



HORIZON 2020

Societal Challenge 5

"Climate action, Environment, Resource Efficiency and Raw Materials"



Work Programme 2016-2017
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Horizon 2020: addressing Europe's challenges

- Investing in research and innovation 2014-2020
- Budget of **€77 billion**
- A core component of **Europe 2020**, the **Innovation Union** and the **European Research Area**
 - ✓ Investing in jobs and growth
 - ✓ Addressing people's concerns ('societal challenges')
 - ✓ Strengthening the EU's global position in R&I
- **Coupling research to innovation to maximise impact**



Societal Challenge 5: Climate action, environment, resource efficiency and raw materials



Objective: *"to achieve a resource – and water – efficient and climate change resilient economy and society, the protection and sustainable management of natural resources and ecosystems, and a sustainable supply and use of raw materials, in order to meet the needs of a growing global population within the sustainable limits of the planet's natural resources and eco-systems."*

Societal Challenge 5: new focus for 2016-17



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- ✓ **Increased emphasis on delivering innovative solutions**
- ✓ **Transformative agenda**
- ✓ **Systemic approach to innovation**
- ✓ **Unlocking private and public investment in future solutions**
- ✓ **Large-scale demonstration projects with replication potential**

Societal Challenge 5: contributing to the Juncker Commission's policy agenda



- ✓ A new boost for **jobs, growth and investment**
- ✓ A deeper and fairer internal market with a **strengthened industrial base**
- ✓ A resilient Energy Union with a **forward looking climate change policy**
- ✓ **A stronger global actor**

✓ **Open Innovation**

✓ **Open Science**

✓ **Open to the world**

SC5 2016-2017 objectives

Mainstreaming water R&I

Climate action

- climate services
- low-carbon Europe
- the Arctic dimension

Raw materials

Sustainable growth by harnessing:

- Earth observation data
- Cultural heritage

Systemic eco-innovation for a circular economy

Nature-based solutions:

- for territorial resilience
- for sustainable cities

SC5 2016-2017 objectives and calls

Mainstreaming water R&I

Climate action

- climate services
- low-carbon Europe
- the Arctic dimension

Raw materials

Call: 'Greening the Economy'

SC2 Calls:

'Blue Growth' & 'Sustainable Food Security'

Sustainable growth by harnessing:

- Earth observation data
- Cultural heritage

Nature-based solutions:

- for territorial resilience
- for sustainable cities

Systemic eco-innovation for a circular economy

Call: 'Industry 2020 in the Circular Economy'

Call: 'Smart and Sustainable Cities'

SC5 2016-2017 Large-scale demonstration projects with replication potential

Climate services

Cultural heritage for sustainable growth

Systemic eco-innovation for a circular economy

Nature-based solutions:

- for sustainable cities
- for territorial resilience

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Systemic approach:

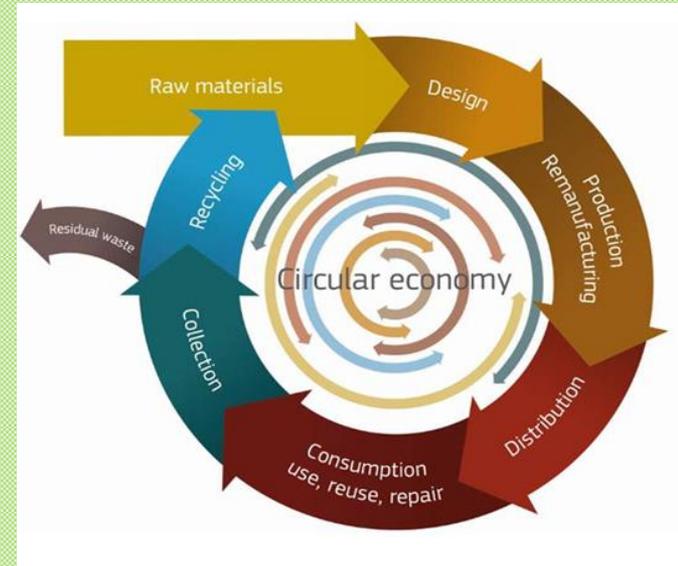
- co-design, co-development, co-implementation; user-driven; empowering end users
- participatory, multi-stakeholder, trans-disciplinary process
- citizens' engagement & ownership
- addressing the gender dimension
- innovative business, financing and governance models
- identifying potential regulatory, economic, technical, social (gender/age/disability), cultural barriers
- demonstrating economic, cultural, social, environmental sustainability

Eco-innovation for circular economy



- ✓ supporting systemic innovation to obtain a systems-wide transformation
- ✓ reorganising production and consumption to maintain/enhance value of products, components, materials and resources throughout the value chain and product life
- ✓ decoupling creation of wealth and jobs from resource consumption
- ✓ demonstrating the economic and environmental feasibility of the circular economy

Eco-innovation for circular economy



Where?

Cross-cutting call

'Industry 2020 in the Circular Economy':

- CIRC-01-2016-2017: **Systemic, eco-innovative approaches for the circular economy: large-scale demonstration projects** (IA)
 - Systemic services for the circular economy
- CIRC-02-2016-2017: **Water in the context of the circular economy** (IA)
 - Towards the next generation of water systems and services—large scale demonstration projects

Nature-based solutions



- ✓ inspired and supported by nature
- ✓ economic, social & environmental benefits & resilience
- ✓ systemic, resource-efficient locally adapted interventions
- ✓ more nature & natural features in cities & landscapes

- Sustainable cities through nature-based solutions
- Nature-based solutions for territorial resilience

Nature-based solutions



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Nature-based solutions

Where?

Topics on **Sustainable cities through nature-based solutions in cross-cutting call 'Smart and Sustainable Cities':**

- SCC-02-2016-2017: **Nature-based solutions for inclusive urban regeneration (IA)**
 - Nature-based solutions for inclusive urban regeneration

Topics on **Nature-based solutions for territorial resilience in SC5 call 'Greening the economy':**

- SC5-08-2017: **Large-scale demonstrators on nature-based solutions for hydro-meteorological risk reduction (IA)**



Climate services



- ✓ **building Europe's capacity to respond to and improve resilience to climate change**
- ✓ **strengthening significantly the nascent global market for demand-driven climate services**
- ✓ **addressing both climate change mitigation and adaptation needs**

Towards a low-carbon Europe



- ✓ **deepening the analysis of possible and cost-effective trajectories for Europe to achieve its medium and long-term climate objectives**
- ✓ **maximising societal benefits and economic prosperity**

Climate services

Where?

Call 'Greening the economy':



- SC5-01-2016-2017: **Exploiting the added value of climate services**
 - From climate service concepts to piloting and proof-of-concept (RIA)
- SC5-02-2017: **Integrated European regional modelling and climate prediction system (RIA)**
- SC5-04-2017: **Towards a robust and comprehensive greenhouse gas verification system (RIA)**

Towards a low-carbon Europe



Where?

Call 'Greening the economy':

- SC5-06-2016-2017: **Pathways towards the decarbonisation and resilience of the European economy in the timeframe 2030-2050 and beyond**
 - The risks and costs of climate change for Europe (RIA)
- SC5-07-2017: **Coordinating and supporting research and innovation actions on the decarbonisation of the EU economy (CSA)**

The Arctic dimension

Where?

Call 'Blue growth – demonstrating an ocean of opportunities'



- **BG-11-2017: The effect of climate change on Arctic permafrost and its socio-economic impact, with a focus on coastal areas (RIA)**

Raw materials

- **securing the EU's supply of primary and secondary raw materials through research and innovation**
- **EU Policy "Raw Materials Initiative"**
 - aim: securing sustainable supplies of raw materials
 - non-energy, non-agricultural raw materials
 - integrated strategy (3 pillars)
 - list of Critical Raw Materials (CRM) - 20 CRMs in 2014
- **European Innovation Partnership on Raw Materials**



See also:

- **substitution of critical and scarce raw materials -> LEIT-NMBP 'Advanced materials and nanotechnologies'**
- **recycling, re-use and secondary raw materials -> 'Industry 2020 in the Circular Economy' cross-cutting call**
- **bio-based materials (wood-based & natural rubber) -> Societal Challenge 2 and Joint Undertaking for Bio-Based Industries (BBI)**

Raw materials



Where?

Call 'Greening the economy':

- SC5-13-2016-2017: **New solutions for sustainable production of raw materials** (RIA)
 - New sensitive exploration technologies
- SC5-14-2016-2017: **Raw materials Innovation actions** (IA)
 - Processing of lower grade and/or complex primary and/or secondary raw materials in the most sustainable ways
 - Sustainable metallurgical processes
- SC5-15-2016-2017: **Raw materials policy support actions** (CSA)
 - Good practice in waste collection systems
 - Optimising collection of raw materials data in Member States
 - Linking land use planning policies to national mineral policies
 - EU network of mining and metallurgy regions
 - EU network of regions on sustainable wood mobilisation (wood supply)
- SC5-16-2016-2017: **Raw materials international co-operation**
 - International network of raw materials training centres (CSA)

Earth observation



- ✓ **maximising benefits of E.O. infrastructure for European citizens**
- ✓ **developing innovative services to support more sustainable production & consumption patterns & resilient societies**
- ✓ **completing the in-situ component of GEOSS & Copernicus**
- ✓ **enabling the sharing & full, open & unrestricted access to validated E.O. datasets**
- ✓ **engaging with the private sector to leverage emerging technologies & develop services**

Earth observation

Where?

Call 'Greening the economy':

- SC5-18-2017: **Novel in-situ observation systems (IA)**
- SC5-19-2017: **Coordination of citizens' observatories initiatives (CSA)**

Call 'Sustainable Food Security – resilient agri-food chains':

- SFS-43-2017: **Earth Observation services for the monitoring of agricultural production in Africa (RIA)**



Earth observation

Where else?

Call 'Earth Observation' (H2020-EO-2017)

- EO-1-2017: **Downstream applications**
- EO-2-2017: **EO Big Data Shift**

Call 'Competitiveness of the European Space Sector: Technology and Science' (H2020-COMPET-2017)

- COMPET-2-2017: **Competitiveness in Earth observation mission technologies**

Call 'SME Instrument' (H2020-SMEInstr-2016-2017)

- SMEInst-04-2016-2017: **Engaging SMEs in space research and development**
- SMEInst-12-2016-2017: **Boosting the potential of small businesses in the areas and priorities of SC 5**



Cultural heritage for sustainable growth



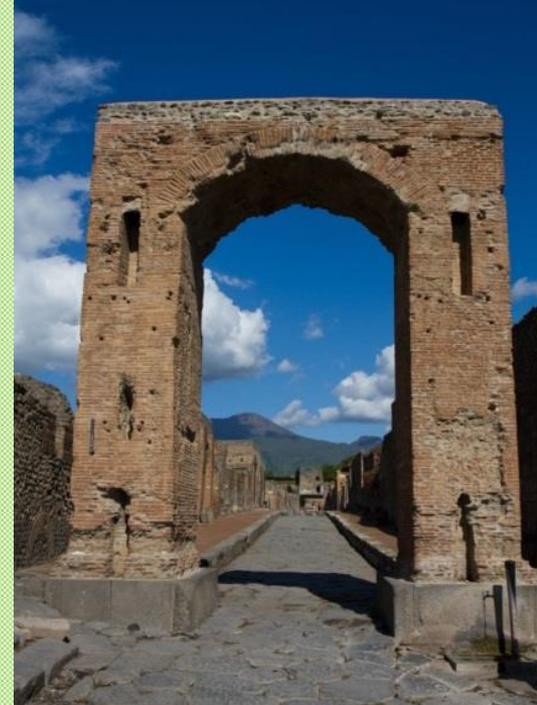
- ✓ A more dynamic approach to cultural heritage, beyond mere conservation
- ✓ cultural heritage as a production rather than a cost factor, and a strategic resource
- ✓ cultural heritage as a catalyst for regeneration, sustainable development, economic growth and quality of life
- ✓ European reference framework and robust EU-wide evidence

Cultural heritage for sustainable growth

Where?

Call 'Greening the Economy'

- SC5-21-2016-2017: **Cultural heritage as a driver for sustainable growth**
 - **Heritage-led rural regeneration (IA)**
- SC5-22-2017: **Innovative financing, business and governance models for adaptive re-use of cultural heritage (RIA)**



Water



- ✓ **mainstreamed through WP 2016-2017, as part of the systemic approach**
- ✓ **harnessing strong potential for European industry to become global market leader**
- ✓ **continuity with 2014-2015 Focus Area call 'Water Innovation: Boosting its value for Europe'**

Water

Where?



SC5-01-2017: Exploring the added value of climate services

SC5-02-2017: Integrated European regional modelling and climate prediction system

SC5-08-2017: Large-scale demonstrators on nature-based solutions for hydro-meteorological risk reduction

CIRC-02-2017: Water in the context of the circular economy

SCC-02-2017: Demonstrating innovative nature-based solutions in cities

See also:

- ✓ *SC2 calls: '**Sustainable Food Security – Resilient and resource-efficient value chains**' and '**Rural Renaissance – Fostering innovation and business opportunities**';*
- ✓ *SPIRE topics in call: '**Industry 2020 in the Circular Economy**';*
- ✓ *inducement prize on '**Zero Power Water Infrastructure Monitoring**' under '**Leadership in Enabling and Industrial Technologies – Information and Communication Technologies**'*

Support to policy & preparing for innovation procurement



Where?

Call 'Greening the Economy'

- SC5-23-2016-2017: **Support to confirmed Presidency events (conferences)**
 - **UK and Estonia (CSA)**
- SC5-26-2017: **Pre-commercial procurement on soil decontamination**

SME Instrument call: SC5 topic

SMEinst-11-2016-2017: Boosting the potential of small businesses in the areas and priorities of climate action, environment, resource efficiency and raw materials

- commercialising innovative solutions for green growth
- in any SC5 area, including 2016-2017 strategic priorities (systemic eco-innovation and circular economy, nature-based solutions, climate services, sustainable supply of raw materials, harnessing GEOSS Earth observation data, cultural heritage for sustainable growth, water)
- covering all kinds of promising ideas, products, processes, services and business models, across sectors and disciplines
- aiming at commercialisation in B2B and/or B2C contexts
- targeted at all types of eco-innovative SMEs with a strong ambition to develop, grow and internationalise

For further information

- **Research Participant Portal**

<http://ec.europa.eu/research/participants/portal/desktop/en/home.html>

- **Horizon 2020 Helpdesk**

<http://ec.europa.eu/research/enquiries>

- **Expert evaluators needed!**

<http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html>

- **Learn more about Horizon 2020**

<http://ec.europa.eu/horizon2020>

- **Social media network on 'Yammer'**

<http://www.tinyurl.com/greenRTD>

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