment conditions for doctoral candidates in Europe
- Increased societal and economic relevance of European higher education
- Strengthening Europe's human capital base in R&I with a new generation of more entrepreneurial and highly-skilled early career researchers
- Increase in Europe's attractiveness as a leading research destination, accompanied by a rise in the numbers of talented researchers retained and attracted from abroad
- Better quality research and innovation contributing to Europe's competitiveness and growth

Type of action	European Industrial Doctorates, European Joint Doctorates, European Training Networks	
Deadline	MSCA-ITN-2016: 12 January 2016	MSCA-ITN-2017: 10 January 2017
Call identifier	H2020-MSCA-ITN-2016	H2020-MSCA-ITN-2017
Topic information	https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2056-msca-itn-2016.html	https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2050-msca-itn-2017.html



MSCA – Marie Skłodowska-Curie Action

Individual Fellowships

MSCA-IF-2016: Individual Fellowships

MSCA-IF-2017: Individual Fellowships

Specific challenge

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

Individual Fellowships provide opportunities to acquire and transfer new knowledge and to work on research and innovation in a European context (EU Member States and Associated Countries) or outside Europe. The scheme particularly supports the return and reintegration of researchers from outside Europe who have previously worked here. It also develops or helps to restart the careers of individual researchers that show great potential, considering their experience.

Scope

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

Only one proposal per individual researcher will be evaluated.

Fellowships take form of European Fellowships or Global Fellowships. European Fellowships are held in EU Member States or Associated Countries and are open to researchers either coming to Europe from any country in the world or moving within Europe. The researcher must comply with the rules of mobility in the country where the European Fellowship is held.

Return and reintegration of researchers into a longer term research position in Europe, including in their country of origin, is supported via a separate multi-disciplinary reintegration panel of the European Fellowships. For the reintegration panel, there shall be mobility into Europe.

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

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

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

Researchers receiving an Individual Fellowship may opt to include a secondment phase in Europe, notably in the non-academic sector, within the overall duration of their fellowship. For a fellowship of 18 months or less, the secondment phase may last up to three months. For a fellowship of more than 18 months, the secondment phase may last up to six months. The secondment phase can be a single period or be divided into shorter mobility periods. The secondment should significantly add to the impact of the fellowship.

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



MSCA – Marie Skłodowska-Curie Action

Individual Fellowships

Expected impact

At researcher level:

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

At organisation level:

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

At system level:

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

Type of action	CAR – Career Restart panel, RI – Reintegration panel, Society and Enterprise panel, Standard EF, Global Fellowships	
Deadline	MSCA-IF-2016: 14 September 2016	MSCA-IF-2017: 14 September 2017
Call identifier	H2020-MSCA-IF-2016	H2020-MSCA-IF-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-0-msca-if-2016.html	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2224-msca-if-2017.html



MSCA – Marie Skłodowska-Curie Action

Research and Innovation Staff Exchange

MSCA-RISE-2016: Research and Innovation Staff Exchange

MSCA-RISE-2017: Research and Innovation Staff Exchange

Specific challenge

The RISE scheme will promote international and inter-sector collaboration through research and innovation staff exchanges, and sharing of knowledge and ideas from research to market (and vice-versa). The scheme fosters a shared culture of research and innovation that welcomes and rewards creativity and entrepreneurship and helps to turn creative ideas into innovative products, services or processes.

Scope

RISE involves organisations from the academic and non-academic sectors (in particular SMEs), based in Europe (EU Member States and Associated Countries) and outside Europe (third countries). Support is provided for the development of partnerships in the form of a joint research and innovation project. This is aimed at knowledge sharing via international as well as inter-sectoral mobility, based on secondments of research and innovation staff (exchanges) with an in-built return mechanism.

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

RISE should exploit complementary competences of the participating organisations, as well as other synergies, and enable networking activities, organisation of workshops and conferences to facilitate sharing of knowledge, new skills acquisition and career development for research and innovation staff members. RISE projects can focus either on one dimension of mobility (inter-sectoral / international), or include a combination of both.

Exchanges can be for both early-stage and experienced researchers' levels and can also include administrative, managerial and technical staff directly involved in the research and innovation activities of the proposal. Support for the exchanges between institutions within Europe (EU Member States and Associated Countries) covers only inter-sectoral secondments. Exchanges with institutions from and to third countries can be inter-sectoral as well as within the same sector. Secondments between institutions located in third countries or within the same EU Member State or Associated Country will not be supported.

Expected impact

At staff member level:

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

At organisation level:

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

At system level:

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



MSCA – Marie Skłodowska-Curie Action

Research and Innovation Staff Exchange

Type of action	RISE	
Deadline	MSCA-RISE-2016: 28 April 2016	MSCA-RISE-2017: 5 April 2017
Call identifier	H2020-MSCA-RISE-2016	H2020-MSCA-RISE-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2117-msca-rise-2016.html	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2311-msca-rise_2017.html



MSCA – Marie Skłodowska-Curie Action

Co-funding of regional, national and international programmes

MSCA-COFUND-2016: Co-funding of regional, national and international programmes

MSCA-COFUND-2017: Co-funding of regional, national and international programmes

Specific challenge

The COFUND scheme aims to stimulate regional, national or international programmes to foster excellence in researchers' training, mobility and career development, spreading the best practices of Marie Skłodowska-Curie actions. This will be achieved by co-funding new or existing regional, national, and international programmes to open up to, and provide for, international, inter-sectoral and interdisciplinary research training, as well as transnational and cross-sectoral mobility of researchers at all stages of their career.

Scope

Each proposal funded under the COFUND scheme shall have a sole beneficiary that will be responsible for the availability of the necessary matching funds to execute the proposal. Applicants submit multi-annual proposals for new or existing doctoral programmes or fellowship programmes which are expected to have an impact on enhancing research- and innovation related human resources on regional, national or international level. Researchers supported under this scheme shall comply with the mobility rules of the Marie Skłodowska-Curie actions. Limitations regarding the researchers' origin and destination should be avoided. Support cannot be awarded to researchers who are already permanently employed by the organisation hosting them. Proposed programmes are encouraged to cover all research disciplines ("bottom-up"), but can also focus on specific disciplines. In this case the range of covered disciplines should allow reasonable flexibility for the researchers. Programmes that prioritise specific research disciplines based on national or regional Research and Innovation Strategies for Smart Specialisation (RIS3 strategies) can also be supported. Synergies with the European Structural & Investment Funds (ESIF) are encouraged.

COFUND takes the form of:

A) Doctoral programmes

Doctoral programmes address the development and broadening of the research competencies of early-stage researchers. The training follows the EU Principles on Innovative Doctoral Training. Collaboration with a wider set of partner organisations, including from the non-academic sector, which may provide hosting or secondment opportunities or training in research or transferable skills, as well as innovative elements of the proposed programme, will be positively taken into account during the evaluations.

Each researcher must be enrolled in a doctoral programme. Attention is paid to the quality of supervision and mentoring arrangements as well as career guidance.

B) Fellowship programmes

Fellowship programmes fund individual research training and career development fellowships for experienced researchers. The programmes supported should have regular selection rounds following fixed deadlines or regular cut-off dates, allowing fair competition between the researchers applying. The selections should be based on open, widely advertised competition, with transparent international peer review and the selection of candidates on merit. Mobility types supported by fellowship programmes may be similar to the ones supported under Marie Skłodowska-Curie Individual Fellowships. On top of transnational mobility, applicants are encouraged to include elements of cross-sectoral mobility into their programmes. Fellowship programmes should be based on individual-driven mobility, i.e., researchers should be able to freely choose a research topic and the appropriate organisation to host them, fitting their individual needs.



MSCA – Marie Skłodowska-Curie Action

Co-funding of regional, national and international programmes

Given that the aim of the co-funded fellowship programmes is the support of individual fellows, research teams will not be funded.

Expected impact

At researcher level:

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

At organisation level:

- Development of high quality human resources
- Boosting R&I capacity among participating organisations
- Enhanced cooperation and transfer of knowledge between sectors and disciplines
- Strengthening of international and inter-sectoral collaborative networks

At system level:

- Aligning of practices and policies in the context of the EU Human Resources Strategy for Researchers, enhanced implementation of the European Charter and Code and the EU Principles for Innovative Doctoral Training at regional, national or international level
- Increase in international, interdisciplinary and inter-sectoral mobility of researchers in Europe Improvement in the working and employment conditions for researchers in Europe at all levels of their career, starting from the doctoral stage
- Strengthening of Europe's human capital base in R&I
- Increase in Europe's attractiveness as a leading destination for R&I
- Better quality R&I contributing to Europe's competitiveness and growth

Type of action	Doctoral programmes, Fellowship programmes	
Deadline	MSCA-COFUND-2016:: 29 September 2016	MSCA-COFUND-2017: 28 September 2017
Call identifier	H2020-MSCA-COFUND-2016	H2020-MSCA-COFUND-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-msca-cofund-2016.html	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/calls/h2020-msca-cofund-2017.html





Science with and for Society

Net **4** Society

SwafS-01-2016

Participatory research and innovation via Science Shops

Specific challenge

The Science Shop model of participatory research and innovation has been successful in bringing students, researchers and civil society together towards tackling real issues at the local and regional levels. Aside from positively impacting on the co-creation of solutions to real world problems, the process of engaging with society has strengthened both the research process and its outcomes, thereby contributing to research excellence and acceptability of innovation outcomes. It has also led to improved teaching and learning methods in academia, which has benefitted both students and their teachers.

Scope

This topic will provide support to universities, and other research performers, to establish or strengthen science shops throughout Europe, and beyond. Science shops will serve to demonstrate how students and researchers can assist communities tackle real life problems or explore opportunities for sustainable futures. In most cases, research questions will be derived by community partners. The Science Shops will provide an inclusive and safe space for participatory dialogue, citizen science and co-creation with a variety of actors including civil society, public authorities, SME, designers and innovators. This topic will also create opportunities for twinning, whereby well-established science shops provide guidance to universities keen on setting up new science shops. It will allow for joint visits, mutual learning, and the exchange of students and trainers, as well as summer schools. It will compile an exhaustive database of case studies demonstrating the usefulness of the approach in multiple contexts, as well as their alignment with the RRI dimensions. Furthermore it will conduct a comparative assessment of science shops and assess the impacts they have had on their communities, and on the quality of teaching and research within the organisation. This topic shall seek to establish linkages with relevant international initiatives (e.g.: UNESCO Community-based research, Civic Universities, etc.). Particular attention will be placed on gender balance and the integration of gender in research. This topic shall benefit from the inclusion of SSH experts, and will support community processes favouring sustainable solutions.

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

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The research will promote the growth and capacity building of science shops for socially responsible community-based research and citizen science. It will provide means through which students, researchers and teaching staff may transfer their knowledge and skills for the benefit of their community, while at the same time ensuring their learning, teaching and research activities benefit from real-life cases and interactions. At the same time it will connect with relevant international initiatives so as to ensure mutual learning across borders.

Type of action	Research and Innovation action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/258-swafs-01-2016.html



SwafS-03-2016-2017

Support to research organisations to implement gender equality plans

Specific challenge

Gender equality is a key priority of the European Research Area. The Communication "A Reinforced European Research Area: Partnership for Excellence and Growth" invites research performing organisations (RPOs), including Higher Education Institutions, as well as research funding organisations (RFOs) to take action to promote gender equality in R&I by implementing institutional changes relating to HR management, funding, decision-making and research programmes through Gender Equality Plans, with the following objectives :

Removing barriers to the recruitment, retention and career progression of female researchers;

- Addressing gender imbalances in decision making processes;
- Strengthening the gender dimension in research programmes.

Scope

The action provides support to RPOs and RFOs in order to implement Gender Equality Plans (GEPs) as "drivers" for systemic institutional changes. The proposed GEPs structure must address the following:

- Conduct assessment / audit of procedures and practices, including relevant data on HR management, teaching and research activities, in order to identify gender bias at organisation level;
- Implement effective strategies to address gender bias; this shall include actions such as family-friendly policies (e.g. work schedule's flexibility; parental leave; mobility, dual-career couples), gender planning and budgeting, training on gender equality in Human Resources (HR) management, the integration of gender dimension in research content and programmes and/or the inclusion of gender studies in Higher Education Institution curricula;
- Set targets and monitor progress via indicators at organisation level.

The proposals must include a first assessment of gender issues in each partner organisation. Based on this assessment, effective strategies will be designed to cover organisational features, people and processes, as well as potential impacts.

The proposals shall also explain the planned GEPs in the context of existing national provisions (national legislation, specific incentives, possible barriers, etc) relating to gender equality in research. They shall explain how they will contribute to the achievement of the European Research Area (ERA) objectives on gender equality.

The RPOs - including Higher Education Institutions- and RFOs, involved as partners in the consortium must be at a starting/initial stage in the setting-up of gender equality plans. The allocation of resources within the consortium shall focus on the implementation of GEPs in the partner organisations. If a limited number of other partners which are not implementing GEP's are part of the consortium, they shall explain their role and their specific contribution to the project in line with the text and requirements of the call.

The proposals shall ensure the support from their highest management level and provide proof of their commitment in the implementation of GEPs. The role of the middle management in the implementation of the GEPs shall be explained. Participation of RFOs and professional associations in the consortium is recommended.

The proposals shall include a methodology for impartially evaluating the progress made on gender equality plans throughout the duration of the project. The methodology for the evaluation should be thought as formative, helping the partners to adapt their GEP's as necessary. This activity could be dedicated to a specific partner organisation within the consortium with the appropriate expertise or it can be subcontracted. Specific work package and deliverable(s) should be introduced in the proposal.

Project duration of at least 48 months is recommended.

The Commission considers that proposals requesting a contribution from the EU of between EUR 1.5 million and 2.03 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.



Call - Science with and for Society

Expected impact

The proposed action will contribute to increase the number of RPOs and RFOs starting to implement gender equality plans pursuing the three objectives mentioned above under "specific challenge". In the medium to long term, activities will contribute to the achievement of ERA in particular by increasing the number of female researchers, improving their careers and mobility. The integration of the gender dimension in research programmes and content will contribute to the quality of research and the social value of innovations.

Type of action	Coordination and support action
Deadline	30 August 2016 30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2253-swafs-02-2016.html



SwafS-04-2016

Opening Research Organisations in the European Research Area

Specific challenge

This topic focuses on the institutional changes needed to cope with the new interactions between Research Funding and Performing Organisations (RFPOs) and RRI stakeholders. Existing RFPOs become more “porous”, accepting inputs from what used to be seen as outsiders (extended peer review in funding agencies is an early example). There is a move towards “co-creation” (co-construction in policy and design phases; actual co-production of research organization and performance; co-evaluation of proposals, projects and programmes). Overall, at the macro-level, so-called quadruple helix formations might be emerging, RRI dimensions being an integral part of these developments.

Within the general trend, the dissemination of RRI practices varies from one discipline to another and from one country to another. Not all researchers and research policy-makers have the same knowledge and skills to adapt to these changes. In order to address these gaps specific trainings for researchers and academics (in particular young scientist during under- and post-graduate training) but also policy-makers and staff working in funding bodies, need to be supported.

Scope

From the perspective of an open science and RRI in the ERA, the above developments are desirable, so it is important to support institutional changes through exchanges between RFPOs in order to benchmark governance settings, map what is happening, identify the drivers and the barriers, how to diagnose the interests and values at stake, and upgrade related skills.

Proposals shall consider co-creation experiences and experiments, some of them being conflictual and/or leading to controversies. They will also consider further issues, in particular of a longitudinal epistemological nature, as different competencies and epistemic authority are involved. They can as well design experiments and try them out, informed by the above reflective components (i.e. benchmarking, mapping, drivers and barriers, interests and values).

In addition, the proposals will support the improvement and consolidation of training material and reach through training the highest number of stakeholders in the European Research Area. The training actions proposed must be relevant for the specific scientific fields considered. They must be practical, engaging, and outcome-oriented. They would use as much as possible existing EC funded training initiatives (e.g. RRI-TOOLS10, FOSTER11, not excluding others). Online didactic material and training toolkits will be made available free of charge/open access for re-use linked with existing online material.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 and 3.35 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

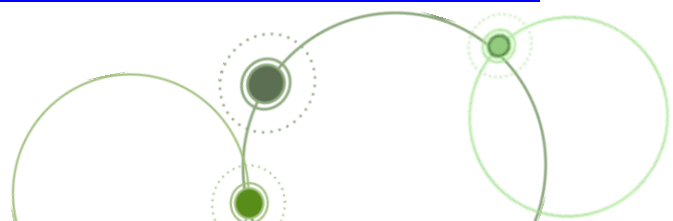
This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The funded activities:

- Will enrich and improve the quality of existing training materials on RRI and open science;
- Will increase general knowledge on RRI and open science practices by sharing experience across different disciplines;
- Will contribute to changes in RFPOs governance settings (including institutional changes and stakeholder behaviours) that are consistent with open science and RRI.

Type of action	Coordination and support action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2254-swafs-04-2016.html



SwafS-05-2017:

New constellations of Changing Institutions and Actors

Specific challenge

Key institutions like universities and funding agencies are changing, in general and occasionally with respect to RRI issues. In calls for 'civic universities' or 'citizen companies' one can see RRI issues at play, without necessarily having them labelled as such.

Member States are reconsidering their science, technology and innovation policy. New actors such as regions, cities, social entrepreneurs and NGOs of various kinds are becoming important, and new forms of governance are emerging, partly bottom-up. The 'triple helix' of science, industry and government is expanding to a model of a 'quadruple helix' with a fourth strand, the public sphere. At the same time, there is the move to smart specialization, of regions and countries, as well as sectors. Clearly, it is important to support such changes within and between actors and stakeholders when they help articulate good practices.

Scope

The present topic focuses on the importance of new constellations of actors, already visible in public-private partnerships and open science and open innovation, but now becoming broader and more heterogeneous. This is both about new constellations of existing actors (as in public-private interactions) and new or modified constellations because of new actors joining in. The proposals will be initiated by consortia of relevant existing and new actors (research organizations, industry, civil society organizations, and policy makers), articulating evolving practices against the overall backdrop of transformations and tensions as underlined above. There will be a reflective aspect as well, in mapping and analysing what is happening, and perhaps placing it in larger economic frameworks. The reflection is an essential complement to the interactions between the various relevant organizations and actors, in terms of exchanges about good practices and exploring new collaborations.

The proposals would require specific attention to RRI issues, but not necessarily be limited to it.

Given the variety of interests and possible tensions, a somewhat independent actor might lead the project, as some of these independent actors have actually already shown an interest and are engaged in RRI. One generally acknowledged way of managing conflict and nurturing trust is via "boundary organisations" that act as brokers or mediators between science and society with credibility in the eyes of both.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 million and 3.55 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The proposed action is expected to enable diversification of constellations of actors and stakeholders in Research and Innovation processes, a spread of good practices among them, and a transformation in their governance framework.

Type of action	Coordination and support action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2270-swafs-05-2017.html



SwafS-06-2017

Engaging industry – Champions for RRI in Industrial Sectors

Specific challenge

There is already experience with RRI issues in industry, for example in connection with Nanoscience and Nanotechnologies. Now that other domains are drawing public attention (e.g. synthetic biology, geo-engineering), the challenge is to take stock, drawing also on existing analyses, and to progress further in integrating RRI in industrial contexts.

Earlier and present activities initiated and carried by RRI 'champions' in industrial sectors can be a starting point. The early Responsible Care Programme of the chemical industry and various attempts at codes of conduct for Nano science and Nanotechnologies are quite well-known examples, as are various initiatives referring to sustainability, but one should not overlook smaller and less visible examples. There are also broad-brush initiatives related to social responsibility of organizations and sustainability (e.g. Vision 2050) and which want to pay attention, explicitly or implicitly, to RRI (e.g. EIRMA Task Force on Responsible Innovation). There are the activities which go further than Corporate Social Responsibility, because they are linked to technological innovations.

There are various motives and drivers in these developments, including the importance of having or keeping a social licence to operate, i.e. an acceptance from various stakeholders and communities as a prerequisite to operations. Nevertheless, because of the variety of values and societal convictions, there will be no consensus about who or what is going to count as 'responsible'. This constitutes a structural problem, not only because of essential contestations in our societies, but also because what is 'responsible' can be interpreted differently by different actors, while each of them wants to use it to describe how he is doing the right thing. The narrative of 'inclusion' compounds this problem.

Scope

Two considerations are important within the scope of this topic. First, the narrative of 'inclusion', also implicitly in the way terms like 'inclusive' are used, suggests that more actors and more inputs should be included in the work of traditional organisations. These organisations might feel beleaguered, and be reluctant. Proposals to do better often start with suggestions on how to create more access for societal actors to the 'beleaguered' organisations, which reinforces the storyline. Second, to reduce the effect of mutual suspicions about intentions, the proposals should create (and be themselves) a space guided by actors (or a combination of actors) who would themselves be above the struggles of suspicion and the deadlocks these create. The participants in the project will be mostly companies and industry organisations, but can also include other entities, e.g. private foundations and/or so-called third parties like organisations specialized in supporting changes toward responsible innovation or re-insurance companies. It is expected that several companies join forces to experiment new ways of developing their research and innovation activities in the line of RRI.

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.

The Commission considers that proposals requesting a contribution from the EU of between EUR 3 million and 3.55 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

This action aims at the development of new approaches to innovation (be they technical, social or otherwise) in industrial context. It will use and improve existing training instruments funded by the European Commission (e.g. RRI-TOOLKIT of the project RRI-TOOLS). It will help disseminate good RRI practices in industrial circles.

Type of action	Coordination and support action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2262-swafs-06-2017.html



SwafS-08-2017: European Community of Practice to support institutional change

Dedicated Topic

Specific challenge

Gender equality strategy in research and innovation policy is given a growing attention at the level research performing organizations, including universities and funding organisations, in particular through institutional change and with the objectives of:

- Removing barriers to the recruitment, retention and career progression of female researchers;
- Addressing gender imbalances in decision making processes;
- Strengthening the gender dimension in research programmes.

These objectives are pursued at EU level in Horizon 2020 and at national level in the European Research Area, with the support to Gender Equality Plans and to research on gender (e.g. gender studies, gender medicine, gender in transport). Implementing these policy objectives entails the involvement and development of gender-in-science infrastructures, centres or departments. They need to learn from each other and work together to share best practice and knowledge. There is a need of exchange and cooperation between experienced and less experienced centres / stakeholders from which all should gain and progress on the gender equality objectives.

Scope

The funded action will create a community of practice of research and practitioners centres experienced in gender equality in research and innovation policies aim at:

- sharing lessons learned from institutional change projects and from institutions with higher expertise and transformation experiences
- developing tools to share their lessons learned and stimulate activities in less advanced institutions
- sharing experience with and mentoring institutions who want to implement structural change and advance on gender knowledge
- providing information and training about gender in academic careers and setting gender equality plans, thereby encouraging less advanced organisations to engage in institutional change
- creating and facilitating a forum in which experienced and less experienced stakeholders meet and share their experiences proposals shall undertake an assessment of the needs of the less advanced institutions or countries.

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

Improved inter- centre and transnational learning on knowledge and practices on gender equality in research and innovation; increased gender expertise across Europe; ,increased engagement across Europe for institutional change to promote gender equality. The activities will contribute to increase the number of research organisations implementing gender equality plans to the achievement of the ERA.

Type of action	Research and Innovation action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	https://ec.europa.eu/research/participants/portal4/desktop/en/opportunities/h2020/topics/2265-swafs-08-2017.html



SwafS-09-2016

Moving from constraints to openings, from red lines to new frames in Horizon 2020

Specific challenge

Responsible Research and Innovation (RRI) is cutting across Horizon 2020. RRI is a package aiming to better engage society across all Horizon 2020 Research and Innovation activities. Nevertheless it is not immediately clear what the issues are in the various parts of Horizon 2020 and how they can be best addressed. The definition or characterisation of RRI is rather too open and this creates difficulties to operationalize it directly in each of the parts of Horizon 2020. This has also to do with the fact that RRI works out differently in different domains and for different industrial and societal challenges.

Furthermore, eventual desirable outcomes of RRI depend just as much on what is happening overall, also in the Member States, than what can be done within the confines of Horizon 2020. Still, Horizon 2020 activities can play a leading role, through articulating an evidence-based diagnosis, storyline or narrative for each of its parts, and through taking up and further developing approaches and tools, including training tools.

Scope

Applicants will select experts from different parts of Horizon 2020, project coordinators and participants as well as representatives of the main stakeholders with a view to engage together to compare experiences and identify opportunities to develop RRI in the various parts of Horizon 2020.

An RRI diagnosis will be developed for each of the parts of Horizon 2020, including substantial issues of science and technology developments, processes and institutions, as well as relevant societal aspects. Each part should try and formulate actions and activities to address items from the diagnosis (which might include work to improve the diagnosis). This will be articulated as a 'storyline' or a 'narrative' about overall present and future developments, which would then lead to identifying RRI aspects and activities specific to the different Horizon 2020 parts.

The work on the diagnoses, for each part of Horizon 2020, should lead to suggestions for further work, including RRI work (activities and studies). It will also be an occasion to adapt training tools as available today (e.g. RRI-TOOLS, FOSTER, not excluding others) to the specific situation of each part of Horizon 2020, so as to be more effective in reaching and supporting stakeholders. These training tools will be tested in the specific scientific and societal fields considered. They will be practical, engaging, and outcome-oriented. The online didactic material and training toolkits will be made available free of charge/open access for re-use linked with existing online material.

Sophisticated public engagement, including co-creation, will be one important set of tools for the present topic. It can also be interesting to explore the notion of 'society-readiness level', just as there is use of a notion of 'technology-readiness level' (TRL). The actual practices of using TRL can be somewhat limited, considering that TRLs are eventually always socio-technical, i.e. include economic and social (and sometimes political) readiness.

Good embedding practices can be drawn from the Horizon 2020 work programmes 2014-15 as well as from other similar public funding programmes at any governance level (i.e. international, national, regional or local levels) in Europe and beyond. Integration of the global dimension will be a must.

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 6.8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

'Storylines' or 'narratives' developed in relation to the various parts of Horizon 2020 will allow RRI to be an integral part of a more coherent Work Programme in Horizon 2020. They will impact as well on the relevant stakeholder communities as well as in the European Research Area and beyond.



Call - Science with and for Society

Type of action	Coordination and support action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2257-swafs-09-2016.html



SwafS-10-2017: Putting Open Science into action

Specific challenge

The challenge is to operationalise an Open Science rationale for one or more of the societal challenges defined under Horizon 2020. This should be done by a knowledge coalition based on a quadruple helix model of innovation in which civil society organisations, industry, government and academia are committed to work together and share knowledge and data among each other and interested third parties, thus putting Open Science in action in order to produce Responsible Research and Innovation solutions for a particular societal challenge. As citizens and civil society organisations are becoming increasingly involved in research and innovation projects and processes, an input by Citizen Scientists can be considered for the present specific challenge.

Scope

Proposals can be inspired (but not exclusively) by previous Mobilisations and Mutual Learning Action Plans (MMLs) funded by the European Commission, in their methods or actual design and outcomes. MMLs bringing together a wide diversity of actors to deliberate and share on matters of science, technology and innovation, they can ensure an evidence-based, both knowledge and value-driven approach in support of EU policies. The proposals should enable trans-disciplinary research and innovation cooperation.

Proposals will focus on one or more of the following challenges, at multiple geographical scales (global to local):

- Health, demographic change and wellbeing;
- Food security, sustainable agriculture and forestry, marine and maritime and inland water research, and the Bioeconomy;
- Secure, clean and efficient energy (in line with the Commission priority for 2014-2019, Energy Union);
- Smart, green and integrated transport;
- Climate action, environment, resource efficiency and raw materials;
- Europe in a changing world - inclusive, innovative and reflective societies (in line with the Commission priorities for 2014-2019, 'Stronger Global Actor', 'a Union of Democratic Change' and a 'New Policy on Migration'18) including Social Science and Humanities and Big Data ;
- Secure societies - protecting freedom and security of Europe and its citizens.

To be of real impact, proposals must ensure research and innovation solutions and their possibility can be increased by public-private partnerships whereby Citizen Science can also be involved,

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

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The knowledge coalitions and the adoption of a responsible research and innovation approach will facilitate the uptake of socially acceptable innovative solutions. The topic will provide an Open Science pilot which will become a reference for other scientific endeavours. It will demonstrate how Open Science and RRI can be used to foster effective science-policy-society interfaces to support research and innovation at various geographical levels, in Europe. It will foster socially responsible citizen science approaches embedding the concept of RRI. It will provide EU leadership in this emerging practice of science, within Europe and in a wider global context.

Type of action	Research and Innovation action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	https://ec.europa.eu/research/participants/portal4/desktop/en/opportunities/h2020/topics/2271-swafs-10-2017.html



SwafS-11-2017

Science education outside the classroom

Specific challenge

Much analysis has been carried out on the importance of science education both in schools and in higher education. However, science education outside the classroom, which refers to informal science education, and the science education effects of non-educational activities, are not well explored in their nature and effects. Acquiring knowledge, and in particular, evaluating knowledge, often with the help of the Internet, is what is frequently happening in reality, and should be recognised for what it contributes in terms of more sophisticated consumers and scientific citizenship. Consideration on what is available and what is being learnt would be useful to understand how science education outside the classroom influences today's citizens.

Scope

The available knowledge on science education outside the classroom and its impact on citizens need to be analysed, taking into account possible gender and geographical differences and the analysis including socio-economically disadvantaged groups. The analysis include socio-economically disadvantaged groups. The proposed action shall specify if this type of learning complements the classroom or succeeds where the classroom might have failed. Consideration shall be given to the impact that can be achieved by science education outside schools and how this form of informal schooling might be accredited and whether there is a way of assessing the quality of the educational contents.

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

In the short term, the proposed action will identify good practices in terms of science education outside the classroom and consider the impact this information has on formal and informal science education for students and citizens. In the medium term, the results of the present action will help the EU to better understand the effects of science education outside the regular education institutions and will increase the range of innovative products in science education that reflect societal needs. In the long term the results of the research should contribute to considerations on accrediting the available information.

Type of action	Research and Innovation action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2268-swafs-11-2017.html



SwafS-12-2017

Webs of Innovation Value Chains and Openings for RRI

Specific challenge

The challenge is to model and better understand the dynamics of the complex webs of innovation value chains and the openings they offer for RRI. The key idea is that of crisscrossing 'innovation value chains'. Innovations and prototypes, business-to-business products and final products move from one organization (entity) to another and are transformed in the process, value is added in the transactions and appropriated. Third-party actors are involved such as standardization bodies and insurance companies, but also, and increasingly, NGOs. While there is a direction to the eventual product flows, initiatives may emerge anywhere, there is no simple linearity (cf. the chain-link model of innovation) and, even more, no beginning nor end (cf. circular economy). Chains can change, split, be re-arranged, crisscross, and co-evolve with changing business models. In general, industry and service structures consist of webs of crisscrossing chains, forming broader structures, consisting of more than the traditional economic actors. There are uncertainties involved in the evolution of these webs, e.g. with the promise of large-area polymeric semi-conducting materials that can be printed. Will the key driver of the eventual chains in this domain be the materials manufacturers, the printing companies, or the various application sectors?

Scope

Given this perspective, the key point of the present topic is that there are openings for RRI in these webs of chains, building on what is there already and/or inserting it if there is an opportunity. Thus, this action shall start with the economic world rather than see RRI as only impinging on it from the outside. It draws on the theme of exploration of intermediaries and boundary spanners, but creates additional focus, as underlined here below by the questions and issues that could be addressed under this topic..

The experience with stage-gate approaches in R&D and product development, as practiced within a few firms, has been taken up by some Member States as a framework for their approach to RRI, and applied in a few cases. What could be explored is whether stage-gate processes could be applied across organisations in an innovation chain, and create openings to include RRI not just in the assessments during the 'gate', but also during the 'stage', to anticipate on the eventual assessment.

When novelties (new options) are introduced, articulated and taken up, chains can shift and split (for example in additive manufacturing, and in the uses of mobile telephony) and new chains may emerge. This can just happen, but increasingly, actors try to anticipate and influence what happens to serve their interests, or otherwise pursue desirable goals. There is joint strategy articulation, occasionally supported by Constructive Technology Assessment, road mapping, and indications and narratives to monitor performance in a forward-looking manner, as in notions like technological readiness. There are openings here, for example by adding 'societal readiness' levels to technological readiness levels, and making sure that 'societal readiness' has pro-active elements, and is not just another term for 'societal acceptability'.

More generally, the reference to responsibility that is part of RRI is not about retrospective responsibility, as in accountability and liability, but about prospective responsibility, with its expectation, perhaps obligation, to do well. The requirement can be seen as a call 'to show an honest effort'. This phrase has been used to assess technology forcing measures (as in the California air pollution legislation). One opening for RRI would then be to operationalise it as 'an honest effort' to achieve desirable outcomes in innovation chains and eventual product-value chains, responding to societal values.

This illustration of possible openings for RRI becoming visible through the perspective of webs of crisscrossing and shifting/emerging chains, is not exhaustive. It shows, though, that it is a generative perspective. It can also contribute to other parts of Horizon 2020. For example, questions about the role of SMEs, or of small-holder farmers, can be explored by inquiring into their functioning in present and emerging webs of crisscrossing chains. 'Open innovation' can become more than a fashionable catchword, at the same time making operational how RRI fits in.

This action will show, and induce, relevant change, without having to go through definitional exercises about RRI first, because the thrust is to go for 'openings to do better'. Rather than 'growth' per se, often defined in terms of competition only, the result will be higher quality outcomes and better jobs ('better technology in a better society').

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.



Call - Science with and for Society

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The development of a model and a better understanding of the webs of Innovation Value Chains will set a stronger knowledge base for policy orientations regarding innovation. This will facilitate the dissemination and integration of good RRI practices thanks to the identification of 'openings' for RRI. This action will strengthen the SWAFS knowledge base, but also promote institutional changes in Research Funding (RFO) and Research Performing Organizations (RPO), as well as in and across organisations involved in innovation and its embedding in society.

Type of action	Research and Innovation action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2261-swafs-12-2017.html



SwafS-13-2017

Integrating Society in Science and Innovation – An approach to co-creation

Specific challenge

There is increasing interest, and occasional experiments in processes of co-construction (e.g. agenda-building and policy inputs, co-evaluation, co-funding) and co-production (e.g. citizen science). Sometimes, it is deemed sufficient to have such processes occur, but one could also consider their content and how society would be integrated through approaches like value-sensitive design and gender-sensitive design. There are also combinations of process and content, as with place-based activities involving smart cities, living labs, and the regional dimension linked to Smart Specialization Strategies. For the gender dimension, research has already been funded to outline the loss to society and economy of not taking gender aspects into account in research organization and research design. Such questions can be raised for other dimensions of RRI as well.

While traditional approaches to public engagement will remain, this topic constitutes an opening towards the ‘new wave’ of public engagement where ‘co-creation’ is a key notion. It will provide innovative solutions to the more heavily technology and/or systems oriented approaches in other parts of Horizon2020.

Approaches and openings to the “creation of spaces for public engagement” (Rome Declaration), including the development and use of temporary and permanent physical spaces (e.g. exhibitions, events), will contribute towards the processes of involving European citizens and the co-creation of knowledge.

Scope

The topic could become an umbrella for all sorts of projects, allowing benchmarking and comparisons.

An important focus for study in this topic is the question of what outcomes are being realised. Co-construction and society sensitive design are well intentioned, but what happens will be refracted through practicalities embedded in existing institutions and interests. This has been documented extensively for ICT. There is a structural element here, in the sense that co-construction and design necessarily take place at an early stage, while there are many other factors and circumstances at play in the later stages which co-determine outcomes. There is a similar structural problem with regulation: good intentions, but actual implementation on the ground falls short. There have been calls for ‘implementable regulation’, where one would start with what are achievable effects in practice, rather than good intentions.

The present topic, on possible outcomes of integration of society in science, shall include the aspect of ‘implementable integration’. This requires study of dynamics of such initiatives, and will definitely improve their reflexivity.

The topic can also consider the role of science communication in improving the quality and effectiveness of the interactions between stakeholders.

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

This action aims at developing a better understanding of co-creation processes and outcomes under various cultural, societal and regulatory backgrounds. It will allow better-targeted policy support in the future.

Type of action	Research and Innovation action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2264-swafs-13-2017.html



SwafS-14-2017

A Linked-up Global World of RRI

Specific challenge

At the moment, 'a linked-up global world of RRI', is a future, and speculative, perspective. But the world is definitely linked-up, and there is recurrent mention of, and occasional work on, RRI-type issues all over the world. In the field of nanotechnology, for some time (since the early 2000s) there were platforms and spaces for dialogue. What is the role of regulation and of civil society in a linked-up global society? What is the role of industry, with the dynamics of firms wanting to appear as 'good firms' rather than the contrary? Similarly, what is the role of nation states and international organizations in this global world?

One might actually consider that RRI could become a competitive advantage, definitely for Europe and directly contribute to Europe's jobs and growth agenda. That possibility will be one element of this topic. It is important to give industry's 'ethical behaviour' a concrete foothold, and not to leave it to abstract deliberations. To this end, domain and case studies in key areas, such as Digital Single Market and Energy Union, supporting the Commission's agenda for jobs, growth, fairness and democratic change will be relevant. Other sectors of activities can be considered as case studies as well (e.g. bio-economy, waste management) provided that they yield significant insight into the possible rise of the global world of RRI.

Scope

There are interesting projects already that can be built on for the present topic. The EU-funded ProGRESS project, aims to promote a European approach to Responsible Research and Innovation (RRI) through a global network, including partners and advisers from Europe, the US, China, Japan, India, Australia and South Africa, and involvement of relevant stakeholders from academia, international organisations, industry, SME research, NGOs, policy advisors and research funders. The GEST (Global Ethics in Science and Technology) project, which has recently led to a major publication on Science and Technology Governance and Ethics, comparing Europe, China and India, is another example.

The present topic spans at least over three overlapping foci:

- Identification and analysis of platforms and spaces for RRI-type issues
- Comparative studies of major and minor players, taking into account differences especially the situation of developing countries
- Advantages (up to competitiveness) of RRI, and ethical behaviour in general.

It is also important to locate these questions and trends in current and emerging governance frameworks.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged, including with third countries beyond Associated Countries.

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

Better understanding of the dynamics of a 'linked-up global world of RRI' will allow benchmarking European RRI initiatives and integrating good practices from other contexts. It will help industry, civil society and policy makers to take decisions based on evidence. It will produce formal knowledge, easing the dissemination of good practices and improving existing training material.

Type of action	Research and Innovation action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	https://ec.europa.eu/research/participants/portal4/desktop/en/opportunities/h2020/topics/2263-swafs-14-2017.html



SwafS-15-2016

Open Schooling and collaboration on science education

Specific challenge

At the moment, Europe faces a shortfall in science-knowledgeable people at all levels of society. This is a good time to expand opportunities for science learning, in formal, non-formal and informal settings. Evidence shows that European citizens, young and old, appreciate the importance of science and want to be more informed, and that citizens want more science education. Over 40% believe science and technological innovation can have a positive impact on the environment, health and medical care, and basic infrastructure in the future. Therefore, collaboration between formal, non-formal and informal education providers, enterprises and civil society should be enhanced to ensure relevant and meaningful engagement of all societal actors with science and increase the uptake of science studies and science based careers, employability and competitiveness.

Scope

This action aims to support a range of activities based on collaboration between formal, non-formal and informal education providers, enterprises and civil society in order to integrate the concept of open schooling, including all educational levels, in science education.

"Open schooling" where schools, in cooperation with other stakeholders, become an agent of community well-being shall be promoted; families shall be encouraged to become real partners in school life and activities; professionals from enterprises and civil and wider society should actively be involved in bringing real-life projects to the classroom. Partnerships that foster expertise, networking, sharing and applying science and technology research findings across different enterprises (start-ups, SMEs, larger corporations) shall be promoted. Gender and geographical differences should be considered.

To address this specific challenge, proposals should have a wide geographical coverage. It is therefore expected that consortia would include at least entities from 10 different Member States or Associated Countries, although smaller consortia will also be eligible and may be selected.

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The proposed action targets the creation of new partnerships in local communities to foster improved science education for all citizens. It is expected that in the short term the development of partnerships between schools, local communities and local industry should contribute to a more scientifically interested and literate society and students with a better awareness of and interest in scientific careers. In the medium term the activities should provide citizens and future researchers with the tools and skills to make informed decisions and choices and in the long-term this action should contribute towards the ERA objectives of increasing the numbers of scientists and researchers in Europe.

Type of action	Coordination and support action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2252-swafs-15-2016.html



SwafS-16-2016

Mapping the Ethics and Research Integrity Normative Framework

Specific challenge

The area of Research Ethics and Integrity is fast evolving. In the EU and internationally, new legislation, codes and good practices are constantly being developed. In this complex environment, researchers cannot easily identify and be aware of the rules to be followed. This also constitutes a challenge for the ethics/integrity experts.

Scope

The action aims at providing a dynamic mapping of the ethics/integrity normative framework which applies to scientific research conducted by European research teams, in the EU and beyond. The work undertaken shall primarily aim at supporting the work of researchers and ethics/integrity review committees.

The action shall design the most appropriate mapping methodology, the processes and institutions to be mapped and produce appropriate process maps, indicating the criteria/dimensions (geographic scope, thematic coverage, stakeholder involvement, etc.) and enable comparative analysis. The outcome of the mapping action shall stimulate knowledge transfer and ultimately promote the uptake of the highest ethical standards. In order to facilitate this role, English summary/abstract of the normative elements (e.g. legislation, code, etc.) focusing on the main practical requirements/recommendations should be made available.

Researchers shall also be helped to distinguish between the legislation that must be applied (highlighting the practical obligations) and the soft laws and best practices that must be taken into account (illustrating them with concrete examples) in the research design and implementation to guarantee the compatibility with the highest ethical standards.

The resulting mapping shall be made available online and include beyond the constitutive elements of the normative framework information on the available trainings and education activities as well as on where to find appropriate ethics/integrity expertise. Practical information on how to comply with the legislation and standards should be provided (e.g. website relevant bodies, etc.) and regularly updated. In addition, the work must rely on a real case and scenario building approach based on existing literature, court cases etc. The mapping shall also include contact details of the ethics and research integrity committees/bodies and other relevant authorities (e.g. for personal data protection) which shall deliver the necessary approvals/authorisations. The construction and update of this online database must be done in close cooperation with the "European Ethics and Research Integrity Network" which is supported by Horizon 2020. This cooperation shall notably ensure positive synergies and guarantee the long term continuity/sustainability of the resulting output.

In addition to the above cited network and in order to avoid duplication of work already undertaken, it is essential to ensure that the publicly available results from relevant EU funded research projects (from FP7 and Horizon 2020) are taken into account.

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

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 3.8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The proposed action will facilitate the work of the researchers to comply with research integrity and ethics standards and legislation while improving the effectiveness and efficiency of the research ethics/ integrity committees and competent national bodies. Consequently, the excellence of public and private research in the European Research Area will be promoted.



Call - Science with and for Society

Type of action	Coordination and support action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2251-swafs-16-2016.html



SwafS-17-2016

The Ethics of informed consent in novel treatment including a gender perspective

Specific challenge

The exponential development of knowledge resulting from biomedical research challenges the ethics of informed consent. Patients, practitioners, researchers, health authorities and other stakeholders are confronted with the difficulty to reconcile their legal and administrative environment, biomedical ethics, Human Rights and the increasing global availability of new effective treatments. For some worldwide high mortality diseases, this includes an important gender dimension. In addition to the ethical and social aspects, the economic dimension and potential impact of this challenge on EU health budgets is very significant.

Scope

Although informed consent is the pillar of ethics in medical research, several cases with high public coverage have awakened society on the difficulty to simultaneously optimise the research objectives and the patients' wellbeing while limiting the various types of potential conflicts of interest. The proposed action shall study this complex and multidimensional ethics dilemma. The focus shall be on the involvement of patients in translational research and in clinical research based on existing and validated treatments. Similar type of clinical ethics challenges exists when physicians advise patients and have to handle financial aspects, notably the fact that some available effective treatments or tests are reimbursed or not (depending on the countries).

In this context, it is necessary to build up a set of guidelines helping the clinicians to find practical answers enabling the full respect of clinical ethics, in particular ensuring an actual informed consent for these patients involved or not in clinical studies. In order to be effective, the guidelines shall be elaborated with the active involvement of the different actors of the chain, from the clinical researchers/health practitioners and their institution to the health public authorities and the other actors of the health systems: the pharmaceutical industry, the patient groups etc. In order to increase the direct impact of the work, the general guidelines shall be applied to a minimum of two specific cases where the global availability of new treatments, tests/diagnosis tools challenge the clinical practice leading to different form of disparities. This shall include the additional complexity of the gender perspective and therefore be performed on at least one gender specific disease (e.g. breast/ovarian cancer).

The proposed action shall also analyse the use of social media and ICT technologies to facilitate the information supply and the interaction between the patients and the clinicians, particularly in cases where the optimal treatments become possible faster than through the institutional changes (public health measures) that make them available to society. The involvement of all relevant stakeholders is necessary for this step, including innovative industries and patients associations.

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 3.8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

Taking into account the gender dimension, will increase the EU standards of clinical research ethics, in particular the quality of informed consent by developing practical guidelines supporting the work of clinicians while stimulating innovation and increase the use of effective new treatments.

Type of action	Coordination and support action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2249-swafs-17-2016.html



SwafS-18-2016

The Ethics of technologies with high socio-economic impact and Human Rights relevance

Specific challenge

Some technologies raise complex ethical issues that can have considerable socio-economic impact and generate lively debates on research ethics and Human Rights. The areas of genomics human enhancement and man-machine interactions are of particular importance due to their innovative nature and potential impact on jobs and growth. Although repairing an injured body is an accepted and welcome practice, genomics applications and a number of body and mental enhancements as well as the changing nature of the relationship between humans and machines (i.e. robots) raise complex ethical issues that need to be addressed at EU level. In order to promote an inclusive and sustainable socio-economic model, there is a pressing need to provide ethical responses and practical options which support innovation, the research community, facilitates the work of ethics committees and addresses the expectations of society.

Scope

While the work shall integrate the broad ethical perspectives of the emerging technologies, especially those with potentially high social and economic impact, the focus shall be on (a) genomics, in particular genetic testing and screening, genetic patents, genetic databanks and pharmacogenomics and (b) human enhancement, including a categorisation of human enhancement practices on the basis of social, medical and technical criteria and (c) human-machine interactions including the creation of intelligent environments. All the concerned technologies raise several interrelated ethical issues for which there is not yet a clear and stable framework at EU and international level.

A comparison, within the EU and with other regions of the world on both the legal framework (existing or under development) and the level of societal awareness and acceptance constitute therefore an important element of the work. Such an analysis shall integrate the role of ethics committees and other advisory and regulatory structures and examine the impact of these technologies while proving the necessary elements to support the research community in integrating the ethics dimension in their research protocols.

Building on and completing existing practices, the work undertaken shall result, for each of the three topics, with operational guidelines for research ethics committees as well as proposing a code of responsible conduct for researchers, taking into account the expectations of the different stakeholders. This shall be achieved by involving actively civil society organizations and panels of citizens from different socio-economic groups including vulnerable populations. As a result the possible enhancement of the existing ethical and legal frameworks shall be proposed while considering the rapid scientific evolution of the emerging fields.

The possibility to generalise the analysis to other new or emerging technologies shall be studied since a number of the conclusions that will be drawn could serve in other technological and research context raising similar ethical issues.

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

Publicly available results from relevant EU funded research projects (mainly from FP7) should be taken into account.

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 3.8 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The proposed action will contribute to the development and practical implementation of high ethics standards at EU and international level addressing the growing challenges and expectations vis-à-vis these technologies. The work undertaken will also offer concrete ways of better reconciling the needs of the research teams and the legitimate concerns of the citizens while stimulating innovation and contributing to the reduction of socio-economic inequalities including in health treatment and social status. Overall, it will contribute to the development of new approaches in addressing ethical issues of new and emerging technologies and promoting responsible conduct of research while enhancing the innovative nature and potential socioeconomic impact of these technologies.



Call - Science with and for Society

Type of action	Coordination and support action
Deadline	30 August 2016
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2256-swafs-18-2016.html



SwafS-21-2017

Promoting integrity in the use of research results in evidence based policy: a focus on non-medical research

Specific challenge

Research ethics is commonly associated with life sciences and in particular medical and biomedical research. The focus of the attention concerns interventions on humans, the involvement of children and vulnerable population. Because of the nature of the research and the lower risk attributed to the possible consequences of misconduct, non-medical research areas (such as social sciences) are less commonly associated with ethical concerns although researchers are regularly involved in protocols that have a direct impact on the wellbeing of people and as experts in policy making, provide evidence nurturing the decision process. In this context, ethical principles are of high importance. In case of breaches of these principles, the economic, social and environmental impact can be significant. Relevant principles are e.g. to only provide policy advice in fields related to one's expertise, to distinguish ideology from science, to state clearly limitations to one's scientific results, and be transparent on potential conflicts-of-interests. In the current economic environment, the use of expertise in the definition of solutions and action plans constitutes a major challenge due to the high repercussions of related decisions on innovation capacities, jobs and well-being.

Scope

It is of paramount importance, especially when there are different schools of thought, to ensure that the channelling and processing of expertise is adequately organised so as to enable optimal policy decisions. When the principles of responsible conduct of research are not followed, the socio-economic impact can be significant.

In order to support the Commission's policy on boosting innovation, growth and high quality job and in the context of the post-2007 crisis, the action proposed shall aim at building an operational ethics and methodological framework facilitating that decision makers at national and EU level are provided with reliable evidence originating from cutting edge research. The conditions to maximise the Commission's policy outcomes and impact shall be studied, taking into account the necessity to comply with the highest standards of research ethics and integrity. Particular attention will be paid to the ethics of innovation and the enabling conditions for making innovation more relevant to the needs of society and more effectively meeting the Europe 2020 socioeconomic targets.

The proposed work shall also examine and analyse the relationship between science based policy advice, responsible conduct of research and research ethics. To this end an Oviedo/Helsinki type framework for non-medical research shall be proposed based on a wide consultation with all relevant stakeholders including industry and civil society. Such a framework shall discuss areas such as: a) covert research, b) working in dangerous areas/conflict zones and c) behavioral research collecting data from social media/internet sources.

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 4.2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The proposed action will promote a more responsible and effective use of scientific information, originating from non-medical research areas, in support to EU policy making by increasing the understanding of the ethical challenges and proposing in response adequate ethical standards and normative framework for evidence based policy.

Type of action	Coordination and support action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	https://ec.europa.eu/research/participants/portal4/desktop/en/opportunities/h2020/topics/2267-swafs-21-2017.html



SwafS-22-2017

The ethical dimensions of IT technologies: a European perspective focusing on security and human rights aspects

Specific challenge

The ICT centred research methodologies is changing the way research is organised, proposed and conducted. The untapped potential of Social media for example is fast becoming a new arena of research activities, also generating new challenges for the existing ethical and legal framework. Of paramount importance in this area is the balance between the use of ICT technologies to collect massive amounts of data (including personal data) and the principles of fundamental rights. As evidenced by the opinion of the European Group on "Ethics of Security and Surveillance Technologies", the actual and potential impact of ICT technologies on our daily life is high and rapidly growing. This raises multidimensional questions related to how to effectively implement the Charter of Fundamental Rights in our e-society while balancing the interest of all socio-economic stakeholders, promoting innovation, enabling high quality job creation and ensuring a high level of privacy and cyber security.

Scope

The work undertaken shall analyse the existing and future possible ethical tensions between the technological evolution in the ICT field and the protection of human rights, in particular as regards privacy and personal data. Such analysis shall take into account the increasing number and unprecedented intensity of threats to public and private cyber security and the responses given by the competent international, European and national bodies.

The possibility to improve the regulatory framework at EU level in order to reduce the identified ethical tensions shall be reviewed. On the basis of an extensive dialogue with the concerned scientific, economic, security and political stakeholders and the involvement of civil society organisations, a set of ethical standards and guidelines for research and innovation activities should also be proposed. The practical operationalisation of the proposals made shall be examined taking into account the international economic and political dimension. The guidelines for research ethics committees and the research community shall facilitate the incorporation of the highest ethical standards into research protocols without jeopardising the innovative nature of the research and its potential socioeconomic impact. The above balance must be adequately analysed and measures to address it must be proposed.

The Commission considers that proposals requesting a contribution from the EU of the order of EUR 4.2 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

The action will actively contribute to the reduction of the ethical tensions existing between the potential of ICT technologies and the protection of human rights notably by elaborating operational standards and guidelines as well as suggesting possible concrete improvements of the current regulatory framework, in the spirit of the EU commitment to better regulation.

Type of action	Coordination and support action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2272-swafs-22-2017.html



SwafS-23-2017

Responsible Research and Innovation (RRI) in support of sustainability and governance, taking account of the international context

Specific challenge

This topic will contribute to the implementation of Principle 10 of the 1992 Rio Declaration on strengthening access to information, public participation, and access to justice, and the ensuing UNEP/UNITAR Bali Guidelines for National Action Plans, as well as other Rio principles. This topic will promote the uptake of responsible research and innovation within the context of sustainability actions, by involving multiple actors including researchers/academia, policy makers, industry/business and society to co-create solutions relevant to the further implementation of the Rio Declaration.

Scope

The action will examine how science and technology development are embedded in the growing sustainability governance and better regulation discourses at all levels (Global to local), and further RRI uptake in the search for solutions. It will showcase examples of good practice in the governance of research and innovation in Europe and beyond, and explore ways in which RRI can further strengthen the role of research and innovation for capacity building and governance for sustainability. It will make an effective and timely contribution to the implementation of the Rio Principle 10, as well as Rio principles generally. The topic must consider all aspects of RRI including research and innovation governance, access to information, public engagement, ethics, science education and gender. This topic is open to international cooperation and should be alignment with European and global advances in this area. In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged.

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

This action allows for the provision of financial support to third parties in line with the conditions set out in Part K of the General Annexes.

Expected impact

This action will demonstrate how responsible research and innovation can effectively contribute to global and European sustainability governance. It will assist R&I stakeholders to play a decisive role in devising and implementing sustainable solutions together with other types of actors.

Type of action	Coordination and support action
Deadline	30 August 2017
Call identifier	H2020-SwafS-2016-17
Topic information	https://ec.europa.eu/research/participants/portal4/desktop/en/opportunities/h2020/topics/2269-swafs-23-2017.html



Topics with minor SSH relevance

SwafS-25-2016
Celebrating European Science

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2273-swafs-25-2016.html>





Cross-cutting activities (Focus Areas)

Call - Industry 2020 in the Circular Economy

SPIRE-06-2016

Business models for flexible and delocalised approaches for intensified processing

Specific challenge

The competitiveness of European manufacturing depends on producing differentiated and high added value products in an efficient and sustainable manner, with reduced production costs, increased product quality and minimised time to market. To create a long-lasting competitive advantage for the European process industry it is also needed to properly inter-relate the production with modern and innovative ways of doing business.

Therefore, technological innovation in sustainable manufacturing in the process industry needs to be matched with new business models, which may support industry and cross-sector clusters as well as industrial parks, while also allowing more flexible and delocalised operations. These **new business models should be designed to address** the barriers which have so far prevented regionally or locally adapted solutions, with an emphasis on **technical but also non-technological barriers, such as legal, regulatory or cultural ones**.

On the other hand, these new business models should allow the positive interactions between the different actors (firms, neighbouring municipalities, infrastructure administrations), which can allow positive outcomes in terms of accrued economic value associated with perceived level of attractiveness to inward investors, leading to jobs creation, and sustainable development promotion by local authorities, industries and policy makers. In addition, these business models should consider the influence of industrial consumer trends on future energy and resource systems to achieve ambitious sustainability paths, which will be very relevant for the whole market.

Scope

New business solutions should enable higher throughput operations and allowing industry to produce in a distributed and small scale manner; these new business models are expected to be more flexible and demand-driven. Site re-optimization studies will help identifying barriers towards good practice solutions and integrating several industries or processes.

Activities should focus on all of the following areas:

- To determine the spatial flexibility parameters which allow to optimise activities interdependence and to define the resource flexibility parameters which allow optimising yearly fluxes between companies
- **Integrated business model solutions for customer-driven supply chain management** based on intensified processing.
- To deliver design constraints for new decentralised locations, which would position them, if applied, in the industrial symbiosis category,
- To pinpoint the routes which allow the reduction of carbon footprint at affordable interdependence investments
- Scenarios for novel distributed and intensified processing, sourcing and design solutions linking individual "home-based" designers and manufacturers to the supply-chain, **promoting social inclusion and deploying skills locally available**.
- Scenarios for local sourcing and supply, thus reducing the environmental footprint, taking into account both raw material and energy sources

The proposals are expected to include an evaluation of best use and practical cases for intensified processing, while also providing an understanding on the research needs to achieve rapid deployment of the novel business solutions in particular consumer-targeted domains and a roadmap for their implementation. **All relevant supply-chain stakeholders should be considered (including representatives from socio-economic sciences)** and it is expected that SMEs will play an important role in the deployment and application of future business models.

The needs of SMEs as part of the supply-chain should be addressed.

The Commission considers that proposals requesting a contribution from the EU between EUR 250000 and 500000 would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

No more than one action will be funded.



Call - Industry 2020 in the Circular Economy

Expected impact

A study on the research needs to develop new business model solutions that can support the return of delocalised manufacturing to Europe, in the order of at least 5% of the total manufacturing capacity, in the process industry sectors, within 5 years after the end of the study.

The overall aim is to obtain an understanding of how to achieve in the medium term **new business model solutions which should provide:**

- Reduction in the environmental footprint compared to products produced in the traditional value chains by 10% through less stock, less waste, and less transportation;
- Reduction of raw material by 15% through the creation of strong networks with related sources of raw material coming from different sources (primary and secondary) locally
- **Development of scenarios in order to identify the proper locations and opportunities associated to delocalised facilitates taking into account legal and social hampering factors**
- Increased business opportunities on a local scale.
- **More involvement of customers/users in the integrated innovative business model solutions.**

Type of action	Coordination and support action
Deadline	21 January 2016
Call identifier	H2020-IND-CE-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2354-spire-06-2016.html



Call - Industry 2020 in the Circular Economy

CIRC-01-2016-2017

Systemic, eco-innovative approaches for the circular economy: large-scale demonstration projects

Specific challenge

The increasing resources' constraints that EU is facing strongly condition its competitiveness and the quality of life of individuals. Important gains in resource efficiency can be made by replacing current linear economic models with circular models of production and consumption, which result, at the same time, in a substantial reduction of GHG emissions. While relying on industrial leadership, the success of circular economy models will depend on adopting a systemic approach to eco-innovation that encompasses value and supply chains in their entirety and engages all actors involved in such chains. **A systemic approach entails foresight of the diverse impacts that transformative innovative solutions can have on the economy, environment and society at large.** Side-effects of innovative practices can thus be addressed, e.g. change in energy policy due to a reduction of waste available for energy recovery. Bringing end-users closer to the design and production phases, and customising the production and delivery of goods and associated services can boost new consumption patterns that add greater value and reduce over-production, waste and other negative environmental impacts. The involvement of end-users in designing circular economic models that better respond to their needs can enable the development of value-added solutions and act as a driver for Europe's re-industrialisation.

Scope

Proposals shall address one of the following issues:

a) Design for circular value and supply chains (2016): Through large scale demonstration projects, organisations, including from process and manufacturing industries and SMEs, whether dealing with biotic and/or abiotic resources, are expected to test and showcase circular economy solutions based on re-design of value and supply chains, taking into account products, production processes, and/or systems, as well as involving final users. Such solutions should entail the environmentally sustainable recovery, recycling and/or re-use of resources and energy flows, including by cross-sectorial symbiosis, within the overall chain from resources to marketed products.

The proposals should enable entrepreneurs, industries and researchers to collectively implement the innovative solutions at an appropriate scale, which goes beyond a single production plant. They should develop new forms of organisation and governance within and across value and supply chain(s), considering where appropriate collaboration between public and private sectors. The proposals should include an outline business plan which can be developed further in the course of the project.

Where relevant, projects are expected to contribute to the implementation of the SPIRE PPP Roadmap.

For the technological innovation components, TRL 5-7 are to be aimed for (as defined in the General Annexes of this Work Programme). The EU Environmental Technology Verification (ETV) pilot programme¹¹ could be used to verify the performance of innovative technologies at higher TRLs.

The Commission considers that proposals requesting a contribution from the EU of between EUR 7 million and 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.

b) Systemic services for the circular economy (2017): **To demonstrate through large scale projects the economic and environmental feasibility of circular economic business models that underpin new services based on performance/functionality rather than ownership, and/or on mass customisation, including through supporting demand side measures. Proposals should adopt a systemic eco-innovative approach addressing all forms of innovation, combining technological, organisational, societal, cultural and behavioural innovation, and strengthening the participation of civil society.** Such an approach can foster new forms of collaboration between end-users, producers and researchers. **In particular proposals should consider ways of supporting co-creation by developing, experimenting and demonstrating new business models together with end-users, taking into consideration their needs, including gender dimension, thus enabling the development of value adding solutions. Business models that foster new services and consumption and production patterns will require support to end-users in the transition to the circular economy by raising awareness and knowledge sharing activities on circular economy models. The proposals should include an outline business plan which can be developed further in the course of the project.**

The Commission considers that proposals requesting a contribution from the EU of between EUR 4 million and EUR 7 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude



Call - Industry 2020 in the Circular Economy

submission and selection of proposals requesting other amounts.

For both: Within the projects funded, additional or follow-up funding should be sought, be it private or public, so as to achieve a more effective implementation and deployment at larger scale and scope of the innovative solutions addressed. Additional funding sources could include relevant regional/national schemes under the European Structural and Investment Funds (ESIF), such as under the European Regional Development Fund (ERDF), or other relevant funds such as the Instrument for Pre-accession Assistance (IPA II). In the latter case, contacts could be established with the funds managing body during the duration of the projects. In case of relevance for the Research and Innovation Smart Specialisation Strategies, the project proposals could already indicate which interested regions/countries have been pre-identified. Please note, however, that reference to such additional or follow-up funding will not lead automatically to a higher score in the evaluation of the proposal.

Within the projects funded, **possible regulatory barriers should also be addressed, as appropriate**. In particular 'Innovation Deals' may be proposed. By 'Innovation Deal' a bottom-up approach to address regulatory bottlenecks to innovation is understood, that would take the form of voluntary agreements, with the European Commission and external stakeholders, with the aim of identifying and overcoming regulatory barriers and thus facilitating the market up-take of innovative solutions.

A life cycle thinking and assessment, in line with the recommendations and reference data from the European Platform on Life Cycle Assessment when applicable, should be applied.

Expected impact

a) The testing and demonstration of circular value and supply chains, within cross sectorial, collaborative systemic approaches is expected to make measurable contributions in the medium term to:

- substantially improving the efficient use of resources in Europe, leading to significant reduction of adverse environmental impacts, including on climate change, and to optimisation of production;
- substantially reducing the generation of residual waste, by applying the principles of the waste hierarchy (as set in the Waste Framework Directive), compared to current best practice;
- creating new business opportunities for industry and SMEs in the EU, including in manufacturing, contributing to the exploitation of EU innovative solutions, and improving the competitiveness of European enterprises in the global market for eco-innovative solutions;
- **demonstrating the economic, social, and environmental sustainability of the proposed approaches and main elements that a business plan should include in order to realise them**, including the assessment of possible positive and negative side-effects and risks, such as those associated with harmful substances potentially present in recycled materials;
- **providing evidence-based knowledge for enabling framework conditions (such as the regulatory or policy framework) that facilitate a broader transition to the circular economy in the EU.**

b) The testing and demonstrating of circular economic business models and services, including logistics and ICT capabilities, based on performance/functionality enhancement, is expected to measurably contribute in the medium term to:

- creating markets for new products/services (e.g. leasing or 'sharing' practices) which empower end-users in their choice for more sustainable consumption patterns, and require the implementation of innovative producer responsibility or other sectorial or cross-sectorial governance schemes;
- enabling the development of new approaches for designing products/services that collectively consider end-users, brand owners, as well as entrepreneurs, and researchers, and deliver the needs of end-users;
- reducing supply chain length, thus increasing resource efficiency and reducing adverse impacts on the environment, including on climate change;
- facilitating the inclusion of resource or materials criteria in designing products/services (e.g. durability, reparability and recyclability), thus contributing to an increase in resource and energy efficiency, and reduced environmental impacts, in the whole life cycle of products;
- creating new business opportunities for industry and SMEs in the EU, contributing to the exploitation of EU innovative solutions, and improving the competitiveness of European enterprises in the global market for eco-innovative solutions;
- **demonstrating the economic, social, cultural and environmental sustainability of the proposed approaches and main elements that a business plan should include in order to realise them**, including the assessment of possible positive and negative side-effects and risks, such as those associated with harmful substances potentially present in recycled materials;



Call - Industry 2020 in the Circular Economy

- providing evidence-based knowledge regarding the enabling framework conditions (such as the regulatory or policy framework or cultural factors) that facilitate a broader transition to a circular economy in the EU.

Type of action	Innovation action	
Deadline	1st stage - 8 March 2016	2nd stage - 6 September 2016
Call identifier	H2020-IND-CE-2016-17	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2342-circ-01-2016-2017.html	



Call - Industry 2020 in the Circular Economy

CIRC-04-2016

New models and economic incentives for circular economy business

Specific challenge

The circular economy holds high potential to contribute to sustainable economic growth and resource efficiency. To capitalise on this potential, **appropriate business models are required that can respond to the specific characteristics of the circular economy, in particular in terms of altering value chains, consumption patterns, producer-consumer relationships and financing needs.** Furthermore, **these business models need to address the issues of trust and traceability. This includes ensuring environmentally, economically and ethically secure sources of materials as well as ensuring that incentives are appropriately distributed throughout the entire supply chain.**

Circular economy business models and improved knowledge there of need to be developed and disseminated to enable entrepreneurs, industries, and business sectors to work together effectively and to make the transition towards the circular economy. In order to make this transition permanent and sustainable, it is of great importance to integrate public policy-making and business decision-making into the development and analysis of best practices, and their subsequent uptake and scaling-up of circular economy business models.

Scope

Proposals should establish the baseline and facilitate better understanding of the relevant factors which stimulate or hinder successful implementation of circular economy business models. In addition, the underpinning economics leading to further development and future implementation of business models that facilitate the transition towards a circular economy, should be investigated together with the potential of these business models to achieve wider social sustainability benefits, including job creation potential, especially in SMEs. These activities should be based on the identification of drivers and barriers through existing initiatives, programmes, or concrete cases of already successfully applied circular economy business models or selected sectors which have high potential for a transition to the circular economy. All relevant actors and entire chains of production and use should be taken into account. The selected concrete cases or sectors should be sufficient in number to derive generic recommendations at EU level and relevant to support Europe's re-industrialisation, and the Commission's initiatives in the field of Industry 2020, Internet of Things, the Digital Single Market and Resource Efficiency. Recommendations should be provided in support of policy making, and for future implementation or replication of developed circular economy business models.

Smart, data-driven ICT environments that can contribute to enabling a new generation of business models that maximise performance and added value to the customer, could be also considered, for example sharing, leasing, remanufacturing and new forms of cooperative or social enterprises.

The project activities should aim to attract interest from public and private organisations; the engagement of policy and decision makers should be envisaged; **the involvement of scientific actors and business- and higher economic education schools is encouraged in the selection and analysis of cases. Projects should provide an effective mechanism to promote and pave the way for enabling education about and in support of and implementation of business models for the circular economy in a consistent and sustainable manner.**

Proposals should consider a systemic approach in business models, applying economic, technological, social, financial, governance, Corporate Social Responsibility and regulatory innovation and embed a strong focus on design, interaction and distribution of value across all actors in a value chain and/or value network.

The activities should take into account and liaise with, where appropriate, other EU past and present projects and initiatives in the field such as the research and education programs of the relevant Knowledge and Innovation Communities (KICs) of the European Institute for Innovation & Technology (EIT) – namely the Climate-KIC, the EIT Raw Materials and the upcoming KIC on Added-value manufacturing (to be launched in 2016).

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



Call - Industry 2020 in the Circular Economy

Expected impact

The project results are expected to contribute to:

- **recognition by industry and policy makers of the role that business models can play in the circular economy;**
- **establishing a practice of co-design and replication of new circular economy business models, linking business development and policy making, based on the trans-disciplinary research outcomes on drivers and barriers also in sectors not yet engaged in the circular economy;**
- **better application and replication of applied research and innovation outcomes through enhanced exchange of information, experience, and best practice on circular economy business models and policy making in support thereof between policy makers, businesses, academics, business and higher economic education schools, practitioners, and regional development organisations;**
- enabling circular businesses to overcome barriers originating from dominant market structures of the linear economy, and reinforcing the shift in consumption, production and value chain operation with effective cooperation mechanisms;
- Europe's sustainable transition towards a circular economy;
- increased dissemination among relevant communities of circular economy-related best practices in business development, financial instruments, scaling up activities and policy making.

Type of action	Research and Innovation action
Deadline	8 March 2016
Call identifier	H2020-IND-CE-2016-17
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2360-circ-04-2016.html

Topics with minor SSH relevance

CIRC-05-2016 **Unlocking the potential of urban organic waste**

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2359-circ-05-2016.html>



Call - Internet of Things

IoT-01-2016

Large Scale Pilots

Specific challenge

The challenge is to foster the deployment of IoT solutions in Europe through integration of advanced IoT technologies across the value chain, demonstration of multiple IoT applications at scale and in a usage context, and as close as possible to operational conditions. Compared to existing solutions, the roadblocks to overcome include i) the integration and further **research and development** where needed of the most advanced technologies across the value chain (components, devices, networks, middleware, service platforms, application functions) and their operation at large scale **to respond to real needs of end-users** (public authorities, citizens and business), based on underlying open technologies and architectures that may be reused across multiple use cases and enable interoperability across those; **ii) the validation of user acceptability by addressing, in particular, issues of trust, attention, security and privacy through pre-defined privacy and security impact assessments, liability, coverage of user needs in the specific real-life scenarios of the pilot, iii) the validation of the related business models to guarantee the sustainability of the approach beyond the project.**

Scope

Pilots are targeted, goal driven initiatives that will propose IoT approaches to specific real-life industrial/societal challenges. Pilots are autonomous entities that involve stakeholders from supply side to demand side, and contain all the technological and innovation elements, the tasks related to the use, application and deployment as well as the development, testing and integration activities. Large scale validation is characterised by the fact that it will be possible to operate the functional entities implemented in the pilot under load and constraints conditions close to operational load one's, either with real traffic/request/processing loads, or with emulated loads where full implementation is not possible. Demonstration to operate the system across multiple sites, scalability to large amount of heterogeneous devices and systems, as well as with large amount of real users are expected. Pilot work plans should include feedback mechanisms to allow adaptation and optimisation of the technological and business approach to the particular use case.

Use of experimental testbeds, such as FIRE, and real-world demonstrations may support IoT technologies validation before they are deployed in field trials. Given the considerable amount of work carried out on M2M/IoT and Cyber Physical Systems architectures (e.g. IoT-A) open platforms (e.g. FIWARE, CRYSTAL, UniversAAL) and standards (e.g. oneM2M) over the last few years, pilots are encouraged to exploit this previous work where applicable with the objective of further demonstrating the generic applicability and interoperability of these and/or other architectures, platforms and standards, and to identify where standards are missing or should evolve, as well as needed pre-normative activities.

IoT finds applicability in a broad range of industry, business and public services scenarios. On the basis of European relevance, technology readiness and socio-economic interest, the following areas have been identified to be addressed with Large Scale IoT Pilots.

Pilot 1: Smart living environments for ageing well

The objective is to deploy innovative and user-led pilot projects capable of supporting and extending independent living at home for older adults based on Internet of Things (IoT) technologies. The smart living environments should be based upon an integrated system of a range of IoT-based technologies and services with user-friendly configuration and management of connected technologies for homes and outside.

They should provide seamless services and handle flexible connectivity while users are switching contexts and moving in their living environments. The proposed pilots should also demonstrate feasibility of integration with other relevant application domains such as energy, transport, or smart cities. The solutions shall build upon advanced IoT technologies, using and extending available open service platforms, standardised ontologies and open standardised APIs. **Proposals shall address** integration, standardisation and interoperability work on required ICT platforms, services and data sources, as well as on **innovation in organisational and business models for service delivery.**

Proposed solutions should take into account the specific requirements for accessibility, usability, cost efficiency, personalisation and adaptation arising from this application sector. They should be based on active user engagement from the outset and should involve a multi-disciplinary approach in order to ensure the understanding of user needs and their evolution, safeguarding ethics and privacy and the assessment of impact. This should include quality of life for older adults and their carers, care system efficiency gains, business and financing models and organisational



Call - Internet of Things

changes required for service delivery.

A clear methodology for socio-economic impact assessment should be included. Large scale pilots should demonstrate the benefits of smart living environments based on IoT in terms of prolonged independent and safe living of older adults at home with good quality of life. The number of users involved and duration of pilot services should be sufficient to ensure statistical significance in impact analysis, with a minimum of 4 pilot sites in 4 countries.

Pilot 2: Smart Farming and Food Security

The implementation of Precision Agriculture has become possible thanks to the development of sophisticated sensors, robots and sensor networks combined with procedures to link mapped variables to appropriate farming management actions. Those sensors, either wired or wireless, integrated into an IoT system gather all the individual data needed for monitoring, control and treatment on farms located in a particular region. Such future Internet of Things scenario would bring data management to a new level by establishing interactions between the concerned objects, help them exchange information in efficient ways and enable them to execute autonomously appropriate interventions in different agricultural sub-sectors (e. g. arable crops, livestock , vegetable and fruit production) and their associated post-production value chain through to the consumer. The introduction of the IoT scenario would allow monitoring and control of plant and animal products during the whole life cycle from farm to fork. It should thereby also help farmers' decision making with regard to the use of inputs and management processes. The challenge is to design architectures to “program” or track each object for optimal behaviour, according to its role in the Smart Farming system and in the overall food chain, decreasing use of water as well as other natural resources and inputs, lowering ecological footprints and economic costs as well as increasing food security. It also enables consumers to access trustworthy traceability information throughout the whole food chain.

Proposals shall include an adequate combination of different farms to ensure that the deployment of the technology is adapted to the needs of different types and sizes of farms across Europe. Activities should allow for a wide geographic coverage within Europe and benefit both conventional and organic agro-food chains. In addition, proposals shall cover at least three sub-sectors (e.g.arable crops, livestock, vegetable and fruit production).

Proposals should fall under the concept of multi-actor approach and allow for adequate involvement of the farming sector in the proposed activities.

Pilot 3: Wearables for smart ecosystems

Demonstration of innovative wearable solutions and services integrated in interoperable IoT ecosystems. Wearables are integrating key technologies (e.g. nano-electronics, organic electronics, sensing, actuating, localization, communication, energy harvesting, low power computing, visualisation and embedded software) into intelligent systems to bring new functionalities into clothes, fabrics, patches, watches and other body-mounted devices. They assist humans in monitoring, situational awareness and decision making. Particular attention should be devoted to actuating functions providing whenever feasible fully automated closed-loop solutions. Prototype development and demonstration are expected for healthcare, well-being, safety, security and infotainment applications. **Actions should be driven by concrete business cases, open design approaches and user requirements, taking into account data protection and liability concerns. They should involve the actors of the entire innovation value chain, potentially including creative and artistic actors, and aim at demonstrations in real world settings.** The number of users involved should be sufficient to ensure statistical significance in impact analysis.

Pilot 4: Reference zones in EU cities

Building on the past results and achievements in some cities in Europe, a large scale pilot will cover a series of cities to operate as reference zones for showcasing and experimenting new citizen-centred IoT services. **Starting from users' expressed preferences and needs, these cities will experiment and test similar new services and solutions, also through involvement of creativity hubs such as fablabs, co-working spaces, and gather experience at scale and evaluate citizens' acceptability and endorsement.** It will enable SMEs to use open demonstrators to test innovative new services. This includes advanced solutions for traditional services' provisioning e.g. water management but also solutions that are at the edge of authorised business practices or regulation (ex: sharing of electricity, autonomous vehicles) and thus require dedicated testing zones. Whenever applicable, pilots will provide evidence of access to city areas where legal contexts are adapted to the demonstration requirements (i.e. 'reference zones'). Federation and interoperability between platforms may be considered as appropriate, as well as the ability to integrate data from different service providers. The number of users involved and duration of pilot services should be sufficient to ensure statistical significance in impact analysis, with a minimum of 4 pilot sites in 4 countries.



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Pilot 5: Autonomous vehicles in a connected environment

The pilot addresses the added value and the potential of applying IoT for autonomous vehicles in a connected environment.

It should test scenarios of deployment of safe and highly and fully autonomous vehicles (up to SAE international level 5, full automation) in various representative use case scenarios, exploiting local and distributed information and intelligence. Core technologies include reliable and real-time platforms managing mixed criticality car services, advanced sensors and Internet information sources around which value-added apps may be constructed, efficient navigation and improved decision-making technology, interconnectivity between vehicles, vehicle to infrastructure communication. Using advanced technologies for connectivity is seen as an asset. The selected scenarios will provide proofs of concept showing how such technology provides benefits affecting users on a daily basis, for instance on the highways or in urban congested environment, either on dedicated lanes or mixing autonomous connected vehicles and legacy vehicles. To make a real step towards future large scale deployment and to demonstrate dependability, robustness and resilience of the technology over longer period of time and under a large variety of conditions, priority will be given to permanent installations and sustainable pilots rather than to temporary prototypes or demonstrators.

These evolutions are expected to be supported by an open service platform which may have access to all in vehicle embedded information sources and to car surrounding information, in view of providing value-added apps e.g. intelligent maintenance. **Key barriers to the deployment of such vehicles and ecosystems such as robustness of the perception, how to keep users of highly and fully automated vehicles sufficiently engaged and overall user acceptance are in scope, as well as economic, ethical, legal and regulatory issues.**

Specific Pilot considerations:

- Mapping of pilot architecture approaches with validated IoT reference architectures such as IoT-A enabling interoperability across use cases;
- Common or interoperable object connectivity/functionality/intelligence approaches on various levels – protocols, data formats
- Common or interoperable set of IoT related enablers and services. Pilots are requested to address the elements that provide the basis for interoperability with related fields outside the pilot especially for key aspects such as object identification/naming, service publication characteristics, search, semantic properties.
- For the incorporation of users of the pilots, developers of additional applications, replication of the pilot through new sites or new connected devices, and complementary assessment of the acceptability of the use case where appropriate, the actions may involve financial support to third parties in line with the conditions set out in Part K of the General Annexes. Each consortium will define the selection process of the third parties for which financial support will be granted (typically in the order of EUR 100 000 to 300 000 per party). Up to 20% of the EU funding requested by the proposal may be allocated to the purpose of financial support to third parties.
- **Exchange on requirements for legal accompanying measures.**
- **Involvement of social scientists and representative user groups, in order to design systems that are useful and acceptable for people/citizens and optimise testing and experimentation.**
- Integration of objects, devices and systems in an IoT environment adapted to the expressed needs of the users.

Pilots Implementation:

Pilots in the selected areas will clearly identify the supply and demand sides. The effort devoted to supply and demand should be balanced for each pilot.

The supply side represents the technological part of the pilot and addresses all the ICT elements that constitute the proposed approach. This includes:

- definition of the IoT architecture;
- IoT platform choice, technologies, necessary adaptations, trade offs required for the application requirements, and their management,
- Retained platform deployment conditions, of non technological nature
- development and operation of the distributed IoT nodes;
- management and adaptation of involved sensing, actuating, processing, energy supply, storage technologies at node level (setting, programming, conditioning);
- integration of devices, objects and systems in an IoT environment;
- approaches to interoperability and openness;
- security and privacy approaches;
- contribution and compliance to relevant IoT standards;



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The demand/user side of the pilot covers all the application and usage related elements. This includes:

- definition, design, implementation and testing of multiple use-case scenarios;
- setting up application(s) requirements in terms of performance, scale, reliability, cost, usability, maintenance;
- interoperability needs and testing;
- security and privacy needs;
- feed-back to IoT supplier for technology optimisation;
- **users/citizen awareness, involvement and acceptance;**
- **pro-active uptake of societal (RRI-SSH) issues;**
- impact, added value and affordability assessment;
- mechanisms for replication;
- **business and sustainability models;**
- pilot conclusions and validation from the user side;
- dissemination of results in relevant communities;
- contribution and compliance to relevant IoT standards.

Pilot projects are expected to contribute to the consolidation and coherence work that will be implemented by the CSA supporting the activities defined under "Horizontal Activities" below. This requires that they contribute to clustering their results of horizontal nature (interoperability approach, standards, security and privacy approaches, business validation and sustainability, methodologies, metrics, etc.).

The Commission considers that proposals requesting a contribution from the EU up to EUR 30 million (pilot 2), up to EUR 20 million (pilot 1), up to EUR 15 million (pilots 3, 4) and up to EUR 20 million (pilot 5) would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts.

At least one large pilot is supported for each area.

Expected impact

Pilots are expected to have a high impact on citizens, both in the public and private spheres, industry, businesses and public services. Key performance indicators should be identified to measure progress on citizen benefits, economic growth, jobs creation, environment protection, productivity gains, etc.

Pilots' impact should go beyond involved partners and will aim at influencing external communities by putting in place appropriate mechanisms.

- Validation of technological choices, sustainability and replicability, of architectures, standards, interoperability properties, of key characteristics such as security and privacy;
- **Exploration and validation of new industry and business processes and innovative business models validated in the context of the pilots.**
- **User acceptance validation addressing privacy, security, vulnerability, liability, identification of user needs, concerns and expectations of the IoT solutions**
- Significant and measurable contribution to standards or pre-normative activities in the pilots' areas of action via the implementation of open platforms
- **Improvement of citizens' quality of life, in the public and private spheres, in terms of autonomy, convenience and comfort, participatory approaches, health and lifestyle, and access to services.**
- Creation of opportunities for entrepreneurs by promoting new market openings, providing access to valuable datasets and direct interactions with users, expanding local businesses to European scale, etc.
- Development of secure and sustainable European IoT ecosystems and contribution to IoT infrastructures viable beyond the duration of the Pilot.

For Pilot 1:

- Proposals should show clear evidence of the benefits of the proposed solutions for active and independent living and quality of life of older persons compared to current state of the art based on appropriate methodologies and metrics.



Call - Internet of Things

Type of action	Innovation action
Deadline	12 April 2016
Call identifier	H2020-IOT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2223-iot-01-2016.html



Call - Internet of Things

IoT-02-2016

IoT Horizontal activities

Specific challenge

The challenge is to ensure a sound coherence and exchanges between the various activities of the Focus Area, and notably cross fertilisation of the various pilots for technological and validation issues of common interest across the various use cases. **Issues of horizontal nature and topics of common interest, such as privacy, security, user acceptance, standardisation, creativity, societal and ethical aspects, legal issues and international cooperation, need to be coordinated and consolidated across the pilots** to maximise the output and to prepare the ground for the next stages of deployment including pre-commercial or joint public procurement. **A related challenge is to foster links between communities of IoT users and providers**, as well as with Member States' initiatives, and to connect with other initiatives including contractual Public-Private-Partnerships (e.g. in the area of Big Data, Factories of the Future, 5G-infrastructure), Joint Technology Initiatives (e.g. ECSEL), European Innovation Partnerships (e.g. on Smart Cities), other Focus Areas (e.g. on Autonomous transport), **and RRI-SSH issues**.

A related challenge addresses inter-operability and integration, through open IoT platforms across application areas such as FIWARE, CRYSTAL or SOFIA. It addresses the reference implementation of promising IoT standards serving the interoperability and openness objectives, by consolidating results obtained through standard implementation and pre-normative activities at the platform and/or pilot levels.

Scope

Proposals should cover one of the following set of activities (a or b):

a. Co-ordination of and support to the IoT Focus Area

- Focused Action level coordination ensuring consistent exploitation of the outcomes of the various projects forming the FA: coordination of the projects and related pilot areas through mapping of pilot architecture approaches; interoperability and standards approaches at technical and semantic levels for object connectivity, protocols, data formats, privacy & security, open APIs; **exchange on requirements for legal accompanying measures**; development of common methodologies and KPI for design, testing and validation and for success and impact measurement; federation of pilot activities and transfer to other pilot areas, facilitating the access for IoT entrepreneurs/API developers/Makers and SME in general. The corresponding activities will be developed and consolidated together with the pilots at FA level, and include where appropriate results from other relevant activities in the Factory, smart city, and vehicle domains.
- **Horizontal support: further development and exploitation of security and privacy mechanisms towards best practices and a potential label ("Trusted IoT"); legal support in relation to data ownership and protection, security, liability, sector-specific legislations; contribution to pre-normative activities and to standardization both horizontally and in various application areas, also linked with IoT Governance.** The corresponding activities will be developed and addressed in the pilots and consolidated at programme level under this horizontal support activity line. Promotion for sharing of conclusions and road-mapping with similar activities in countries and regions outside Europe, including convergence and interoperability of European and non-European IoT reference architectures/platforms. Exploitation of the combination of ICT & Art for stimulating innovation and acceptance; preparation for the next stages of IoT deployment including through pre-commercial or joint public procurement.

The Commission considers that proposals requesting a contribution from the EU up to EUR 3 million would allow this specific challenge to be addressed appropriately. Nonetheless, this does not preclude submission and selection of proposals requesting other amounts. A minimum of one proposal will be funded.

b. RRI-SSH support to IoT

- **Pilots shall be citizen-driven, involving existing and local communities at an early stage and addressing a combination of sustainability areas. The corresponding activities should accompany the pilots, analyse societal, ethical and ecological issues related to the pilots, and develop recommendations for tackling IoT adoption barriers including educational needs and skill-building. Consortium participation requires at least two entities from domains different than ICT technologies (e.g. social sciences, psychology, gerontology, economy, art, etc.).**



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The Commission considers that proposals requesting a contribution from the EU up to EUR 1 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

- Ensure efficient and innovative IoT take-up in Europe, building on the various parts of the initiative (pilots, research, horizontal actions)
- Efficient information sharing across the programme stakeholders for horizontal issues of common interests
- Extension and consolidation of the EU IoT community, including start-ups and SMEs
- Validation of technologies deployment, replicability towards operational deployment
- Validation in usage context of most promising standards and gap identification
- Strengthening of the role of EU on the global IoT scene, in particular in terms of access to foreign markets.

Type of action	Coordination and support action
Deadline	12 April 2016
Call identifier	H2020-IOT-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/2222-iot-02-2016.html



Call - Smart and sustainable cities

SCC-02-2016-2017

Demonstrating innovative nature-based solutions in cities

Specific challenge

Mass urbanisation presents one of the most urgent challenges of the 21st century. Rapidly developing and changing industrial activities, uncontrolled urban sprawl, large, concentrated and often culturally diverse populations have created numerous complex social and health problems. **Cities and urban communities have to cope with challenges related** poor air quality, heat island effects, increased flood risks, increased frequency/severity of extreme events (floods, droughts, storms, heat waves, etc.), derelict industrial sites, dis-functioning urban areas, **increased criminality, social exclusion, inequalities, marginalisation, poverty and degraded urban environments. These challenges have serious impacts on human health, quality of life, well-being and security of citizens, particularly among the less privileged social classes.**

Cities accounting for 72% of the European population are major contributors to climate change consuming 75% of global energy and emitting 80% of greenhouse gas generated by human activity. Growing urban populations, pollution and economic activities also place water resources under severe stress, exacerbating demand whilst affecting the quality and quantity of supply. Climate change mitigation and adaptation and the sustainable management of water resources are therefore key challenges for the cities in Europe and beyond.

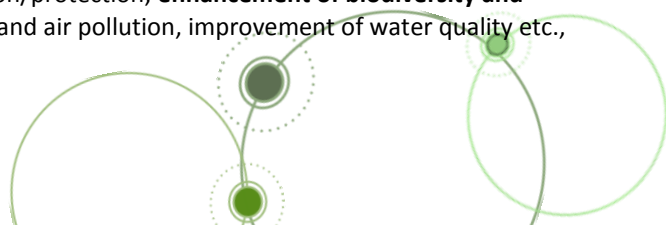
There is convincing but fragmented evidence that nature-based solutions can significantly enhance the climate and water resilience of cities. Furthermore **nature-based solutions, by reshaping the built environment, can enhance the inclusivity, equitability and liveability of the cities, regenerate deprived districts, improve mental and physical health and quality of life for the citizens, reduce urban violence, and decrease social tensions through better social cohesion particularly for the most vulnerable groups e.g. children, elderly and people of low socioeconomic status.**

The challenge is therefore to provide a robust, EU-wide evidence base and develop a European reference framework on nature-based solutions for regional and local city authorities, communities, enterprises and other stakeholders about the benefits, co-benefits, cost-effectiveness and economic viability of these solutions to enhance on the one hand climate and water resilience in cities and on the other hand to address inclusive urban regeneration in cities and thus promote their large scale deployment and the creation of a global market.

Scope

Projects should adopt a 'front-runner' and 'follower' cities approach, as described in more detail below, to facilitate the rapid exploitation, replication and up-scaling of the solutions and via large-scale demonstrations should aim to:

- develop, deploy at an appropriate scale of intervention and demonstrate in 'front-runner' cities as 'living laboratories' innovative, replicable and locally attuned nature-based solutions, with a systemic impact at the scale of intervention, to address the challenges specified below. **Solutions should be co-designed, co-developed and co-implemented in a trans-disciplinary, multi-stakeholder and participatory context and systemically embedded in an integrated urban and land use planning;**
- assist 'follower' cities that commit to proactively seek advice, expertise, assistance, capacity building (e.g. through staff exchanges) and mentoring from the 'front-runners' and develop, within the duration of the project, a sustainable urban planning that systemically replicates, embeds and integrates the demonstrated nature-based solutions 'customised' to their particular context to successfully address the challenges specified below. This urban plan is a contractual obligation and should be delivered by the end of the project. 'Followers' should have privileged contacts with the project partners and access to the know-how and outcomes of the project and should participate in the definition of user requirements and the design of the methodology for replicating and transferring solutions, data, etc.;
- engage the 'front-runner' cities (as 'coaching cities') in further networking and knowledge-sharing efforts with cities beyond those directly involved in the project to maximise the benefits of the project for a broader community beyond the limits of the project;
- set up a robust monitoring scheme to monitor, for a period of at least 2 years within the life of the project, the performance and assess the impact of the deployed solutions in an as quantifiable way as possible against a well-defined baseline regarding the challenges in the participating cities at the time of the proposal. Longer term commitment to monitoring and systematic documentation beyond the end of the project will give an added value to the proposal; **develop methodologies to assess the efficacy, performance and cost-effectiveness of the solutions compared to alternative options, considering benefits, co-benefits** (such as carbon sequestration, mitigation of heat island effects, natural cooling and heating, **recreation due to dual use spaces**, mitigation of soil sealing effects, enhanced soil, reduction of noise and air pollution, flood prevention/protection, **enhancement of biodiversity and natural capital, human well-being and health**, reduction of noise and air pollution, improvement of water quality etc.,



Call - Smart and sustainable cities

where these are not the primary objectives) and negative impacts that their deployment could entail when addressing the challenges specified below;

- develop methodologies for replication and up-scaling in different contexts of the solutions deployed in the 'front-runner' cities, including investment strategies, governance and business models and approaches for their systemic integration in the urban and land use planning;
- **identify and assess potential regulatory, economic, social (such as gender, age, disability and culture) and technical barriers of relevance to these solutions and propose ways to overcome them;**
- establish long-term sustainable data platforms to systematically document information and provide evidence on practices and lessons learnt regarding the deployment, cost-effectiveness (including benefits and co-benefits) and performance of nature-based solutions. Deploy appropriate state-of-the-art digital technologies, ICT and innovative communication strategies and tools securing open access and interoperability along data infrastructures and a continuous building up of the 'knowledge portfolio' through future activities under Horizon 2020 and beyond.

Proposals shall address all of the above points. **The involvement of social sciences and humanities in the project will be required to properly address these complex challenges.**

Consortia should involve competent local, city and regional authorities, community groups, enterprises, academics and local communities in a clear structure with well-defined roles and responsibilities for all involved parties.

To maximise benefits at European level, each project shall involve at least 2 'front-runner' cities and 3 'follower' cities from different Member States and/or Associated Countries.

In addition to the coverage of the points mentioned above, the success potential of the proposal will be assessed according to the innovative character, the replicability and market potential of the nature-based solutions and of the systemic processes envisaged for their co-designing, co-developing and co-implementation, the long-term commitment, both political and financial, of the competent authorities that would guarantee the project implementation independently of possible changes in the urban political context during the project and the sustainability of financing, through mobilisation and leveraging of investments.

In line with the strategy for EU international cooperation in research and innovation (COM(2012)497), international cooperation is encouraged. To this end, participation of 'follower' cities from non-EU countries would enhance the potential for international replication, including in the context of, but not limited to, the EU-China Sustainable Urbanisation Partnership and the EU-China Innovation Dialogue. This would contribute to the creation of a global market for nature-based solutions.

Resources should be envisaged for clustering with other projects financed under the "Nature-based solutions for territorial resilience" part of the call for Societal Challenge 5 'Climate action, environment, resource efficiency and raw materials', namely topics SC5-08-2017, SC5-09-2016 and SC5-10-2016, to optimise collaboration, synergies, interactions and mutual support to the achievement their corresponding objectives and, if possible, under other relevant parts of Horizon 2020.

Because of the substantial investments that might be necessary for implementing the nature-based solutions, additional and/or follow-up funding (private or public) should be sought, be it private or public, relevant regional/national schemes under the European Structural and Investment Funds (ESIF) and/or the European Regional Development Fund (ERDF), or other relevant funds such as the Instrument for Pre-accession Assistance (IPA II). In these cases, contacts could be established with the funds managing body during the duration of the projects. In case of relevance for the Research and Innovation Smart Specialisation Strategies (RIS3) the project proposals could already indicate which interested regions/countries or other partners have been pre-identified. Please note, however, that reference to such additional or follow-up funding will not lead automatically to a higher score in the evaluation of the proposal.

As illustrated by proposals responding to the call for ideas, the Commission considers that proposals requesting a contribution from the EU of at least 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.

Proposals shall address one of the following issues:

a) Demonstrating innovative nature-based solutions for climate and water resilience in cities (2016)

Actions should aim to improve urban resilience to climate change (mitigation and adaptation) and enhance water resources management sustainability through deployment of nature-based solutions, or an optimal combination of nature-based solutions and other technologies. **Trans-disciplinary and community-based approaches including social sciences and humanities in the co-designing, co-development and co-implementation of the solutions is considered necessary.**

b) Nature-based solutions for inclusive urban regeneration (2017)

Actions should address nature-based solutions for inclusive urban regeneration – including regeneration of deprived districts, or neglected or abandoned areas. **They should also test to what extent nature-based solutions can reduce crime and security costs, and enhance human health, wellbeing and social cohesion.**



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The role of social innovation, and hence the participation of social sciences and humanities disciplines such as law, economics, political science, architecture or design studies, is particularly important to properly address these complex challenges.

Expected impact

Projects are expected to contribute to:

- in the mid-term, the creation of an European reference framework and the establishment of EU leadership in a new global market (offer and demand) for nature-based solutions, new economic opportunities, new products, services, protocols and standards, leverage of investments, reduced regulative and administrative barriers, and new local green jobs;
- **increased awareness of the benefits of re-naturing cities**, creation of 'communities of practice', more effective policy making and better informed decision making across Europe based on an EU-wide evidence base regarding efficacy, efficiency and comparative advantages of a range of tested, well documented, up-scalable and marketable nature-based solutions;
- **enhanced stakeholder and citizen ownership of the solutions through their effective and systematic involvement in participatory, trans-disciplinary and multi-stakeholder consultation processes for co-design, co-development and co-implementation of visionary urban planning**;
- increased international cooperation and global market opportunities through replication of approaches and solutions in non-EU countries, including in the context of the EU-China platform;
- enhanced implementation of EU environmental policies, such as the EU Water Framework Directive, the 7th Environment Action Programme, the EU Biodiversity Strategy to 2020, the EU Climate Change Adaptation Strategy, the 'Blueprint to safeguard Europe's waters' and the 'Communication on Green Infrastructures', and of the Sustainable Development Goals and UN conventions in the fields of biodiversity, soil and land management, disaster risk reduction.

In addition, *projects addressing part a)* are expected to contribute to:

- **creating by 2020 healthier and greener European cities**, with increased resilience to climate change (e.g. reduced flood risks, mitigated heat stress) and water-related challenges thanks to the implementation of nature-based solutions, **with better living conditions for all**, increased green infrastructure and biodiversity, improved air and water quality, reduced noise and health costs, improved mobility conditions, opportunities for urban farming **and increased social cohesion**.

In addition, *projects addressing part b)* are expected to contribute to:

- **creating by 2020, through the implementation of nature-based solutions, healthier, culturally diverse and greener regenerated (including deprived districts and neglected or abandoned areas) European cities, with better living conditions for all, reduced crime and security costs**, increased green infrastructure and biodiversity, improved air and water quality, **enhanced human health and wellbeing**, reduced health costs, improved mobility conditions, opportunities for urban farming **and increased social cohesion**.

Type of action	Innovation action	
Deadline	1 st stage - 8 March 2016	2 nd stage - 6 September 2016
Call identifier	H2020-SCC-2016-2017	
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/4081-scc-02-2016-2017.html	



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SCC-03-2016

New governance, business, financing models and economic impact assessment tools for sustainable cities with nature-based solutions (urban re-naturing)

Specific challenge

Re-naturing cities can provide solutions to the multitude of challenges that cities are facing because **nature-based solutions have proven to be multi-purpose and multi-beneficial. To enable the systemic integration of these solutions into a sustainable urban planning, new governance, business, financing models and partnerships are needed allowing for their co-designing, co-development and co-implementation by all stakeholders and societal actors**, and leveraging of investments and synergies between private and public action.

Scope

Actions should:

- **map and analyse existing experiences and practices and recommend innovative business models, financing mechanisms (e.g. crowd funding) and governance arrangements to develop socially acceptable urban 're-naturing' planning through participatory, multi-stakeholder and trans-disciplinary way, involving also local communities, empowering citizens and allowing for an equitable distribution of costs and benefits (including co-benefits) at different scales and trade-offs resolution models, new forms of partnerships (e.g. public-private) and strategies for mobilising new investments and creating new business opportunities;**
- **develop and validate analytical frameworks and methodologies, tools, protocols, standards, indicators and matrixes to: characterize nature-based solutions; assess their cost-effectiveness (accounting for both benefits, co-benefits and possible negative impacts) as compared to alternative combinations of green/grey/hybrid solutions; identify their limits under different conditions and assess confidence intervals, performance thresholds and corresponding uncertainties;**
- **develop and validate decision-support tools, models, management strategies, guidelines and recommendations to assist the urban re-naturing design process and enable the systemic integration of these solutions into a sustainable urban planning, replicability and scalability;**
- **identify cultural, social, economic, institutional, legal, regulatory and administrative barriers, incentives/disincentives fostering/discouraging the implementation of nature-based solutions and bottlenecks at city, regional, national and EU level, including aspects such as citizens' perceptions, consumer behaviour and willingness to pay to conserve/enhance urban green space, for re-naturing cities to enhance their economic, social, cultural and environmental resilience, and recommend ways to overcome them.**

Proposals shall address all of the above points.

The role of social innovation, and the participation of social sciences and humanities, is particularly important to properly address the complex challenges of this topic. Resources should be envisaged for clustering the projects financed under the Nature-based solutions for territorial resilience" part of the call for Societal Challenge 5 ' Climate action, environment, resource efficiency and raw materials', namely topics SC5-08-2016-2017, SC5-09-2016, and SC5-10-2016, to optimise collaboration, synergies, interactions and mutual support to the achievement of their corresponding objectives and – if possible – under other parts of Horizon 2020.

The Commission considers that proposals requesting a contribution from the EU of around EUR 7.5 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

Projects are expected to contribute to:

- **develop enhanced strategies, new institutional and governance arrangements and new finance and business models, fostering multi-stakeholder involvement, citizens' engagement and empowerment, leveraging both public and private funding of nature-based solutions in cities;**
- **kick-start of a collective learning process to foster creative and visionary urban design in re-naturing cities, securing an equitable distribution of the multiple benefits that city re-naturing entails to various stakeholders and citizens at different scales;**



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- develop an integrated evidence base and a European reference framework on nature-based solutions, in order to create a global market; new business opportunities, growth and jobs, and a green economy;
- **optimise the policy and regulatory and administrative frameworks;**
- shift in public and private investments from conventional to nature-based or effective combinations of nature/grey/hybrid solutions to urban challenges.

Type of action	Research and Innovation action
Deadline	8 March 2016
Call identifier	H2020-SCC-2016-2017
Topic information	http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/4084-scc-03-2016.html

