

HORIZON 2020

Societal Challenge 2: Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the Bioeconomy



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What is **H2020**?

The new EU Research and Innovation Funding Programme (2014-2020)





H2020 is designed to help bring ideas to the market

The Multiannual Financial Framework 2014-2020:

European Council conclusions, 8 February 2013

Key challenge: stabilise the financial and economic system while taking measures to create economic opportunities

1. Smart & inclusive growth (€451 billion)



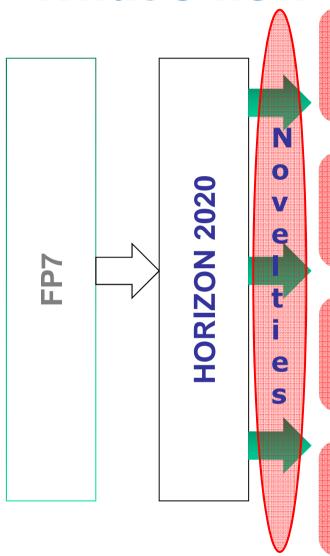
- 2. Sustainable growth, natural resources (€373 billion)
- 3. Security and citizenship (€16 billion)
- 4. Global Europe (€58 billion)
- 5. Administration (€61.6 billion)







What's new



A single programme

Bringing together three separate programmes/initiatives

Coupling research to innovation

• From research to retail, all forms of innovation

Focus on societal challenges

 Facing EU society, e.g. health, clean energy and transport

Simplified access

 For all in all EU countries and beyond



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Excellent science

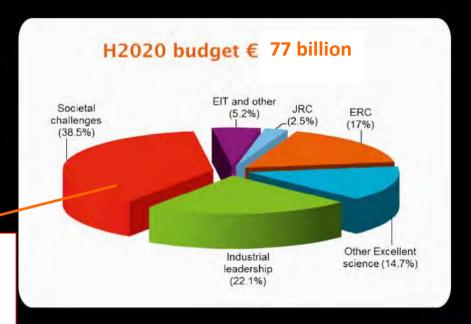
Industrial leadership

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, resource efficiency and raw materials
- 6. Inclusive, innovative and reflective societies
- 7. Secure societies

THE EU FRAMEWORK PROGRAMME FOR RESEARCH AND INNOVATION





Budget for SC2:<
€3,8 billion
= More than
double of budget
under FP7

Biggest EU investment in Research and Innovation

Research and Innovation

Societal Challenge 2: Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the Bioeconomy



Societal Challenge 2: Food Security, Sustainable Agriculture and Forestry, Marine and Maritime and Inland Water Research and the Bioeconomy

Activities:





Agriculture and forestry

Agri-food sector for a safe and healthy diet

Aquatic living resources

Bio-based industries and bioeconomy

Marine and maritime research







Activity 2.1. Sustainable Agriculture and Forestry

- 2.1.1. Increasing **production** efficiency, coping with **climate change**, while ensuring **sustainability and resilience**
- 2.1.2. Providing ecosystem services and public goods
- 2.1.3. Empowerment of **rural areas**, support to policies and rural innovation
- 2.1.4. Sustainable Forestry





Activity 2.1. Sustainable Agriculture and Forestry Main challenges/ Orientations

more efficient production systems (crops, livestock, wood)

innovative technologies for more efficient use of inputs

improved plant and animal health

innovative plant & animal breeding

wiser use of natural resources (biodiversity, ecosystems)

climate change mitigation and adaptation practices (GHGs)

ecological intensification approaches (conventional & organic)

relation between urban and rural areas

support to EU policies (CAP; Environment; Food)

Activity 2.1. Sustainable Agriculture and Forestry Specific Features

Broad remit: highly diverse sectors and policies > topics over the next years to reflect this diversity

Emphasis on applied research, linking knowledge generation with dissemination, demonstration and innovation

Involvement: representatives from advisory services, the farming sector and SMEs expected.

Support to the European Innovation Partnership on "Agricultural Productivity and Sustainability"

→ Multi-actor approach supported

Activity 2.1. Sustainable Agriculture and Forestry Examples of FP7 Success Stories







Efficient use of inputs:

EUPHOROS - Efficient use of inputs in protected horticulture

Environmental
impact:

N-TOOLBOX Toolbox of costeffective
strategies for
reductions in N
losses to water

Water use
efficiency:
SIRRIMED Sustainable use
of irrigation
water in the
Mediterranean
region

Activity 2.2 Sustainable and competitive agri-food sector for a safe and healthy diet

• 2.2.1. Informed consumer choices

2.2.2. Healthy and safefoods and diets for all

• 2.2.3. A sustainable and competitive **agri-food industry**





Activity 2.2 Sustainable and competitive agri-food sector for a safe and healthy diet

Main challenges/ Orientations

Achieving food safety and security;

Decreasing the burden of food- and diet-related diseases;

Reducing water and energy consumption;

Reducing food waste;

Activity 2.2 Sustainable and competitive agri-food sector for a safe and healthy diet Examples of FP7 Success Stories











Consumers:
FLABEL –
Food
labelling to
advance
better
education
for life

Nutrition:
NUTRIMEN
THE
- Effect of
diet on the
mental
performance
of children

Food
Processing:
PERFORM
ANCE –
Developmen
t of
personalise
d food for
the nutrition
of elderly
consumers

Food
Safety:
MYCORED
Novel
integrated
strategies
for
worldwide
mycotoxin
reduction in
the food and
feed chains

Sustainabilit y/Environme
nt:
FUSIONS –
Food use for social innovation by optimising waste prevention strategies

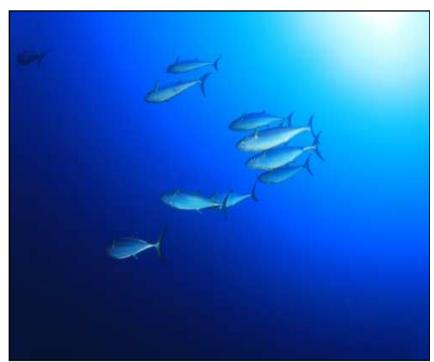
Activity 2.3. Unlocking the potential of aquatic living resources

• 2.3.1. Developing sustainable and environmentally-friendly **fisheries**

• 2.3.2. Developing competitive and environmentally-friendly **European aquaculture**

• 2.3.3. Boosting marine and maritime innovation through biotechnology

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Activity 2.3. Unlocking the potential of aquatic living resources Main challenges/ Orientations

Sustainable and environmentally-friendly fisheries:

- Healthy & productive ecosystems, CFP Reform; MSFD; EAFM.
- Adaptation to climate change; mitigation impact.
- Biology, genetic, dynamics fish populations, role of key species.
- Ecolabelling; regionalisation; socio-economic.

Competitive and environmentally-friendly aquaculture:

- Domestication of new species for aquaculture production; diversification; health and disease; nutrition; breeding; innovative production systems;
- Market and consumers; healthy, safe and competitive products.
- Environmental services (bioremediation ..); energy production.

Boosting marine & maritime innovation through biotechnology

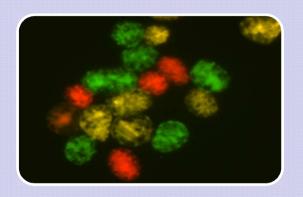
- Explore & exploit marine biodiversity
- Aquatic biomass, new innovative and sustainable processes, products and services.
- Markets; applications chemical&material industries, pharmaceutical, fisheries&Aquaculture, energy supply, cosmetic.

Activity 2.3. Unlocking the potential of aquatic living resources

Examples of FP7 Success Stories







<u>Deep sea</u>
<u>fisheries</u>
<u>management</u>:

DEEPFISHMAN Management and
monitoring of
deep-sea fisheries
and stocks

Bluefin tuna domestication:

SELFDOTT –
Sustainable tuna
aquaculture –
New Horizons

Exploring and exploiting marine microbial resources:

MICRO B3 – Biodiversity, Bioinformatics, Biotechnology

Activity 2.4. Sustainable and competitive bio-based industries and (...) bioeconomy

Full title: Activity 2.4. Sustainable and competitive bio-based industries and supporting the development of a European bioeconomy

2.4.1. Fostering the **bioeconomy**

for bio-based industries

2.4.2. Developing integrated **biorefineries**

2.4.3. Supporting market development for bio-based products and processes

*Most activities related to sustainable and competitive bio-based industries as defined in the Horizon 2020 Specific Programme will be implemented through the Joint Technology Initiative (JTI) on Bio-based Industries.

Activity 2.4. Sustainable and competitive bio-based industries and (...) bioeconomy

Main challenges/ Orientations

Discovery and exploitation of biological resources for biomass

Development of biobased products and biologically active compound:

 New opportunities, aspects of trade off between uses, improved sustainability, new and resource efficient processes etc

Supporting market development for bio-based products. Opening new markets for innovation:

 Demand side measures, standardisation, certification, need to research activities support

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Activity 2.4. Sustainable and competitive bio-based industries and (...) bioeconomy

Examples of FP7 Success Stories







Novel sources:

EU-PEARLS

New polymers from plants; TERMED-Plants natural compounds as alternative sources of bioactive molecules

Biorefinery: SPLASH

Algae biorefinery - 3rd generation biorefinery

<u>Market</u> development:

KBBPPS

Support to the standardisation of bio-based products

2.5.1. Climate change impact on marine ecosystems and maritime economy

2.5.2. Developing the potential of **marine resources** through an integrated approach

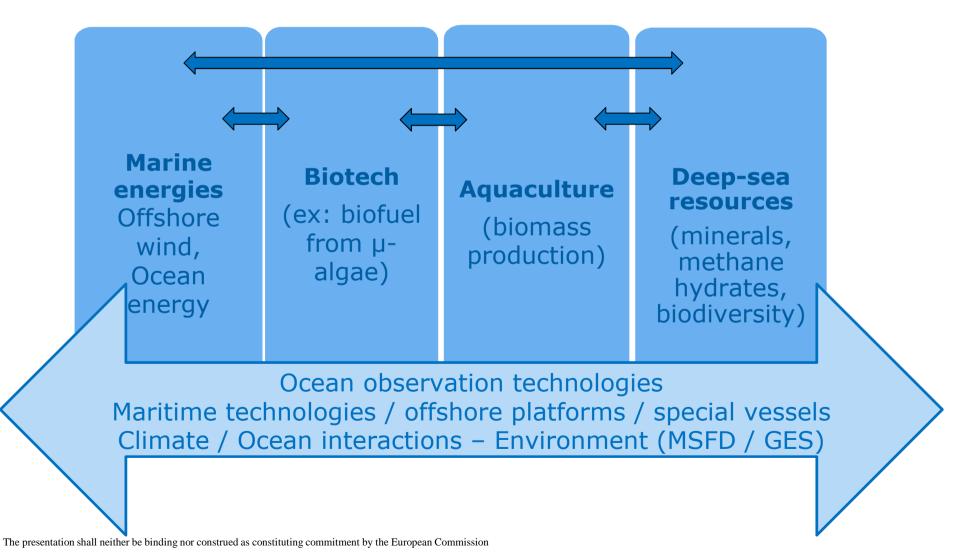


2.5.3. Cross-cutting concepts and technologies **enabling maritime growth**

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Horizon 2020 - Blue Growth



Main challenges/ Orientations

Sustainably exploiting the diversity of marine life

- Atlantic marine ecosystems
- Effects of climate change on fisheries and aquaculture
- Marine biomolecules and marine derived enzymes

The new offshore challenge

- Innovative offshore economy
- Response capacities to oil spills and marine pollutions

Sea bed mining

Sub-seabed technologies

Ocean observation technologies/system

- Atlantic Ocean observation
- Acoustic and imaging technologies
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Examples of FP7 Success Stories







Artic governance and policy:

ACCESS

Arctic Climate
Change, Economy
and Society

Multi-use ocean platforms:

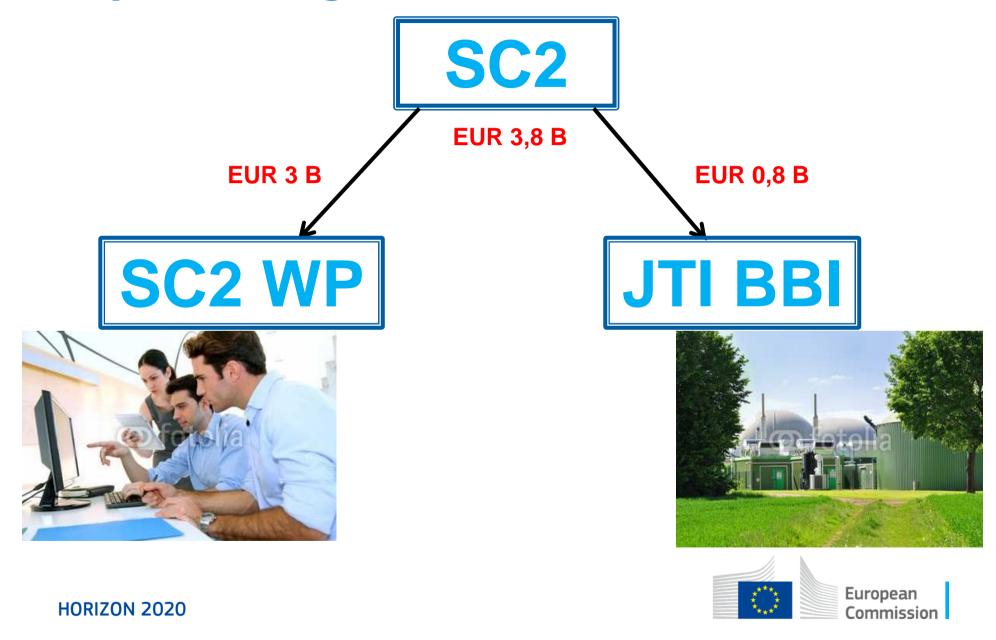
TROPOS

Modular Multi-use
Deep Water Offshore
Platform Harnessing
and Servicing
Mediterranean,
Subtropical and
Tropical Marine and
Maritime Resources

Sub-seabed CO₂ storage:

ECO₂

Sub-seabed CO2 Storage: Impact on Marine Ecosystems



A strategic programming approach

Work programme preparation based on strategic programming exercise for the next three years

To increase impact of the funding, and a more integrated approach

Leitmotiv of the first work programme is the economic crisis and the path to sustainable growth - Horizon 2020 can make a significant contribution to this effort

Identify 12 focus areas on which resources and effort will be concentrated for maximum impact

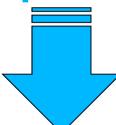


Specificities of the new Framework Programme

Challenge-based approach Less prescription Broader topics Simplified list of possible types of action **Cross-cutting issues mainstreamed** Work programmes with a 2 yearduration



Specificities of the new Work Programme



It reflects the challenge-based approach of H2020:

Specific Challenge

 sets the context, the problem to be addressed, why intervention is necessary

Scope

 delineates the problem, specifies the focus and the boundaries of the potential action BUT without overly describing specific approaches

Expected Impact

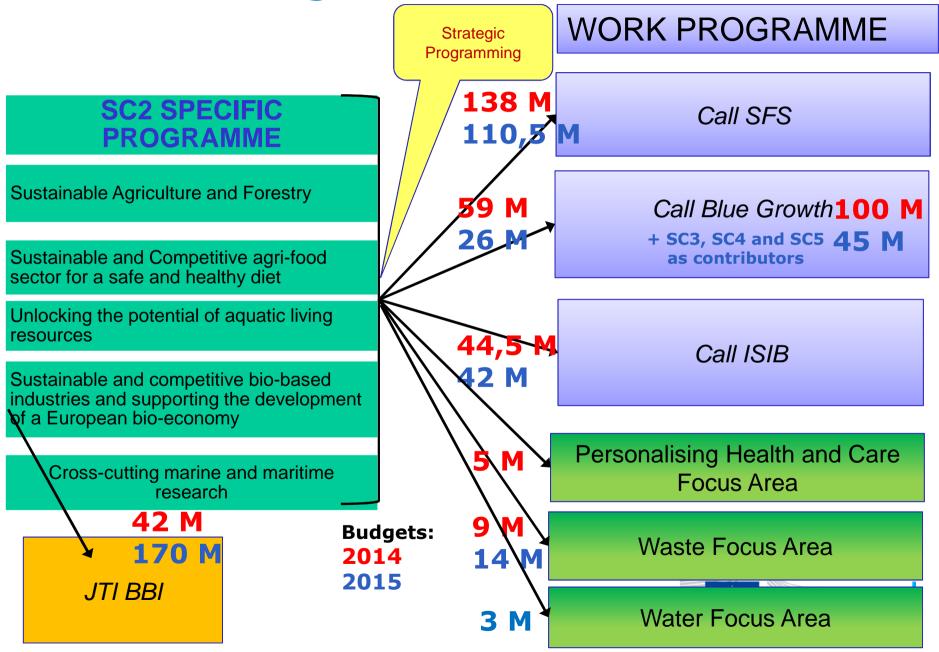
o describe the key elements of what is expected to be achieved in relation to the specific challenge

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SC2 Work Programme 2014-2015



SC2: Three calls

Sustainable Food Security

- Sustainable food production systems
- Safe food and healthy diets and sustainable consumption
- Global drivers of food security

Blue Growth

- Sustainably exploiting the diversity of marine life
- New offshore challenges
- Ocean observation technologies/systems
- Socio-economic dimension engagement with society

Innovative, Sustainable and Inclusive Bioeconomy

- Sustainable agriculture and forestry
- Sustainable and competitive bio-based industries
- Cross-cutting actions covering all the activities

SC2: Sustainable Food Security Call

Examples of topics:

1. Sustainable food production systems

- SFS-1-2014/2015: Sustainable terrestrial livestock production
- SFS-2-2014/2015: Sustainable crop production
- SFS-8-2014/2015: Resource-efficient eco-innovative food production and processing
- SFS-9-2014: Towards a gradual elimination of discards in European fisheries

2. Safe food and healthy diets and sustainable consumption

- SFS-12-2014: Assessing the health risks of combined human exposure to multiple food-related toxic substances
- SFS-13-2015: Biological contamination of crops and the food chain
- SFS-14-2014/2015: Authentication of food products
- SFS-15-2014: Proteins of the future
- SFS-16-2015: Tackling malnutrition in the elderly
- SFS-17-2014: Innovative solutions for sustainable novel food processing

3. Global drivers of food security

 SFS-19-2014: Sustainable food and nutrition security through evidence based EU agro-food policies

SC2: Blue Growth Call

Sustainably exploiting the diversity of marine life

- BG1-2015: Atlantic marine ecosystems
- BG2-2015: Effects of climate change on F&A
- BG3-2014: Novel marine biomolecules.
- BG4-2014: Potential of marine derived enzymes

New offshore challenges

- BG5-2014: Innovative offshore economy
- BG6-2014: Sub-sea technologies
- BG7-2015: Response capacities to oil spills and marine pollutions

Ocean observation technologies/systems

- BG8-2014: Atlantic Ocean observation
- BG9-2014: Acoustic and imaging technologies

Horizontal aspects

- BG10-2014: Competitiveness of Seafood markets
- BG11-2014: Monitoring, disseminating and valorizing research outputs
- BG12-2014/2015: SMF instrument.
- BG13-2014: Ocean literacy
- BG14-2014: Atlantic Ocean Cooperation Research Alliance
- BG15-2014: Polar research

SC2: Innovative, Sustainable and Inclusive Bioeconomy Call

Sustainable Agriculture and Forestry

- ISIB-1-2014: Provision of public goods by EU agriculture and forestry: Putting the concept into practice
- ISIB-2-2014/2015: Closing the research and innovation divide: the crucial role of innovation support services and knowledge exchange
- ISIB-3-2015: Unlocking the growth potential of rural areas through enhanced governance and social innovation
- ISIB-4-2014/2015: Improved data and management models for sustainable forestry

Sustainable and competitive bio-based industries

- ISIB-5-2014: Renewable oil crops as a source of bio-based products
- ISIB-6-2015: Converting CO2 into chemicals
- ISIB-7-2014: Public procurement networks on innovative bio-based products

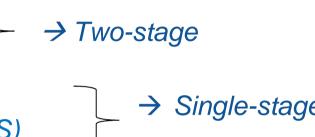
Cross-cutting actions covering all activities

- ISIB-8-2014: Towards a sustainable Bioeconomy (Communication and dissemination activities)
- ISIB-9-2014 to ISIB-14-2014/2015: Support to ERANETS and JPIS

SC2: WP 2014-2015

Types of actions:

- 29 Research and Innovation Actions
- 2 Innovation actions
- 13 Coordination and Support actions
- 1 ERANET Cofund (but 6 possible ERANETS)
- 2 SME instrument → multiple deadlines



Budget and expected results:

- 2014: EUR 250 M → ~49 projects (average EUR 5,2M / project)
- 2015: EUR 200 M → ~36 projects (average EUR 5,5M / project)



SC2: WP 2014-2015

Cross-cutting issues mainstreamed

SME: FP7:>15% H2020:>20%

- 2 SME instrument topics (5% of budget)
- SME-friendly topics

SSH integrated throughout the WP

- SSH dedicated topics
- SSH encouraged in other topics

RRI (including gender) favoured

International Cooperation streamlined

- Targeted International Cooperation
- General opening of all topics

Open Access: participants can opt in the pilot projects on Open Access to Data

Implementing H2020 SC2

Characteristics of projects I

Variety of type of actions

 But mainly Research and Innovation, though going more towards innovation

Variety of type of **beneficiaries**

From research institutions to industries and farmers,
 Multi-actor approach strengthened

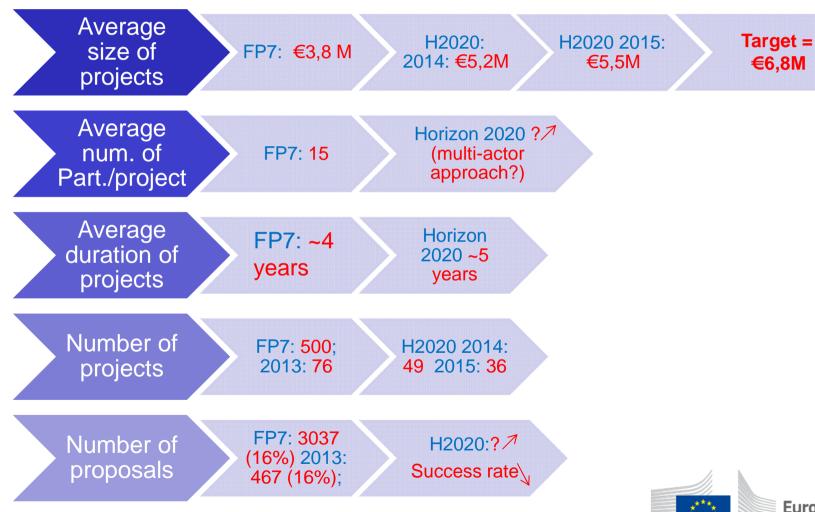
Management mode:

- Programme defined by DG RTD and DG AGRI
- Project management shared RTD/REA



Implementing H2020 SC2

Characteristics of projects II

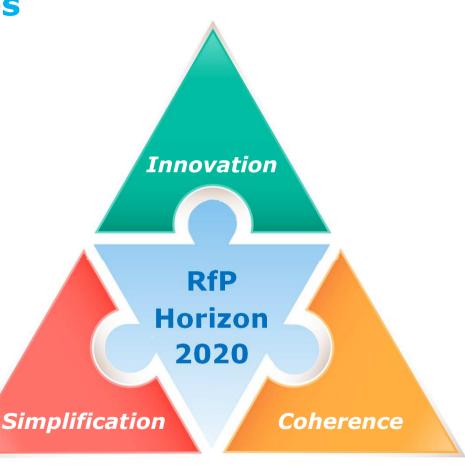




Horizon 2020: Rules for participation

Three main objectives

Innovation,
Simplification
and Coherence



Horizon 2020: A single set of rules





- Covering all H2020 research and innovation actions
- Keeping flexibility where needed



Horizon 2020: Conditions for Participation

Minimum conditions

✓ Standard collaborative actions

At least three legal entities each established in a different Member State or an Associated Country;

✓ ERC, SME instrument, programme co-fund, coordination and support, training and mobility actions:

One legal entity established in a Member State or in an Associated Country

Additional Conditions

√ In the work programme or work plan



Horizon 2020: Conditions for Participation

Proposal Structure

Based around evaluation criteria:

Provisional

✓ Excellence

Eg. Objectives, concept, progress beyond state-of-art...

✓ Impact

Eg. Potential impact (incl. with reference to WP); measures to maximise impact (dissemination, communication, exploitation)

✓ Implementation

Including work packages descriptions



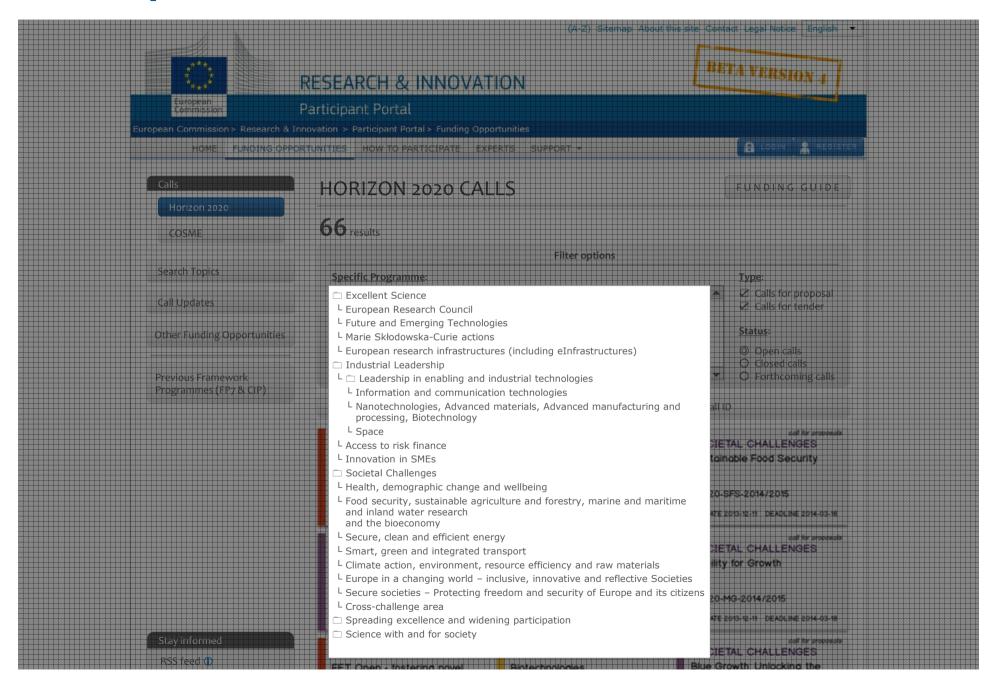
Horizon 2020: Conditions for Participation

Submission

- √ Full use if pre-registered data (PIC etc)
- srovisional ✓ Self check for SME status, financial viability
- ✓ Proposal "part B" structure closely matching criteria
- ✓ Aligned with Grant Agreement "Description of Work"
- ✓ Simpler but tougher page limits "warn and watermark" in first round of calls
- ✓ More 2-stage procedure; with simplified approaches for short proposals



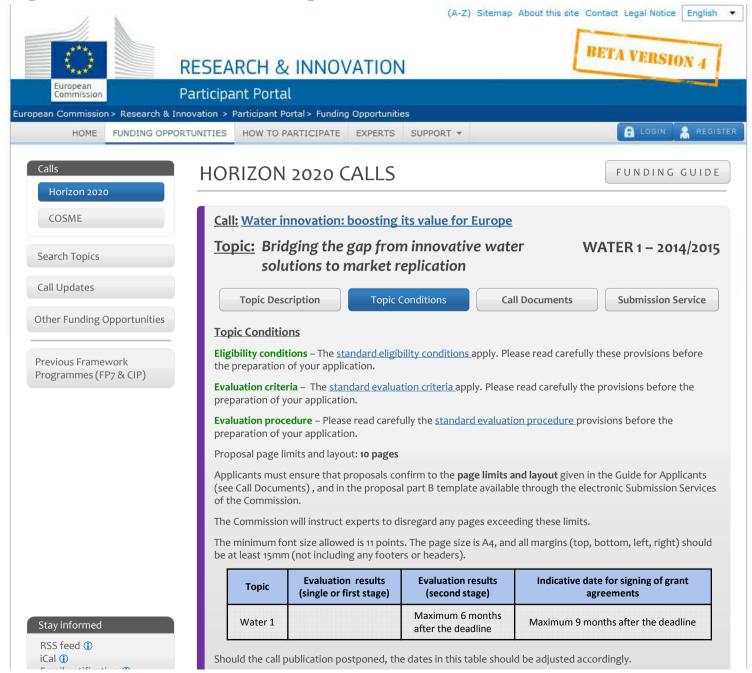
Participant Portal: H2020 calls - Full tree structure



Participant Portal: Search topics results



Participant Portal: Topic details - conditions



STANDARD AWARD CRITERIA **QUALITY & EXCELLENCE IMPACT EFFICIENCY** OF THE ACTION

√ First phase

only EXCELLENCE and IMPACT

- ✓ **ERC** frontier Research actions only EXCELLENCE



✓ **Innovation actions** higher weighting for "IMPACT"



Award criteria: Research and Innovation Actions; Innovation Actions; SME institute in the control of the contro

Excellence

- Ground-breaking nature (eg. level of ambition, beyond the state-of-the-art, novel approach, addresses challenge, ...)
- Conceptually robust; trans-disciplinarity considered...

Impact [...] extent to which project outputs contribute to:

- The expected impacts listed in the work programme under the relevant topic;
- Enhancing innovation capacity and integration of new knowledge;
- Strengthening the competitiveness and growth of companies by developing innovations meeting the needs of European and global markets;
- Effectiveness of the proposed measures to communicate the project, disseminate and/or exploit the project results, and appropriate management of IPR.

Quality and efficiency of implementation

- Coherence and effectiveness of the work plan, including appropriateness of the allocation of tasks and resources;
- Competences, experience and complementarity of the individual participants, as well as
 of the consortium as a whole;
- Appropriateness of the management structures and procedures, including risk management.

Scoring/weights/thresholds



As in FP7:

Each criterion scored out of 5

Individual threshold of 3

Overall threshold of 10

Unlike FP7, for Innovation Actions and SME instrument...

Impact criterion weighted by factor 1.5

Impact considered first when scores equal

For first phase: individual threshold of 4



Evaluation Process

Chain of individual, consensus and panel review maintained. But **changes from FP7**:

Dealing with multidisciplinary/sectoral proposals

- New expert profiles, new blood;
- Robust rules on expert turnover;
- More experts per proposal;
- Clear procedures for cases where experts disagree

Call for experts planned for November

rovisional

Dealing with 8 month TTG

(details in next slide)

- Proposals strictly evaluated on their own merit
- More multi-step (stopping evaluation when threshold failed)
- Fast and simplified procedure for SME instrument

No recommandations for substantial changes

Horizon 2020: Time to Grant Speeding up the process I

A maximum TTG of 8 months

5 months

for informing all applicants on scientific evaluation

3 months for signature of GA

Some exceptions apply



Horizon 2020: Time to Grant Speeding up the process II

How to speed up the process

- ✓ No more negotiations each proposal evaluated 'as it is', not as 'what could be';
- ✓ Legal entity validated parallel
- ✓ No more paper
 e-communication & e-signature of grants





Horizon 2020: Calendar

Publication of first calls:

- Pre-published version already on-line on the Horizon 2020 website
- Prelaunch of Horizon 2020 first calls (2014-2015): **11 December 2013**
- Bio-NCP meeting: 16 January 2014
- Infoday: 17 January 2014

Calendar of Deadlines in 2014 and 2015:

Single-stage (CSAs, ERANETs):

2014: 26/06/2014 2015: 11/06/2015

Two-stage (RIA, IA):

2014: 12/03/2014 and 26/06/2014 **2015**: 24/02/2015 and 11/06/2015







Thank you for your attention!

Useful links:

Horizon 2020 and draft WPs: www.ec.europa/research/horizon2020
Participant Portal and final WPs: https://ec.europa.eu/research/participants/portal
Bioeconomy Portal and Info Day: http://ec.europa.eu/research/bioeconomy/