

# Open calls June – December 2017

## Research Support Office

Vice-Rectory for Research and Doctoral School  
University of Aveiro  
June 2017

# Programmes

- I. *Horizon 2020*
- II. *3rd Health Programme*
- III. *Asylum, Migration and Integration Fund. Ø*
- IV. *Consumer Programme*
- V. *COSME*
- VI. *Hercule III Programme. Ø,*
- VII. *Internal Security Fund – Borders. Ø,*
- VIII. *Internal Security Fund – Police. Ø,*
- IX. *Justice Programme*
- X. *Pilot Projects & Preparatory Actions*
- XI. *Promotion of Agricultural Products. Ø,*
- XII. *Research Fund for Coal & Steel. Ø,*
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- XIV. *Union Civil Protection Mechanism*

# I. Horizon 2020



# I. Horizon 2020- *Excellent science*

1. European Research Council (ERC)

2. Future and Emerging Technologies (FET)

3. Marie-Sklodowska-Curie Actions (MSCA)

4. Research Infrastructures Ø

# I. Horizon 2020- *Excellent science* - ERC

- ERC-2017-ADG: ERC Advanced Grant

Opening date: 16 May 2017      Deadline : 31 August 2017

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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/erc-2017-adg.html>

# I. Horizon 2020- *Excellent science - FET*

## • FET-Open research and innovation actions

**Opening date:** 08 December 2015      **Cut off dates:** 11 May 2016 | 17 January 2017 | 27 September 2017

**Specific challenge:** 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
- Breakthrough scientific and technological target
- Novelty
- Foundational
- High-risk
- Interdisciplinary.

**Expected impact:** Initiating or consolidating a baseline of feasibility for 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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/fetopen-01-2016-2017.html>

## • FET Innovation Launchpad

**Opening date:** 01 March 2016

**Cut off dates:** 29 September 2016  
27 September 2017

**Specific challenge:** 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:** Activities to be funded should be fit-for-purpose 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.

**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 research world in Europe.
- Seeding future growth and the creation of jobs from FET research.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/fetopen-04-2016-2017.html>

## • Transition to Exascale Computing

Opening date: 12 April 2017    Deadline : 26 September 2017

**Specific challenge:** Take advantage of the full capabilities of exascale computing, in particular through high-productivity programming environments, system software and management, exascale I/O and storage in the presence of multiple tiers of data storage, supercomputing for extreme data and emerging HPC use modes, mathematics and algorithms for extreme scale HPC systems for existing or visionary applications, including data-intensive and extreme data applications in scientific areas such as physics, chemistry, biology, life sciences, materials, climate, geosciences, etc.

**Scope:** -High productivity programming environments for exascale -Exascale system software and management -Exascale I/O and storage in the presence of multiple tiers of data storage -Supercomputing for Extreme Data and emerging HPC use modes -Mathematics and algorithms for extreme scale HPC systems and applications working with extreme data

**Expected results:** -Contribution to the realisation of the ETP4HPC Strategic Research Agenda, thus strengthened European research and industrial leadership in HPC technologies. -Successful transition to practical exascale computing for the addressed specific element of the HPC stack. -Covering important segments of the broader and/or emerging HPC markets, especially extreme-computing, emerging use modes and extreme-data HPC systems; -Impact on standards bodies and other relevant international research programmes and frameworks. -European excellence in mathematics and algorithms for extreme parallelism and extreme data applications to boost research and innovation in scientific areas such as physics, chemistry, biology, life sciences, materials, climate, geosciences, etc.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/fethpc-02-2017.html>



# I. Horizon 2020- *Excellent science - FET*

## • Exascale HPC ecosystem development

Opening date: 12 April 2017    Deadline : 26 September 2017

**Specific Challenge:** To develop a sustainable European exascale HPC Ecosystem.

### **Scope:**

- a) Coordination of the Exascale HPC strategy and International Collaboration
- b) Excellence in Exascale Computing Systems

### **Expected Impact:**

Strengthened European research and industrial leadership in the supply, operation and use of HPC systems.

Contribution to the realisation of the ETP4HPC Strategic Research Agenda.

Development of a competitive European ecosystem for building and exploiting a wide range of next-generation extreme performance computing systems.

Structuring the efforts of stakeholders for implementing the European HPC strategy.

Reinforced cooperation in international endeavours on HPC software and systems towards exascale.

European Excellence in Exascale Computing systems.

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

# I. Horizon 2020- *Excellent science* - FET

## • Coordination and Support Action for Quantum Technologies

Opening date: 22 May 2017      Deadline :26 September 2017

**Specific Challenge:** In April 2016, the Commission adopted, with its European Cloud Initiative, an ambitious strategy in the field of Digital Technologies. It was accompanied by a staff working document on Quantum Technologies, announcing the intention to set-up a Flagship initiative over the next 10 years. The present call topic is for a Coordination and Support Action to support the community in establishing the flagship initiative and its coordination with national activities in the field.

**Scope:** Proposals should aim at coordinating the relevant stakeholders, notably academia and industry, as well as policy makers, addressing all of the following: -Establish a communication platform for all stakeholders; -Promote the objectives of the Flagship; -Facilitate connections between industry and academia; -Help shaping the Flagship Initiative during and beyond H2020; -Organize outreach events; -Facilitate dialogue between all stakeholders (policy, industry, academia); -Help the networking of respective national and international activities in the field.

**Expected Impact:** -A goal-driven, federated effort towards a challenging scientific and technological vision to generate European scientific leadership in Quantum Technologies, and a strong potential for longer term technological innovation and economic exploitation. -Involvement and commitment from key stakeholders. -Increased transnational collaboration on quantum technologies between the relevant European initiatives in the field. -Spreading of excellence on quantum technologies across Europe. -Increased awareness of European activities in Quantum Technologies.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/fetflag-02-2017.html>

# I. Horizon 2020-3. *Excellent science* - MSCA

- **Individual Fellowships**

Opening date: 11 April 2017

Deadline : 14 September 2017

**Objective:** The goal of the Individual Fellowships is to enhance the creative and innovative potential of experienced researchers, wishing to diversify their individual competence in terms of skill acquisition through advanced training, international and intersectoral mobility.

Individual Fellowships provide opportunities to 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.

**Expected Impact:**

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/msca-if-2017.html>

# I. Horizon 2020- *Industrial leadership*

1. Leadership in enabling and industrial technologies (LEIT)

2. Access to risk finance

3. Innovation in SMEs

# I. Horizon 2020- *Industrial leadership* - LEIT

- **Inducement prize: Zero Power Water Infrastructure Monitoring... forthcoming**

**Opening date:** 19 December 2017

**Deadline :** 11 September 2018

**Specific Challenge:** The objectives of this inducement prize are: to empower the EU water distribution market with solutions based on wireless sensor networks with energy harvesting technologies, designed for real-time monitoring of water management; and, to stimulate broader European efforts in developing solutions for this societal need. Prizes will be awarded to working prototypes for wireless sensor networks based on energy harvesting technologies, designed to efficiently acquire, monitor, communicate and analyse information about water resources in natural or man-made environments.

**Expected Impact:** It is expected to provide the EU water utilities (and/or the municipalities) with an ICT prototype for monitoring of water. The ICT prototype should be based on wireless sensor networks with energy harvesting technologies. Specifically, it is expected to stimulate the creation of an effective and scalable autonomous, zero-power wireless sensor network platform to monitor of water resources.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/powerwaterprize-01-2017.html>

# I. Horizon 2020- *Industrial leadership* - LEIT

## • Horizon Prize – Materials for Clean Air

**Opening date:** 26 January 2017      **Deadline :** 23 January 2018

**Scope :** In the European Union, the average life expectancy is estimated to be decreased by 8.6 months, because of exposure to particulate matter resulting from human activities. The inhalation of particulate matter can also lead to adverse effects in the respiratory, cardiovascular, immune, and neural systems. In addition to its effects on the human health, particulate matter can also have adverse effects on climate change and ecosystems. The Horizon Prize on materials for clean air is a €3 million prize that will be awarded to the person or team who can most effectively meet the following challenge: develop the best innovative design-driven material solution to reduce the concentration of particulate matter in urban areas.

**Objectives :** The objective pursued by this inducement prize is to reduce particulate matter air pollution in urban areas through the development of innovative material solutions. These solutions should be design-driven, affordable and sustainable, and they should demonstrate that they can effectively remove and/or prevent the formation of particulate matter in the atmosphere (vehicle exhaust systems will be excluded).

**Expected results :** Affordable, sustainable and innovative design-driven material solutions that can effectively remove or prevent the formation of particulate matter in the atmosphere (vehicle exhaust systems will be excluded) and works in the environment targeted for application.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/cleanair-01-2015.html>

# I. Horizon 2020- *Societal challenges*

1. Health, demographic change and wellbeing

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

3. Secure, clean and efficient energy

4. Smart, green and integrated transport

5. Climate action, environment, resource efficiency and raw materials

6. Europe in a changing world - inclusive, innovative and reflective societies

7. Secure societies - protecting freedom and security of Europe and its citizens

# I. Horizon 2020- *Societal challenges*- Health and wellbeing

- **Horizon Prize - Birth Day**

Opening date: 28 April 2016      Deadline: 6 September 2017

**Scope:** The Horizon Prize on reducing maternal and newborn morbidity and mortality - the Birth Day Prize - will be awarded to the contestants who demonstrate a novel solution to improve the outcome of facility-based deliveries, which might be of clinical, technological or managerial nature, or a combination of these. Any solution must take full account of relevant social factors and have the potential of scaling up rapidly.

The **objective** is a demonstrated reduction in maternal and/or newborn morbidity and mortality and/or stillbirth during facility-based deliveries.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/h2020-birthdayprize-2016.html>



# I. Horizon 2020- *Societal challenges*- Health and wellbeing

## • Ebola and other filoviral haemorrhagic fevers (Ebola+) programme: future outbreaks

DeadlineModel:	multiple cut-off	Cut-off dates:	16 March 2016 / 15 September 2016
Opening date:	18 December 2015		/ 16 March 2017 /14 September 2017 /15 March 2018

**Specific Challenge** : The recent outbreak of Ebola virus disease (EVD) in West Africa underscores the vulnerability of populations worldwide to pathogens such as filoviral viruses. Currently, there are no vaccines or antiviral drugs approved for prevention or treatment of filoviral infections in humans.

**Scope:** This Call provides an opportunity to capture emerging scientific advances and to progress those rapidly into health care interventions. Proposals may address aspects of pre-clinical development and/or Phase 1, 2, and 3 clinical developments of vaccines (in particular multivalent), treatments and diagnosis of Ebola or other filovirus infections. Manufacturing strategies, vaccine stability during transport and storage, and/or deployment of vaccines and treatments are also in scope. Proposals for the development of adaptable platforms, which in addition to filoviruses can address multiple other priority pathogens, are also eligible.

**Expected Impact:** Proposals must contribute to the objectives of IMI2 and in particular to the goals of the Ebola+ programme which is a programmatic approach addressing different challenges across the entire innovation cycle and aims at leveraging input and multidisciplinary expertise across stakeholders.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/imi2-2015-08-01.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- **Valorisation of liquid and solid side streams from bio-based operations into high added-value products to create new feedstock for bio-based products**

Opening date: 11 April 2017

Deadline: 07 September 2017

**Specific Challenge:** Fully developed and sustainable biorefineries at an industrial scale require optimal valorisation of side streams generated during the different process steps. However, current practice is to divert these streams to low-value applications such as energy and fuels. Valorising these streams for higher-value applications requires further downstream processing steps. In some cases, within a cascading set-up of biorefining operations, the subsequent side streams could have a complex composition that makes it increasingly difficult to process them into valuable products. The specific challenge is to valorise liquid and solid biorefinery side streams with a composition that impedes their further processing into high added-value products beyond the state-of-the-art.

**Scope:** Demonstrate sustainable and cost-efficient processing technologies for converting side streams and co-products from bio-based operations into high added-value products and hence increase the supply of biomass feedstock.

For further information:

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.d1.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- **Integrated multi-valorisation of algae into advanced materials and high added-value additives**

**Opening date** 11 April 2017

**Deadline:** 07 September 2017 17:00:00

The ***specific challenge*** is to set up and operate a value chain for (micro- or macro-) algae production and logistics (harvest, transportation, storage) that can be used for their multi-valorisation into added-value chemicals and materials, through a cascading approach where applicable.

**Scope:** Demonstrate the efficient operation of a full value chain based on micro- or macro-algae that produces valuable products (such as ingredients or additives, advanced materials, etc.). Proposals should include: -demonstration of efficient production systems, coupled with relevant pre-treatment steps to achieve a stable intermediate product ready for the conversion steps; and -multi-valorisation of micro- or macro-algae into advanced materials and/or specialty products, or high-value bulk products for different application sectors.

For further information:

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.d2.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- **Innovative bio-based fertilising products to increase the sustainability of fertilising practices in agriculture**

**Opening date:** 11 April 2017

**Deadline:** 07 September 2017

The ***specific challenge*** is therefore to concentrate on finding coating polymers that are compliant with the biodegradability parameter in compliance with law, while achieving the controlled release of nutrients in the best possible manner; Another specific challenge is to demonstrate the use of advanced bio-based fertilising products that meet EU rules and that increase the sustainability of fertilising practices and the productivity of the agriculture in Europe. These could be fertilisers from bio-based streams, fully biodegradable coatings for CRFs or the smart use of plant biostimulants, including microorganisms.

**Scope:** Demonstrate the following three uses in value chains to improve the sustainability of fertilising products and practices in agriculture:

- component materials in more sustainable fertilising products from local bio-based waste streams and co-products that fully comply with the proposed revised EU rules mentioned above and that can help to replace less sustainable fertilisers, including those currently imported;
- efficient bio-based biodegradable coatings for CRFs that can meet the proposed regulatory requirements on biodegradability of coatings in soils;
- prebiotic and/or probiotic solutions for tailored soil nutrient improvement.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.d4.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Breakthrough primary bio-based chemicals without significant fossil-based counterparts but with high marketability

Opening date: 11 April 2017

Deadline: 07 September 2017

The ***specific challenge*** is to demonstrate the technology of breakthrough bio-based chemicals with no significant fossil-based counterpart in a full demo-plant and to demonstrate its potential in at least one application at pre-commercial level.

**Scope:** Demonstrate a production process for bio-based chemicals with no significant fossil-based counterparts, originating from sustainably sourced biomass of European origin and demonstrate one application in the market at pre-commercial level.

Proposals should demonstrate a production route for at least one bio-based chemical building block that does not have a 'significant' fossil-based counterpart and show its market potential by means of at least one application.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.d3.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

## • Advanced bio-based fibres and materials for large-volume applications

Opening date: 11 April 2017

Deadline: 07 September 2017

The ***specific challenge*** is to produce bio-based fibres and other bio-based materials able to efficiently compete with current benchmark counterparts for large-volume applications through better technical performance, lower cost and higher sustainability levels.

**Scope:** Demonstrate the efficient and viable production of bio-based fibres and materials with superior technical performance and sustainability levels, but at lower production costs, in a whole value-chain approach. Their superior performance should be proven in comparison with identified benchmark materials (fossil-based or bio-based) for large-volume applications, using clear and pre-defined criteria. Benchmark counterparts should be both fossil-based and traditional bio-based products. Proposals should target relevant properties in any market sectors of large-volume bio-based products, such as packaging, textiles, construction, agriculture, the automotive industry and personal care and hygiene.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.d5.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

## • Integrated ‘zero waste’ biorefinery utilising all fractions of the feedstock for production of chemicals and materials

Opening date: 11 April 2017

Deadline: 07 September 2017

Biorefineries converting feedstock into chemicals and materials will become the backbone of the future production of sustainable products. Such facilities combine several fundamental process steps, including the appropriate pre-treatment, conversion and downstream processes. **One challenge** has always been the efficient integration of all process steps. Another **significant challenge** is to convert all fractions of the feedstock used in a biorefinery into chemicals and materials with the highest added value possible, to improve the profitability of the biorefinery. The **specific challenge** is to utilise all fractions of the biomass feedstock to produce chemicals and materials, targeting ‘zero waste’ and a minimum diversion of carbon content streams to low-value uses.

**Scope:** Demonstrate at industrial level a successful and profitable bio-based plant that converts all fractions of the feedstock primarily into chemicals and materials, through a cascading approach where applicable. It should apply state-of-the-art metrics to assess the efficiency of the conversion system in terms of mass and energy inputs and outputs (see also LCA below) and it should aim to achieve industrial operation of the innovative processing stages to achieve full feedstock valorisation, and their integration into existing facilities.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.f1.html>



# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Large-scale production of proteins for food and feed applications from alternative, sustainable sources

Opening date: 11 April 2017

Deadline: 07 September 2017

The ***specific challenge*** is to demonstrate a large-scale, first-of-its-kind bio-based value chain producing sustainable, safe proteins sourced from alternative, sustainable sources (dedicated crops as well as residues), through a cascading approach where applicable.

**Scope:** Produce on a large-scale food- and/or feed-grade proteins from sustainable alternative sources, such as residual streams from agriculture, other biomass production and related residual streams (like aquaculture, fisheries, or seaweed), or food industry side streams. Proposals should include the whole value chain from the feedstock supply to processing and production steps for the targeted high added-value products, primarily it should focus on proteins for food and feed applications but could also consider functional proteins and other applications that may make it possible to generate new incomes and hence increase the overall sustainability of the value chains. It should include extra valorisation steps through an integrated biorefinery setup.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.f2.html>



# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- **Valorisation of gaseous side streams from bio-based operations into chemical building blocks**

**Opening date:** 11 April 2017

**Deadline:** 07 September 2017

The ***specific challenge*** is to achieve sustainable and scaleable conversion technologies for gaseous feedstock from bio-based operations into added-value products.

**Scope:** Validate at pilot scale in an industrially relevant environment innovative technologies to efficiently convert gaseous feedstock from bio-based operations into useable chemical building blocks for products in added-value applications in various market segments. It should also aim at increasing the overall sustainability of bio-based value chains by stimulating industrial symbiosis with other sectors and creating conditions for the establishment of integrated biorefineries. This symbiosis could create new industrial sites or link existing sites to integrated biorefineries.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r1.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- **Innovative technologies for the pre-treatment and separation of lignocellulosic feedstock and complex composition streams into valuable fractions while maintaining key characteristics**

**Opening date:** 11 April 2017

**Deadline:** 07 September 2017

The ***specific challenge*** is to develop pre-treatment technologies to separate and extract naturally occurring polymers and other useful fractions (for example extractives) of lignocellulosic and mixed biomass streams with complex composition, while keeping their structure essentially intact.

**Scope:** Validate pre-treatment technologies at pilot scale in an industrially relevant environment to allow for the separation of natural bio-based polymers while keeping their main characteristics intact. The types of feedstock included in the scope are lignocellulosic biomass and mixed streams with a complex composition. Proposals should aim to develop technologies that:

- increase the 'usability' of the holocellulose and/or other useful biopolymer fractions in the biomass feedstock by recovering at least 80 % of each for direct valorisation in specific applications and/or in the subsequent step of enzymatic hydrolysis.
- deliver 'naturally occurring polymers' with sufficient purity and quality for efficient processing in the following steps;
- require less energy and resources and have a lower environmental impact than benchmark technologies currently applied to the same type of feedstock.

Proposals could consider chemical, physical or biotechnological solutions or feasible and sustainable combinations thereof. The developed processing routes should ensure reduction of biomass losses and efficient separation and recovery of other fractions of the treated biomass. Applying the cascading operational concept, these fractions can then also be further exploited.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r2.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- **Exploiting extremophiles and extremozymes to broaden the processing conditions to convert biomass into high-value building blocks**

**Opening date:** 11 April 2017

**Deadline:** 07 September 2017

The ***specific challenge*** is to develop sustainable processes in a wider range of operating conditions (pressure, temperature, acidity, etc.) by using extremophilic microorganisms and/or related enzymes to convert biomass into valuable components at high process yields. Successfully carrying out such processes at pilot scale can provide insight into the potential for these microorganisms at an industrial scale.

**Scope:** Proposals should address one or all of the following items:

- adaptation and selection of naturally occurring extremophiles;
- engineering of organisms to suit extreme working conditions or achieve specific performance targets;
- identification of specific extremozymes with high industrial potential for increasing process yields.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r3.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Proteins and other bioactive ingredients from side streams and residues

Opening date: 11 April 2017

Deadline: 07 September 2017

The **specific challenge** is to develop sustainable technologies to recover proteins and bioactive ingredients from feedstock or to convert residual biomass and industry side streams into ingredients for food, feed and other high-value markets. The challenge includes achieving the separation/extraction and purification (where applicable) of the proteins and bioactive ingredients to meet the required market specifications and regulations.

**Scope:** Validate (either at lab scale, or at pilot scale in an industrially relevant environment) a sustainable process to separate and/or convert proteins and bioactive compounds from residual biomass streams originating from biomass production (such as agriculture) and conversion (such as the food/feed industry and biorefineries). The proteins and targeted bioactive compounds have functional properties other than nutritional quality (in the case of food and feed) that are important for dedicated markets. In this context, separation/extraction and/or conversion processes must ensure that the products' quality and properties are conserved. Proposals need to achieve the appropriate purity of the target molecules and performance in specific application fields to at least match the benchmark technologies.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r4.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Novel bio-based chemical precursors to improve the performance of mass consumption products

Opening date: 11 April 2017

Deadline: 07 September 2017

The ***specific challenge*** is to develop novel bio-based chemical precursors for mass consumption products that feature, at an acceptable cost, new functionalities or better performance than their fossil-based counterparts.

**Scope:** Validate at pilot scale in an industrially relevant environment production routes to novel and innovative bio-based chemical precursors for mass consumption products, such as surfactants, detergents, lubricants, emulsifiers, foaming agents, sanitisers, disinfectants, binders, solvents and adhesives. The resulting products must prove better performance than their fossil-based and bio-based state-of-the-art counterparts, and/or introduce new desired functionalities that are currently not available.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r5.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Competitive biodegradable, compostable and/or recyclable bio-based plastics for a sustainable end-of-life phase

**Opening date:** 11 April 2017

**Deadline:** 07 September 2017

The ***specific challenge*** is to develop biodegradable, compostable or recyclable bio-based polymers that can compete with fossil-based counterparts in terms of price, performance and environmental sustainability on a cradle-to-cradle basis.

**Scope:** Validate at pilot scale in an industrially relevant environment innovative production routes for bio-based polymers and related bio-based plastic products, following either of the following two options:

1. production route from biomass streams to biodegradable or compostable bio-based plastics that can be competitive with fossil-based plastics in terms of performance and price when produced on a large scale;
2. production route from biomass streams to bio-based plastics that can be recycled at end-of-life into comparable products and that are competitive with fossil-based plastics on performance and price when produced on a large scale.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r6.html>

# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Novel secondary bio-based chemicals without significant fossil-based counterparts but with high application potential

Opening date: 11 April 2017

Deadline: 07 September 2017

The **specific challenge** is to validate at lab or pilot level the production routes from primary bio-based building blocks to breakthrough bio-based chemicals with no significant fossil counterpart, and to show a proof of principle for the added value they bring to the market.

**Scope:** Validate (either at lab scale, or at pilot scale in an industrially relevant environment) a production process for bio-based chemicals with no significant fossil-based counterpart, resulting from primary bio-based building blocks. The primary building blocks must be obtained from sustainably sourced biomass of European origin. Proposals should aim to validate a production route for at least one 'secondary' bio-based chemical building block that does not have a 'significant' fossil-based counterpart. The targeted building block should have the potential to drive the subsequent production of high added-value products in specific market sectors. In addition, proof of principle has to be shown for at least one application.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.r7.html>



# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Establish cooperation and partnership with brand owners and consumer representatives to improve the market access of sustainable bio-based products

Opening date: 11 April 2017

Deadline: 07 September 2017

The ***specific challenge*** is to provide routes and means to increase cooperation and partnership between the different actors to achieve the market uptake of bio-based products. Industry should cooperate with brand owners and consumer representatives since they have a strategic role in better understanding market behaviours and needs. Meeting this challenge will also accelerate the crossing of the 'valley of death' from the research phase to commercialisation of a new product.

**Scope:** Proposals should develop the structure and procedures for and implement the cooperation of the bio-based industry and brand owners and consumers to incorporate their knowledge and expertise on market changes and trends. The aim would be to increase market acceptance of bio-based products.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.s1.html>



# I. Horizon 2020- *Societal challenges*- Food security, sustainable agriculture and forestry, marine and maritime and inland water research and the bioeconomy

- Identify opportunities for ICT to increase the efficiency of biomass supply chains for the bio-based industry

**Opening date:** 11 April 2017

**Deadline:** 07 September 2017

The ***specific challenge*** is to identify opportunities for the introduction of ICT to increase the efficiency and sustainability of biomass supply chains for the bio-based industry. Sustainable feedstock supply chains will permit the creation of sustainable bio-based value chains, which could serve as engines for the economic development of rural areas.

**Scope:** Identify feasible opportunities for ICT to improve the efficiency and sustainability of supply chains through cooperation between biomass suppliers and technology providers. Proposals should cover several supply chains handling different kinds of biomass coming from multiple sources. Proposals should include a description of the (combined) feedstock and its potential for sustainable value chains.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/bbi.2017.s2.html>

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- **Horizon prize for Integrated Photovoltaic System in European Protected Historic Urban districts**

**Opening date:** 05 July 2016

**Deadline:** 26 September 2018

**Specific Challenge:** In Europe, architectural and planning rules for protected historic buildings lead to major technical constraints in integrating renewable energy such as photovoltaic. These problems call for innovative and creative solutions for building integrated photovoltaic that must combine aesthetic and photovoltaic technology applied in historical buildings that represent the artistic and cultural heritage of a city.

**Scope:** This inducement prize will reward a European protected historic urban district that has perfectly integrated in its buildings a photovoltaic system to generate and supply electricity for its own consumption. In this context the photovoltaic system includes all the necessary components to supply power within a district. The prize will induce the integration of new photovoltaic systems in protected historic urban districts. It will also foster the development of the best suitable architectural and aesthetic design in combination with optimal technical solutions delivering the least visible impact and a minimal intrusion to the structure of the buildings. The prize aims as well to mobilise and enhance private and public investment for replication of similar solutions in Europe.

**Expected Impact:** It is expected that the prize will accelerate the innovation in photovoltaic technologies and architectural enhancement needed for sustainable use of European protected historic urban districts. Integrating photovoltaics in this type of districts will create new industrial expertise. It will also give a good opportunity to local small and medium-sized enterprises to develop new ideas and demonstrate their know-how.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-prize-photovoltaicshistory-01-2016.html>

# I. Horizon 2020- *Societal challenges* - 3. Secure, clean and efficient energy

## • Horizon prize for CO2 reuse

**Opening date:** 05 July 2016

**Deadline:** 03 April 2019

**Specific Challenge:** Preventing dangerous climate change is a key priority for the European Union. Europe is working hard to cut its greenhouse gas emissions substantially while encouraging other nations and regions to do likewise. One way to help these efforts is to make use of the CO2 by integrating it in consumer products. CO2 re-use technologies however are still facing a number of technical, commercial and/or financial barriers.

**Scope:** This inducement prize will therefore reward innovative products utilising CO2 that could significantly reduce the atmospheric emissions of CO2 when deployed at commercial scale.

The prize will induce actors in the field of CO2 utilisation to do more to enhance their processes and products so that they reduce atmospheric emissions of CO2. It aims also to mobilise and enhance private R&I investment, attract non-traditional players, create new partnerships and incentivise researchers and innovators to enhance efforts to abate emissions of anthropogenic CO2 to atmosphere.

**Expected Impact:** The prize winner will be the entrant that has developed a product demonstrating, over the duration of the contest, the most significant and measurable improvements in the mass of CO2 utilised in it while overcoming technical, commercial and/or financial barriers. It is expected that the prize will accelerate innovation in CO2 utilisation technologies, also in SMEs; facilitate discovering the real potential of CO2 utilisation to contribute to climate mitigation; increase transparency about technology readiness, barriers, costs, environmental performance and innovation needs; increase leverage of private finance for innovation; provide with new business models and value chains in the CO2 utilisation sector

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-prize-co2reuse-01-2016.html>

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Horizon prize for a Combined Heat and Power (CHP) Installation in a hospital using 100% Renewable Energy Sources

**Opening date:** 05 July 2016

**Deadline:** 03 April 2019

**Scope:** This inducement prize will reward a hospital that has an innovative and within its premises perfectly integrated combined heat and power (CHP) installation. This installation has to use at least three different European renewable energy technologies, include energy storage component(s) and be able to provide 100% of hospital's annual needs for energy consumption. In this context any renewable energy source is allowed.

The prize will induce innovative renewable energy solutions integrating several technologies into one energy system. Installing such kind of integrated equipment in the ecosystem of a hospital would not only ensure the security of its energy supply, but would also raise public awareness on renewable energy. Moreover, the prize aims to mobilise and enhance private and public investments for replication of similar solutions in Europe and worldwide.

**Expected Impact:** The prize winner will be the entrant (a hospital) that has installed and operated in its premises a new combined heat and power system integrating at least three different renewable energy technologies and with an innovative energy storage component. The proposed energy system solution shall be adaptable and replicable to other sites. Clear energy security and economic benefits shall be proven to assure these replications.

The prize will accelerate the introduction of renewable energy sources at larger scale. It will also encourage new venues for installing flexible and reliable CHP units from different renewable energy sources with zero carbon footprint. The contest gives as well a good opportunity to local small and medium-sized enterprises to demonstrate their expertise and know-how.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-prize-renewablehospital-01-2016.html>

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Reducing the cost of PV electricity LCE-10-2017

**Opening date:** 11 May 2017

**Deadline:** 07 September 2017

**Specific Challenge:** Much of the R&D efforts in recent years have focused on the development of high-efficiency PV cells at low cost. However, the cost of a PV system also depends on a number of other elements and components. The reduction of their cost and the enhancement of their performance show ample margins for improvement and can considerably help reducing price and accelerating large-scale deployment of PV installations; however this still represents a challenge.

**Scope:** to address the reduction of the cost of PV electricity by optimising the PV system energy yield and lifetime and decreasing cost at module (encapsulation materials, glass, and antireflective layers, anti-soiling layers, module architecture, etc.), balance-of-system component (electronics, inverters, tracking systems, etc.) or system configuration levels.

**Expected Impact:** For a given technology, demonstration of cost-effective solutions (expressed by a considerable reduction of cost per kWh) with increased energy yields at module/system level (under standard as well as actual operating conditions). Solutions are also expected to contribute to reduce energy payback time for the PV system and, when applicable, to increase lifetime. At module level, solutions should show increased cost effectiveness for recycling.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-10-2017.html>

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Near-to-market solutions for reducing the water consumption of CSP Plants  
LCE-11-2017

Opening date: 11 May 2017

Deadline: 07 September 2017

**Specific Challenge:** In spite of the improvements in recent years, water and cost-competitiveness remain a crucial barriers to the deployment of CSP plants especially in arid areas. The challenge is to drastically reduce water consumption as well as costs thereby contributing to achieving the SET-Plan targets for CSP.

**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/m<sup>2</sup> 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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-11-2017.html>

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Near-to-market solutions for the use of solar heat in industrial processes  
LCE-12-2017

**Opening date:** 11 May 2017

**Deadline:** 07 September 2017

**Specific Challenge:** The potential for the use of solar heat for industrial purposes is still largely untapped. The challenge is to reduce the technical complexity and develop cost effective solutions.

**Scope:** Proposals shall demonstrate less complex and cost effective technical solutions which significantly increase the share of solar heat in industrial processes and which can be easily integrated into existing industrial plants.

**Expected Impact:** The action will result in solutions which demonstrate that solar heat can be a reliable energy source for industrial processes, therefore bringing significant prospects for the market uptake of this renewable energy source and for the decarbonisation of industrial processes.

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





# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Demonstration of large >10MW wind turbine LCE-14-2017

**Opening date:** 11 May 2017

**Deadline:** 07 September 2017

**Specific Challenge:** Up-scaling projects often lead to the development of better or less expensive applications for smaller turbines. EU-funded projects have been working on the design of 10-20 MW wind turbine concepts for some time. The challenge is to demonstrate and construct now a full scale >10MW turbine and provide proof of a significant cost reduction potential.

**Scope:** The development of large scale (>10MW) turbines will have intrinsically logistical requirements regarding handling, installation, operation and maintenance, constituting a large part of the levelised cost of energy (LCOE). Improved handling (storage, loading, transport, etc.) on land, in the harbours and/or at sea, as well as improved logistics around operations and maintenance have to be taken into account in this innovation action.

**Expected Impact:** This action will have a positive effect on the cost of energy and offshore wind energy will become more cost-effective. Developing cost-effective and reliable large turbines will contribute to make wind power fully competitive. In 2030 the cost of energy for offshore wind should be reduced at least by 50%. The action will also result in a more effective use of the seas and oceans, and will reduce the time needed for installation, operation and maintenance. The action should contribute to the strengthening the European industrial technology base, thereby creating growth and jobs in Europe.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-14-2017.html>



# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- 2nd Generation of design tools for ocean energy devices and arrays development and deployment LCE-16-2017

**Opening date:** 11 May 2017

**Deadline:** 07 September 2017

**Specific Challenge:** The challenge is to develop and demonstrate new advanced tools based on the first experiences of ocean energy arrays. Enabling technical risk reduction and attracting investors for future innovative array designs.

**Scope:** Design tools for array of wave and tidal energy converters have been developed. Single devices have already been deployed and the first arrays are planned for 2016 onwards. Based on the experience with the first ocean energy arrays the design tools can be developed further and a 2<sup>nd</sup> generation of advanced tools is foreseen which will have a significant positive effect on future devices and arrays. The impact of design on energy yield, survivability and O&M as well as environmental impacts should be taken into account. These tools should facilitate a significant increase in reliability, survivability, performance improvement and cost reduction of devices and arrays.

**Expected Impact:** The action will reduce the technological risks for the next development stages, significantly contribute to an increase in technology performance, increase reliability and lifetime, while decreasing operation and maintenance costs, reduce the life-cycle environmental and socio-economic impacts, and reduce ocean energy technology installation time and cost and/or operational costs, hence easing the deployment of ocean energy sources within the energy mix. The new design tools will eventually result in more cost-effective arrays and hence will reduce the cost of energy. It is expected that as a result of this action ocean energy would become more commercially attractive for investors.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-16-2017.html>

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Easier to install and more efficient geothermal systems for retrofitting buildings LCE-17-2017

Opening date: 11 May 2017

Deadline: 07 September 2017

**Specific Challenge:** The cost and efficiency of existing geothermal systems, mostly based on vertical wells, to provide heating and cooling in buildings being retrofitted or renovated are not very competitive in particular when digging is difficult. The challenge is to demonstrate the cost-effectiveness and efficiency of geothermal systems for heating and cooling in individual installations being retrofitted.

**Scope:** Proposals shall target easy to install and efficient underground coupling systems for retrofitting existing types of buildings or adaptable to existing types of buildings, including historical buildings, to make geothermal energy a standard source of heat and cold in building renovation. The difficulties in drilling in built environments must be taken into consideration and properly addressed. Proposals might address the need for improved and more cost-efficient heat pumps to optimize the use of the energy generated by the proposed geothermal system.

**Expected Impact:** The action will result in the demonstration of geothermal systems, to be used in existing buildings, that make geothermal energy a viable and cost-competitive source of energy for heating and cooling. The demonstrated systems will be easy to install in built environments and have a proved efficiency in different geological conditions. The action will increase the commercial attractiveness of geothermal energy for heating and cooling and therefore increase the penetration of this renewable energy source.

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

# I. Horizon 2020- *Societal challenges* - Secure, clean and efficient energy

- Demonstration of the most promising advanced biofuel pathways LCE-19-2016-2017

**Opening date:** 11 May 2017

**Deadline:** 07 September 2017

Specific Challenge:

1. improving the technical and economic feasibility of the production of new and advanced liquid biofuels;
2. demonstrating the feasibility of using feedstock particularly suitable for transport energy purposes.

**Scope:** 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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/lce-19-2016-2017.html>

# I. Horizon 2020- *Societal challenges* - Smart, green and integrated transport

## • EngineRetrofitPrize-01-2016

**Opening date:** 20 April 2016

**Deadline:** 12 September 2017

**Specific Challenge:** The prize aim at spurring the development of engine and powertrain technologies using conventional fuels to reduce emissions of pollutants in real driving conditions to the lowest level possible, in order to improve air quality issues in European cities.

**Expected Impact:** Performance will have to be demonstrated by providing a complete vehicle for real drive testing. This will allow verification that such retrofitted vehicles will have much lower noxious emissions in real driving than equivalent vehicles currently on the road. The implementation of the technology will extend the life of retrofitted vehicles while greatly reducing their impact on the urban environment and could allow city authorities to consider measures to encourage their use to solve air quality issues.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/h2020-engineretrofitprize-2016.html>

# I. Horizon 2020- *Societal challenges* - Smart, green and integrated transport

- FutureEnginePrize-01-2016

Opening date: 20 April 2016

Deadline: 20 August 2019

**Specific Challenge:** Cleanest engine of the future prize aims at reducing the pollution produced by future new vehicles using either gasoline or diesel fuels and their low biofuel blends available on the market.

Powertrains/cars in which the improvements are achieved by using significant amounts of fuels or stored energy other than the main fuel (i.e. plug-in electricity, mild and full hybrids, stored compressed gases, etc.) are excluded.

**Expected Impact:** Submissions shall aim at very significant noxious emissions improvements while at the same time reducing fuel consumption and CO2 emissions and providing sufficient dynamic performance for normal vehicle driving.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/h2020-futureengineprize-2016.html>



Spreading  
excellence and  
widening  
participation

# Spreading excellence and widening participation

## • ERA Chairs

**Opening date:** 12 April 2017

**Deadline:** 15 November 2017

**Specific Challenge:** Outstanding researchers can have a decisive and positive impact on the culture and performance of research institutions. Yet issues such as the availability of research funding, institutional rigidities and access to resources can hamper the mobility of such leaders to promising institutions, particularly in low R&I performing countries. ERA Chairs actions will address the specific challenge of creating the appropriate conditions and opportunities for high quality researchers and research managers to move and engage with willing institutions to improve the excellence of their research and thereby modify their research and innovation landscape.

**Scope:** The ERA Chairs actions will support universities or research organisations with the objective of attracting and maintaining high quality human resources under the direction of an outstanding researcher and research manager (the "ERA Chair holder") and in parallel implementing the structural changes necessary to achieve excellence on a sustainable basis.

### **Expected Impact:**

Increased attractiveness of the institution, host region and country for internationally excellent and mobile researchers. Increased research excellence of the institution in the specific fields covered by the ERA Chair holders.

Improved capability to compete successfully for internationally competitive research funding.

Institutional changes within the ERA Chair host institution to implement the European Research Area priorities, (including an open recruitment policy, gender balance, peer review, and innovative doctoral training).

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

# Spreading excellence and widening participation

## • TWINNING

**Opening date:** 11 May 2017

**Deadline:** 15 November 2017

**Specific Challenge:** to address networking gaps and deficiencies between the research institutions of the Widening countries and internationally-leading counterparts at EU level.

**Scope:** Twinning aims at significantly strengthening a defined field of research in a university or research organisation from a Widening country by linking it with at least two internationally-leading research institutions in other Member States or Associated Countries. Twinning will:

Enhance the S&T capacity of the linked institutions with a principal focus on the university or research organisation from the Widening Country;

Help raise the research profile of the institution from the Widening country as well as the research profile of its staff.

**Expected Impact:**

- Increased research excellence of the coordinating institution in the particular field of research as a result of the twinning exercise.
- Enhancing the reputation, attractiveness and networking channels of the coordinating institution.
- Improved capability to compete successfully for national, EU and internationally competitive research funding.
- Illustrate quantitatively and qualitatively the expected potential impact of the twinning exercise within the coordinating institution (and possibly at regional/national level) based on indicators like expected future publications in peer reviewed journals, collaboration agreements with businesses, intellectual property, new innovative products or services.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/widespread-05-2017.html>





# Science with and for Society

- Support to research organisations to implement gender equality plans

SwafS-03-2016-2017

**Opening date:** 12 April 2017

**Deadline:** 30 August 2017

**Specific Challenge:** Gender equality is a key priority of the European Research Area. The objectives are:

- 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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-03-2016-2017.html>

# Science with and for Society

- Putting Open Science into action SwafS-10-2017

Opening date: 12 April 2017

Deadline: 30 August 2017

**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.

**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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-10-2017.html>

# Science with and for Society

## • European Community of Practice to support institutional change SwafS-08-2017

**Opening date:** 12 April 2017

**Deadline:** 30 August 2017

**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.

**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

### **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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-08-2017.html>

# Science with and for Society

- Science education outside the classroom SwafS-11-2017

Opening date: 12 April 2017

Deadline: 30 August 2017

**Specific Challenge:** 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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-11-2017.html>

# Science with and for Society

## • Integrating Society in Science and Innovation – An approach to co-creation SwafS-13-2017

**Opening date:** 12 April 2017

**Deadline:** 30 August 2017

**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.

**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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-13-2017.html>

# Science with and for Society

- Promoting integrity in the use of research results in evidence based policy: a focus on non-medical research swafS-21-2017

Opening date: 12 April 2017

Deadline: 30 August 2017

**Specific Challenge:** 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. 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.

**Scope: 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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-21-2017.html>



# Science with and for Society

- The ethical dimensions of IT technologies: a European perspective focusing on security and human rights aspects swafS-22-2017

**Opening date:** 12 April 2017

**Deadline:** 30 August 2017

**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.

**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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-22-2017.html>



# Science with and for Society

- Responsible Research and Innovation (RRI) in support of sustainability and governance, taking account of the international context swafs-23-2017

Opening date: 12 April 2017

Deadline: 30 August 2017

**Specific Challenge:** 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.

**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.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-23-2017.html>

# Science with and for Society

- Science4Refugees - Support to highly skilled refugee scientists swafs-26-2017

**Opening date:** 12 April 2017

**Deadline:** 30 August 2017

**Specific Challenge:** The Science4Refugees initiative is directed towards refugee researchers/scientists who have applied for and been granted asylum in a host country, which will enable them to continue their educational path or enter the labour market. To integrate them into Europe's research system, specific measures are required in terms of enhancing the employability and the skills of refugees. The objective of this action is to scale up existing initiatives and bring them to a European level.

**Scope:** This action will support activities at the institutional, regional or national level to scale up their activities for refugees from a regional to a European level. These initiatives will give refugees researchers/scientists the opportunity to develop their knowledge and careers by improving their skills and experience.

**Expected Impact:** provide financial and employability support to initiatives that support the integration of refugees into their new employment setting and culture, and to prepare refugees for the highly competitive and highly skilled job market.. In the medium term, the action aims at supporting research jobs and growth; it will increase the number of highly skilled workers who are sufficiently prepared to access the European labour market by using their newly gained skills and experience through the supported actions.

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-26-2017.html>

# Science with and for Society

- Implementing a European Train-the-trainers initiative with regard to Ethics and Research Integrity SwafS-27-2017

**Opening date:** 12 April 2017

**Deadline:** 30 August 2017

**Specific Challenge:** With a view to addressing adequately the challenge of the internationalisation of research, including in the context of EU collaborations, it is necessary to strengthen the EU capacity to foster and promote the highest ethical standards and to achieve a higher degree of consistency of research integrity practices in Europe.

**Scope:** The participants are expected to develop innovative methods to train-the trainers on ethics and research integrity (such as training courses, workshops, a continuous support service to the trainers) based on consultation and the direct involvement of all relevant stakeholders representing both public and private structures (i.e. research intensive industries).

The activities should aim at enhancing the training skills and improve existing methods at two levels:

- (i) at the level of training the trainers
- (ii) at the level of training the researchers

**Expected Impact:** It is expected that the present action will promote a higher degree of consistency of research integrity practices in Europe, will strengthen the research communities' capacity to respect the highest ethical standards and will enable researchers to adopt a "virtue ethics approach".

<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/h2020/topics/swafs-27-2017.html>



# IX. Justice Programme

# Justice Programme

- Action grants to support transnational projects on judicial training covering civil law, criminal law or fundamental rights JUST-JTRA-EJTR-AG-2017 .. forthcoming

**Planned opening  
date:**

15 June 2017

**Deadline:**

25 October 2017

**Scope:** The objective is to contribute to the effective and coherent application of EU law in the areas of civil law (including consumer law), criminal law and fundamental rights, to judicial ethics and the rule of law, by covering training needs' gaps in these fields. It also targets the specific training needs of court staff.

The priorities of 2017 will concentrate funding on training activities and tools for training providers described here:  
<https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/just/topics/just-jtra-ejtr-ag-2017.html>

## ***Expected results:***

Increased knowledge of EU civil, criminal and fundamental rights instruments among legal practitioners;

-Improved mutual trust between legal practitioners in cross-border judicial cooperation;

-Improved cooperation of training providers of the different legal professions;

-Increased awareness on the added value and scope of application of the EU Charter of Fundamental Rights among judges, public prosecutors, lawyers and practitioners to strengthen fundamental rights protection across the EU.



# XIII. Rights, Equality and Citizenship Programme

# Rights, Equality and Citizenship Programme

- Ensure the highest level of protection of privacy and personal data

REC-RDAT-TRAI-AG-2017... forthcoming

**Planned opening date:** 20 September 2017

**Deadline:** 11 January 2018

**Scope:** In line with the Political guidelines of the Juncker Commission, the Data Protection Reform is one of the constituent elements of a 'Connected Digital Single Market' and an 'Area of Justice and Fundamental Rights based on mutual trust' and its application in 2018 needs effective and uniform preparation.

## ***Description of the activities:***

- Awareness raising towards individuals, private and public sector (particular attention to individuals and public sector).
- Training in particular for SMEs and public sector personnel dealing and with data protection issues.
- Seminars/workshops/conferences with stakeholders, both general and sector specific (e.g. health, finance, research, energy etc.); some of these seminars could function on concrete case studies in order to understand outstanding issues regarding General Data Protection Regulation implementation and detect possible best practices.

## ***Expected results:***

- increased awareness of data protection and increased capacity of national experts / civil society to address issues related to data protection;
- improved knowledge on the legislation and administrative practices related to data protection.

<http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/rec/topics/rec-rdat-trai-ag-2017.html>

# Rights, Equality and Citizenship Programme

- Prevent and combat racism, xenophobia and other forms of intolerance

REC-RRAC-RACI-AG-2017... forthcoming

**Planned opening  
date:** 31 May 2017

**Deadline:** 07 November 2017

**Scope:** Proposals under this call may explore the use of all available tools and forms of cooperation between national authorities, non-governmental organisations, communities and international organisations and bodies. The call to prevent and combat racism, xenophobia and other forms of intolerance will support: <https://ec.europa.eu/research/participants/portal/desktop/en/opportunities/rec/topics/rec-rrac-raci-ag-2017.html>.

## Expected results

- increased capacity of national and local authorities and civil society organisations and communities to address issues related to racism, xenophobia and other forms of intolerance;
- strengthened cooperation and exchange of information between competent national authorities and other key actors such as civil society organisations and community representatives in the area of preventing and combating racism, xenophobia and other forms of intolerance;
- improved support to hate crime victims, better awareness of the rights of victims of hate crime and hate speech and increased number of reported hate crime and hate speech incidents;
- effective prevention measures;
- increased awareness of the general population on the impact of racism, xenophobia and other forms of intolerance, of current trends and better understanding of the various forms of intolerance, in particular among multipliers and community leaders;
- improved understanding between communities, enhanced interreligious and intercultural dialogue and increased coalition building;
- curbing manifestations of racism, xenophobia and other forms of intolerance across the EU, including incidents of hate crime and hate speech.



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