



HORIZON 2020

LE PROGRAMME DE RECHERCHE ET
D'INNOVATION DE L'UNION EUROPÉENNE

SOCIETAL CHALLENGE 2 :

**Food security,
Sustainable Agriculture & Forestry,
Marine, Maritime & inland Water Research
and the Bioeconomy**



Christophe Cotillon - ACTIA

From FP7 to Horizon 2020...



- **HORIZON 2020** : more than 80 billion €, the biggest budget for research and innovation in the history of the EU (...FP7 : ± 50 B€...)
- <8% multiannual financial framework 2014-2020 of the EU (± 908 B€) implementing the **"Europe 2020" strategy** :
 - as part of one of the 7 flagship initiatives **"Innovation Union"**
 - contributing to the **European Research Area "ERA"**
- An integrated approach, from research to innovation and commercialisation (**"Bring ideas to the market"**)



2007-2013 "FP7"

**Objective : build the
Europe of Knowledge**

2014-2020 "Horizon 2020"

**Objective : build the
Europe of Innovation**



Funding instruments based on calls for proposals

- Selection of projects by **competition** between proposals responding to **calls**
- "**Tout le monde**" can participate (everybody / all the world...)
- Evaluations by independent experts (3 criteria...)
- Procedure in 2 stages for the "big" projects (**RIA and IA**), only 1 stage for smaller ones (**CSA...**)
- A new cascading approach in **HORIZON 2020**
 - ① a **specific programme** published by the EC to implement H2020 (7 years),
 - ② a **strategic programme** (reflections on priorities... for 2+... years)
 - ③ a **workprogramme** (**CALLS** for 2 years...), published every year.



Architecture of Horizon 2020

3 Pillars or Priorities...*



Excellent science

4 objectives

1. The European Research Council (ERC) (*Frontier research - indiv.*)
2. Future & Emerging Technologies (FET) (*Bottom-up - collab.*)
3. Marie-Sklodowska Curie Actions (*skills, carrier devel - indiv.*)
4. Research Infrastructures

Industrial leadership

3 objectives

1. Leadership in enabling & industrial technologies
 - ICT
 - Nano
 - Advanced materials
 - **Biotechnology**
 - Advanced manufact. & processing
 - Space
2. Access to Risk Finance
3. Innovation in SMEs

Societal challenges

7 challenges

1. Health, demographic changes & wellbeing
2. **Food security, sustainable agriculture & forestry, marine, marit. & inland water res. & Bioeconomy**
3. Secure, clean & efficient energy
4. Smart, green & integrated transport
5. Climate action
6. Inclusive, innovating & reflective Societies
7. Secure societies

Spreading excellence and widening participation

Science with and for society

European Institute of Innovation & Technology (EIT)

Joint Research Centre (JRC)

EURATOM

Architecture of Horizon 2020

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Societal Challenge 2 (SC2)



1

Specific Programme

(2014-2020)

5 areas...

1. Sustainable agriculture & forestry

2. Sustainable & competitive agri-food sector for a safe & healthy diet

3. Unlocking the potential of aquatic living resources

4. Sustainable and competitive bio-based industries / **Biotechnology**

5. Cross-cutting marine & maritime research



Work-Programme

(2018 - 2020)

4 calls for proposals...

1. Focus Area: Sustainable Food Security (**SFS**)

2. Focus Area : Blue Growth (**BG**)

3. Call for a Rural Renaissance (**RUR**)

4. Call for Bio-based Innovation (**BE**)

Strategic Reflection :
"Scoping Paper"
...translation into Topics...

JTI "BBI" (BioBased Industries Joint Undertaking)
(PPP: 3.7 (1 + 2.7) B€ / 7 years ; 4th call April 2017)

+ Contribution to other Focus areas (Health, Waste, Water...)



5 major priorities

- Addressing climate change and resilience on land and sea,
- Making the transition towards a circular bioeconomy,
- Fostering functional ecosystems, sustainable food systems, healthy lifestyles,
- Boosting major innovations on land and sea – new products, value chains and markets,
- Developing smart, connected territories and value chains in rural and coastal.

The funding instruments



- **Research & Innovation Actions (RIA) – (TRL* up to 5)**
 - Collaborative Research ; at least 3 partners from 3 different MS or AC ; overall min. 20% of budget for SMEs
 - Funding **100%** for academic and SMEs ; Indirect costs : **25%** of direct costs
- **Innovation Actions (IA) – (TRL* 6 to 8...)**
 - Funding **70%** for commercial (profit) partners ; 100% for academic **and SMEs** ;
 - Indirect costs : **25%** of eligible direct costs
- **"SME Instrument" - (single SME...)**
 - **Phase 1** (faisability) lump-sum **50 K€** (6 month project) ;
 - **Phase 2** (development) **1-2,5 M€** (1-2 year project) ;
 - **Phase 3:** (commercialisation) **in-kind** "coaching" et "mentoring" (EEN...)
- **New in 2015 : "Fast-track to Innovation"**
 - very close to market (100 % or 70% funding...)
- **Coordination & Support Actions**
 - 100% funding (mostly "institutional" partners)
- **ERA-NET Cofund** - (Public-Public Partnerships...)

* **Technology Readiness Level**



A new concept



The multi-actor approach »

- Innovation projects responding to a societal demand,
- Necessity to involve all competent and relevant actors on a specific topic or thematic from the conception of the project until transfer and dissemination activities,
- Complementarity and synergy in terms of competencies for those actors working in the same discipline or topic (Research, Experiment, Advise, Transfer),
- Necessity to improve knowledge exchange between all these actors,
- Objective to succeed in practical and operational solutions applicable by end-users and widely disseminated.



Deadlines for submission

1 step proposals : 13 February 2018
23 January 2019

2 steps proposals: 13 February 2018/23 January 2019
11 September 2018 / 04 September 2019



1

Call for Sustainable Food Security (SFS): *Resilient and resource-efficient value chains*

"Sustainable food security..."

"...when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life..."

*WP 2018-2019 "Draft 3": **48** topics*

- **12** "topics" for 2018 ; **218,75 M€**
- **11** "topics" for 2019 ; **296 M€**
- **7** pour 2018 and 2019...

Call for Sustainable Food Security (SFS)

"Focus Area"



Four action lines:

- Deliver diverse and healthy food from land and sea,
- Increase resource efficiency and environmental performance of food systems from primary production to consumers,
- Understand the impact of climate change on agriculture, resources, food quality and identify options to manage its effects,
- Reduce greenhouse gas emissions and emissions of air pollutants from land use and food production taking into account main drivers such as inputs and consumption patterns.

Opening to International Cooperation:

- Support to the implementation of the EU-Africa Partnership on Food and Nutrition Security and Sustainable Agriculture,
- Implementation of the EU-China FAB Flagship initiative.

Support to policy priorities of UE:

- Food security, preservation of resources, soils, biodiversity, environment...
- EIP-AGRI « Productive and Sustainable Agriculture »
- CAP, PCP, Health policy & consumers



1. Call for Sustainable Food Security (SFS)

1

1.1 From functional ecosystems to healthy food - (17 topics ; p.1/3)

SFS-01-2018/2019/2020 : Biodiversity in action : across farmland and the value chain

A:2018 Small organisms, big effects for plants

RIA, 14 M€ (X2)

B:2019 Capitalising on native biodiversity in farmland landscape

RIA, 16 M€ (X2)

C:2020 From agrobiodiversity to dynamic value chains

RIA

LC-SFS-03-2018 : Microbiome applications for sustainable food systems

IA, 42 M€ (X4)

SFS-04-2019/2020 : Integrated health approaches and alternatives towards pesticide use

A:2019 Integration of plant protection in a global Health approach

RIA, 15 M€

B: 2020 Biocidal and plant protection products

IA

SFS-05-2018/2019/2020 : New and emerging risks in plant health

RIA, 7M€

SFS-06-2019/2020 : Stepping up integrated pest management

A: 2018 Decision support systems

RIA, 5M€

B: 2020 EU wide demonstration farm network

RIA



Structure of a topic

- ✚ **Specific challenge**
- ✚ **Scope**
- ✚ **Expected impact**
- ✚ **Type of action**



1. Call for Sustainable Food Security (SFS)

1.1 From functional ecosystems to healthy food - (17 topics) (p.2/3)

SFS-07-2018 : Making European beekeeping healthy and sustainable

RIA, 8 M€

SFS-08-2018/2019 : Improving animal welfare

A:2018 Organic and low-input farming

RIA, 10M€ (X2)

B:2019 Precision livestock farming

IA, 6M€

SFS-11-2018/2019 : Anti-microbials and animal production

A:2018 Rethinking management of health of farmed animals

RIA, 12M€ (X2)

B:2019 Alternative to anti-microbials

RIA, 6M€

SFS-12-2019 : A vaccine against African Swine Fever

IA, 10M€

./.



1. Call for Sustainable Food Security (SFS)

1.1 From functional ecosystems to healthy food - (17 topics) (p.3/3)

DT-SFS-14-2018/2019 : Personalized Nutrition

IA, 7M€ (X4)

LC- SFS-15-2018 : Future proofing our plants

évaluation qualités végétales

CSA, 3M€

SFS-16-2018 : Towards healthier and sustainable food

RIA, 14 M€ (X2)

LC-SFS-17-2019 : Alternative proteins for food and feed

IA, 8M€ (X4)

Focus areas : (DT) digitisation (LC) Low Carbon

1. Call for Sustainable Food Security (SFS)



1.2 Environment and climate smart food production and consumption – (5 topics)

LC-SFS-19-2018-2019 : Climate-smart and resilient farming

A: 2018 Microclimate management : from field to landscape

RIA, 7M€

B: 2019 Efficiency and resilience of mixed farming and agroforestry systems

RIA, 7M€ (X2)

LC-SFS-20-2019 : European Joint Programme on agricultural soil management

EJP Co-fund (50%), 40M€

SFS-23-2019 : Integrated water management in small agriculture catchments

RIA, 7M€ (X2)

CE-SFS-24-2019 : Innovative and citizen-driven food system approaches in cities

IA, 12M€ (X2)

CE-SFS-25-2018: Integrated system innovation in valorising urban biowaste

IA, 10M€ (X2)

1. Call for Sustainable Food Security (SFS)



1.3 Building capacities – (5 topics)

DT-SFS-26-2019 : Food Cloud demonstrators

From TRL 4-5 to TRL 6-7

IA, 10M€

SFS-27-2018 Monitoring food R&I investments and impacts

RIA, 7M€

SFS-28-2018/2019/2020 : Genetic Resources and Pre-breeding communities

A: 2018 Joining forces for GenRes and biodiversity management

CSA, 3M€

B: 2019 Adding value to plant GenRes

RIA, 14M€ (X2)

C: 2020 The GenRes-user interface and pre-breeding activities

IA

SFS-29-2018 : Innovations in plant variety testing – *nouvelles variétés végétales*

RIA, 8 M€

SFS-30-2018/2019/2020 : Agri-Aqua Labs

A:2018 Understanding the genome of farmed animals, its expression and translation into traits- **IA, 18M€ (X3)**

B: 2019 Looking beyond plant adaptation

RIA, 10M€ (X2)

C: 2020 Plant energy biology

SFS-31-2019 : ERANETs in agri-food (*tbc*)

A: 2019 ICT-Enabled Agri-food Systems

Eranet Cofund, 6M€

B: 2019 Climate change and Food Systems

Eranet Cofund, 5M€

C: 2019 International Veterinary Vaccinology

Eranet Cofund, 5M€

1

1. Call for Sustainable Food Security (SFS)

1.4 Targeted international cooperation – (6 topics)



SFS-32-2018 (LC) : [Supporting Microbiome Coordination and the International Bioeconomy Forum](#)

CSA, 2,75 M€

EU- Africa partnership on food and nutrition security and sustainable agriculture

SFS-33-2018: Support to the implementation of EU Research and innovation partnership on Food and Nutrition Security and Sustainable Agriculture (FNSSA)

CSA, 5M€

LC-SFS-34-2019 : Food Systems Africa

RIA, 21M€ (X3)

SFS-35-2019/2020 : Sustainable Intensification in Africa

A:2019 African Farming Systems, sustainable intensification pathways

B:2019 Soil system for Africa

RIA, 7,5 M€, maa

RIA, 5M€

EU-China FABFlagship initiative

SFS-37-2019: Integrated approaches to food safety controls across the agri-food chain

RIA, 8 M€ (X2)

SFS-38-2018 : Highly efficient management of soil quality and land resources

RIA, 5M€

CE-SFS-39-2018 : High-quality organic fertilisers from biogas digestate

IA, 5M€



3

Call for Blue Growth (BG) : *demonstrating an Ocean of Opportunities*

- *3 topics pour 2018 - 77,5 M€*
- *3 topics pour 2019 – 89 M€*
- *3 topics for 2018 & 2019*

Blue Growth Call 2018-2019

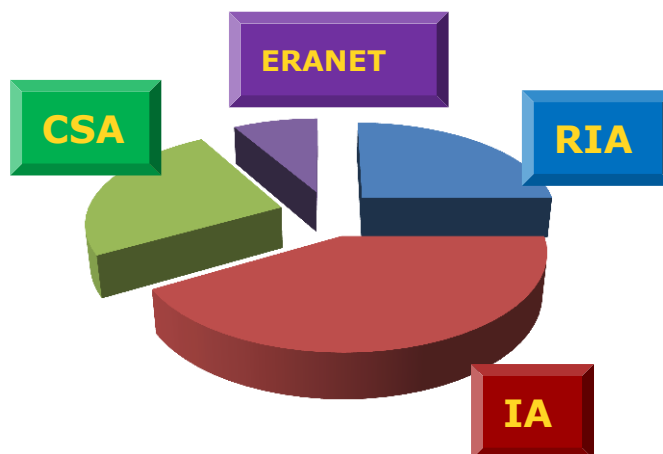
Indicative BUDGET: 166,5 M€ 2018: 77,5 M €
2019: 89 M €

Activity lines:

2.3 Exploiting the potential of aquatic living resources

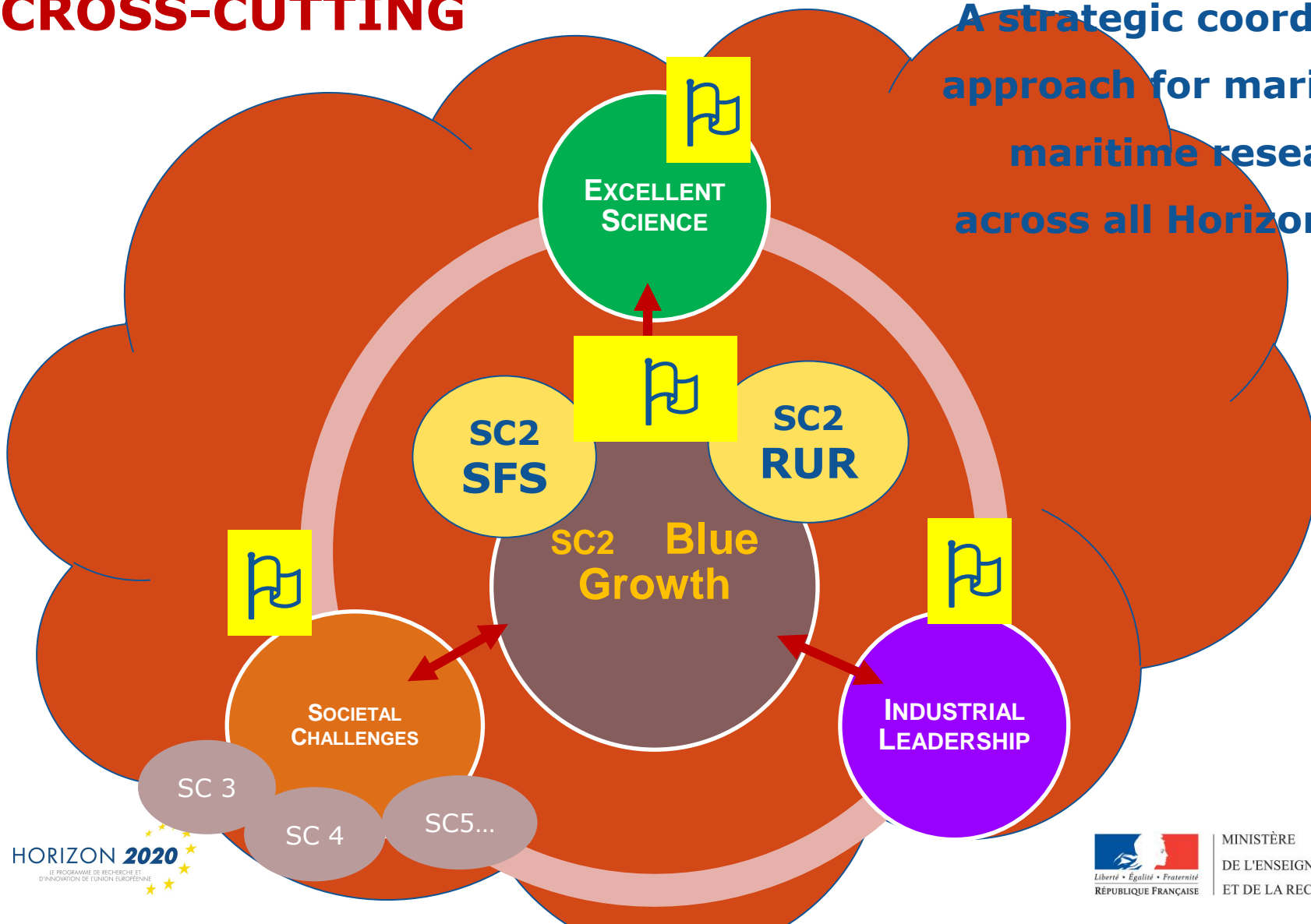
2.5 Cross cutting marine and maritime research

9 Topics



CROSS-CUTTING

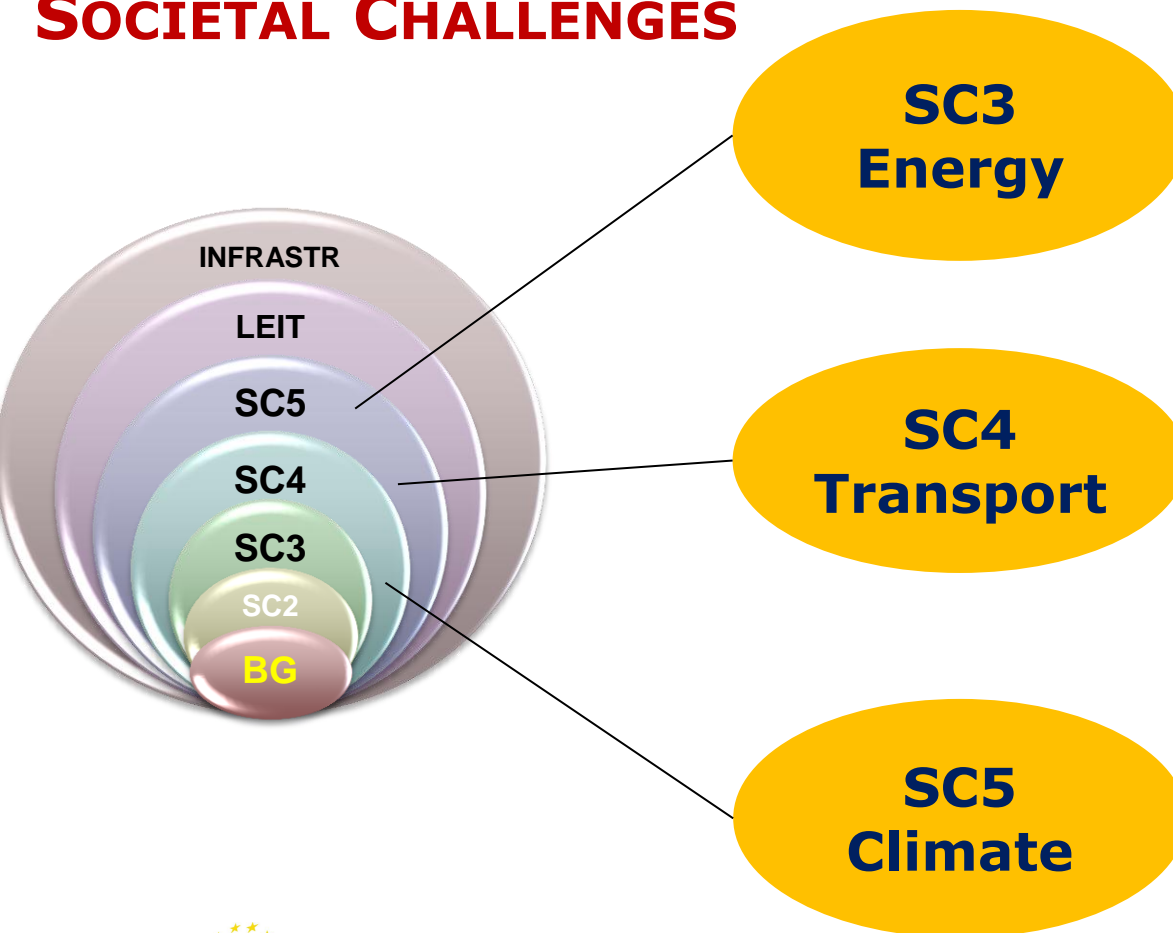
A strategic coordinated
approach for marine and
maritime research
across all Horizon 2020



DRAFT

Blue Growth across H2020

SOCIETAL CHALLENGES



- wave energy
- floating wind farms
- aquatic biomass biofuel
- offshore storage of CO₂
- Shipping renewable fuel
- Energy islands

- Innovative ships
- autonomous ships
- ship emissions
- unmanned activities
- underwater noise
- maritime transport safety
- Marine accidents response

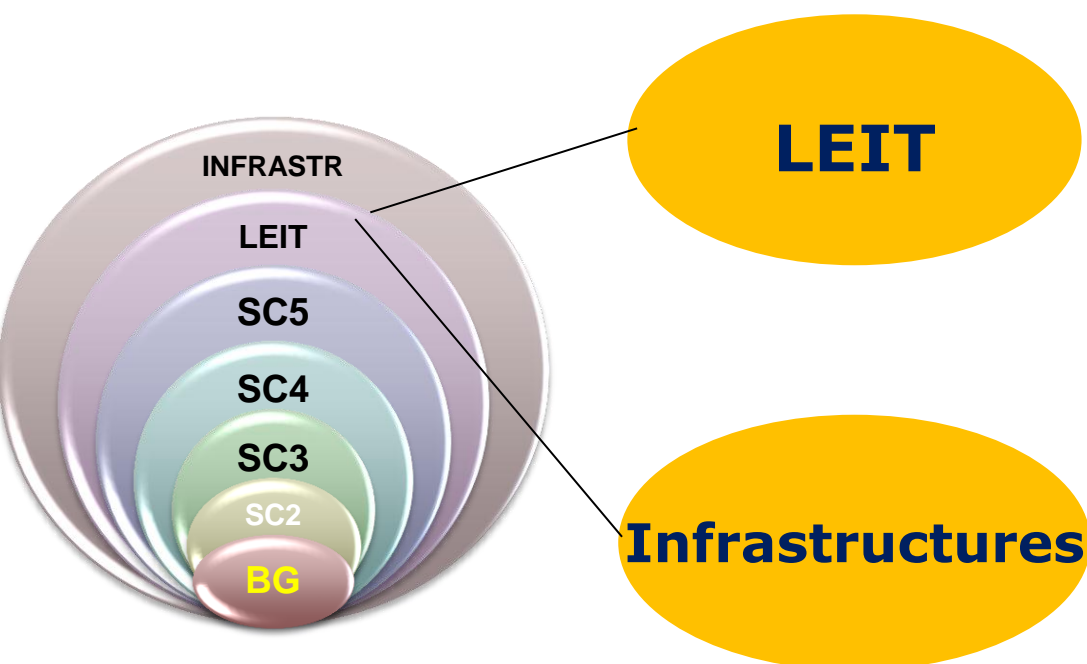
- Climate change, biodiversity and ecosystems
- recovery of sea resources
- sea level changes
- Cryosphere

DRAFT

Blue Growth across H2020

INDUSTRIAL LEADERSHIP / RESEARCH INFRASTRUCTURES

EXAMPLES



- **SPACE – Copernicus**
Marine Services, ocean models

- **NMBP: off-shore energy materials**

- **Research Vessels**

3. Call for Blue Growth: demonstrating an Ocean of Opportunities



3

BG-01-2018 : Towards a Baltic and North Sea research and innovation programme

CSA, 2,5M€

BG-02-2018 : Blue Bioeconomy Public-Public Partnership

ERANet Cofund, 8M€

3. Call for Blue Growth: Unlocking the potential of the Oceans



3

LC-BG-03-2018 : Sustainable harvesting of marine biological resources

RIA, 6M€

DT-BG-04-2018/2019 : Sustainable EU aquaculture 2.0

2018 IA, 6M€

BG-05-2019 : Multi-use of the marine space, offshore and near-shore: pilot demonstrators

IA, 18M€ (X2)

CE-BG-06-2019 : Sustainable solutions for bio-based plastics on land and sea

IA, 18M€ (X2)

Focus areas : (CE) circular economy (LC) Low Carbon

3. Call for Blue Growth: Unlocking the potential of the Oceans



3

BG-07-2019/2020: The Future of Seas and Oceans Flagship Initiative

A: 2019 Blue Cloud Services

IA, 6M€

B: 2019 Observation and forecasting

IA, 12M€

C : 2020 Technologies for observations

IA

BG-08-2018/2019 : All Atlantic Ocean Research Alliance Flagship

A: Coordination of marine and maritime research and innovation activities in the Atlantic Ocean

CSA, 8M€ (X2)

B: Assessing the status of Atlantic marine ecosystems

RIA, 27M€ (X3)

C: New value chains for aquaculture production

RIA, 8M€

LC-BG-09-2019 : Coordination of marine and maritime research and innovation activities in the Black Sea

CSA, 2M€

Focus areas : (CE) circular economy



2

Call for a Rural Renaissance (RUR)

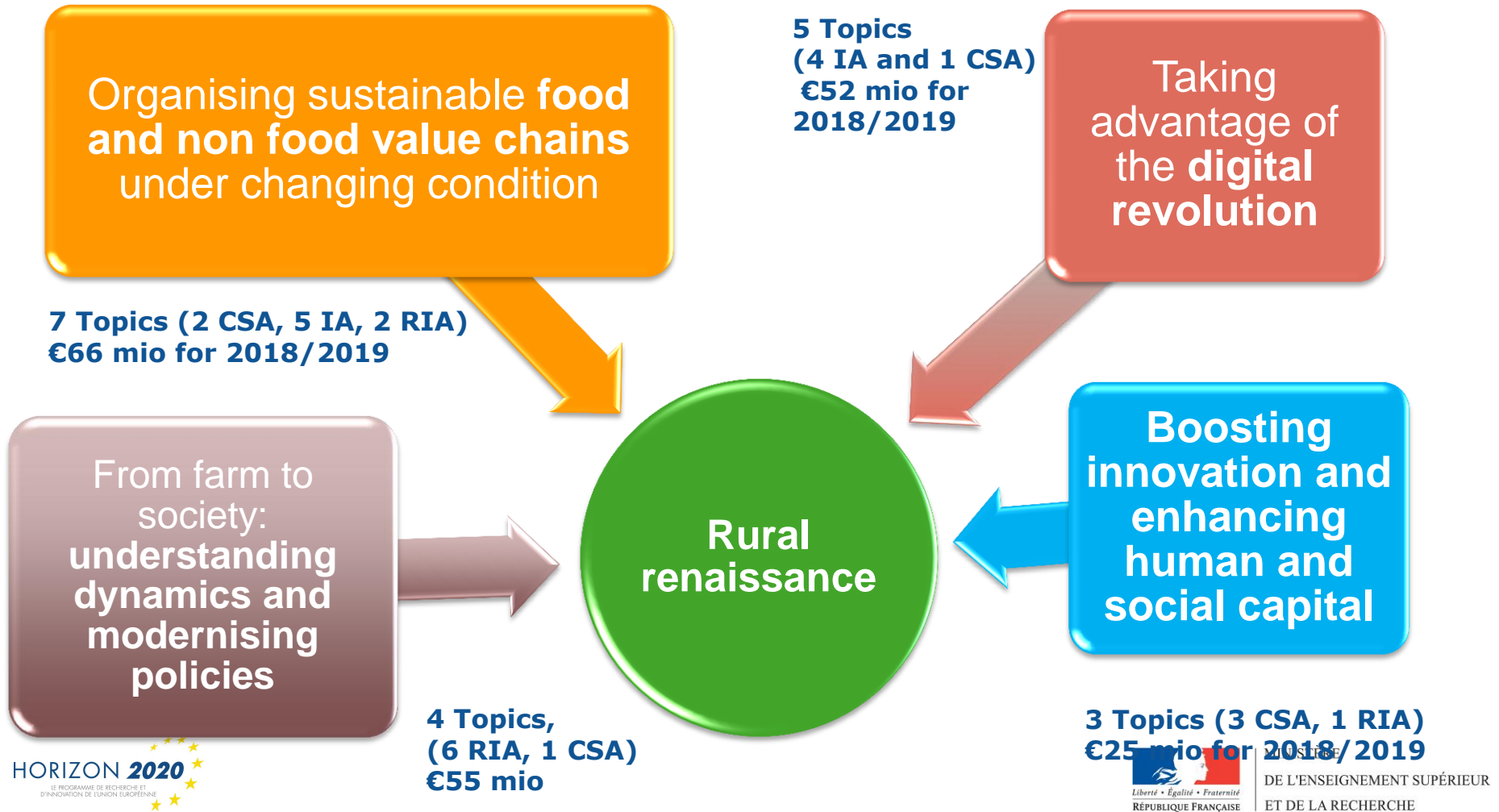
Fostering innovation and business opportunities

Draft WP : 20 topics

- *5 topics pour 2018 - **107,43 M€***
- *3 topics pour 2019 – **74 M€***
- *4 topics pour 2018 & 2019*



2018/2020 RUR Call structure





Contributions to focus areas

DT Digitisation

- **DT-RUR-12-2019 Agricultural digital cross-cutting integration platforms**
- **DT-RUR-13-2020 Digital service platforms for rural economies**
- **DT-RUR-14 -2018 ICT innovation for agriculture – digital innovation hubs**

LC Low Carbon

- **LC-RUR-11-2019-2020 Sustainable wood value chains**

CE Circular Economy

- **CE-RUR-08-2018-2019-2020 Closing nutrient cycles**
- **CE-RUR-10-2019 Circular biobased business models**



2

2. Call for a Rural renaissance

2.1 From farm to society: understanding dynamics and modernising policies – (4 topics)

RUR-01-2018-2019 : Building modern rural policies on long-term visions and societal engagement

A: 2018 Rural society-science-policy hub

CSA, 5M€

B: 2018 Renewing rural generations, jobs and farms

RIA, 6M€

C: 2019 Building resilient mountain value chains delivering private and public goods

RIA, 6M€

RUR-02-2018 : Socio-economic impacts of digitisation of agriculture and rural areas

RIA, 5M€

RUR-03-2018 : Contracts for effective and lasting delivery of agri-environmental public goods

RIA, 5M€

RUR-04-2018-19 : Analytical tools and models to support policies related to agriculture and food

A: 2018 Developing new models supporting policies related to agriculture

RIA, 4M€

B: 2019 Modelling international trade in agro-food products

RIA, 5M€



2

2. Call for a Rural renaissance

2.2 Organising sustainable food and non-food value chains under changing conditions –

CE-RUR-08-2018/2019/2020 : Closing nutrient cycles

A: 2018 Understanding properties and impacts of bio-based fertilisers

RIA, 6M€

B: 2018-19-20 Bio-based fertilisers from animal manure

IA, 8M€

C: 2020 Bio-based fertilisers from other by-products of the agro-food, fisheries, aquaculture or forestry sectors

IA

RUR-09-2018 : Realising the potential of regional and local bio-based economies

CSA, 3M€

CE- RUR-10-2019/2020 : Circular bio-based business models for rural communities

IA, 10M€

LC- RUR-11-2019/2020: Sustainable wood value chains

A: 2019 Building with wood

IA, 10M€

B: 2020 Resilient forest systems

IA



2.3 Taking advantage of the digital revolution – (5 topics)

DT-RUR-12-2018 : ICT Innovation for agriculture – Digital Innovation Hubs for Agriculture

IA, 10M€

DT- RUR-13-2020: Enabling the farm advisor community to prepare farmers for the digital age

CSA, 7M€

DT-RUR-14-2018: Digital solutions and e-tools to modernise the CAP

IA, 10M€, maa



2. Call for a Rural renaissance



2.4 Boosting innovation and enhancing the human and social capital in rural areas – (2 topics)

RUR-17-2018/2019/2020 : Thematic networks compiling knowledge ready for practice

CSA, 2M€ – AKIS – EIP Agri

RUR-18-2019 : Fuelling the potential of advisors for innovation

CSA, 5M€ - AKIS



To know more about



- <http://ec.europa.eu/research/horizon2020/>
- <https://ec.europa.eu/programmes/horizon2020/en/draft-work-programmes-2016-17>
- [http://ec.europa.eu/research/participants/portal/](http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html)
 - [desktop/en/opportunities/index.html](http://ec.europa.eu/research/participants/portal/desktop/en/opportunities/index.html) (*on-line manual*)
 - [desktop/en/experts/index.html](http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html) (*expert evaluators*)
- <http://www.horizon2020.gouv.fr>



Point de Contact National "BIO"*

Le 1^{er} Cercle:
Un consortium
public-"privé"...



• DEFI SOCIÉTAL 2 :
Sécurité alimentaire,
Agriculture & Foresterie durables,
Recherche Marine, Maritime, Eaux continentales
et Bioéconomie

• Primauté Industrielle :
Technologie Générique Clé
"Biotechnologie"

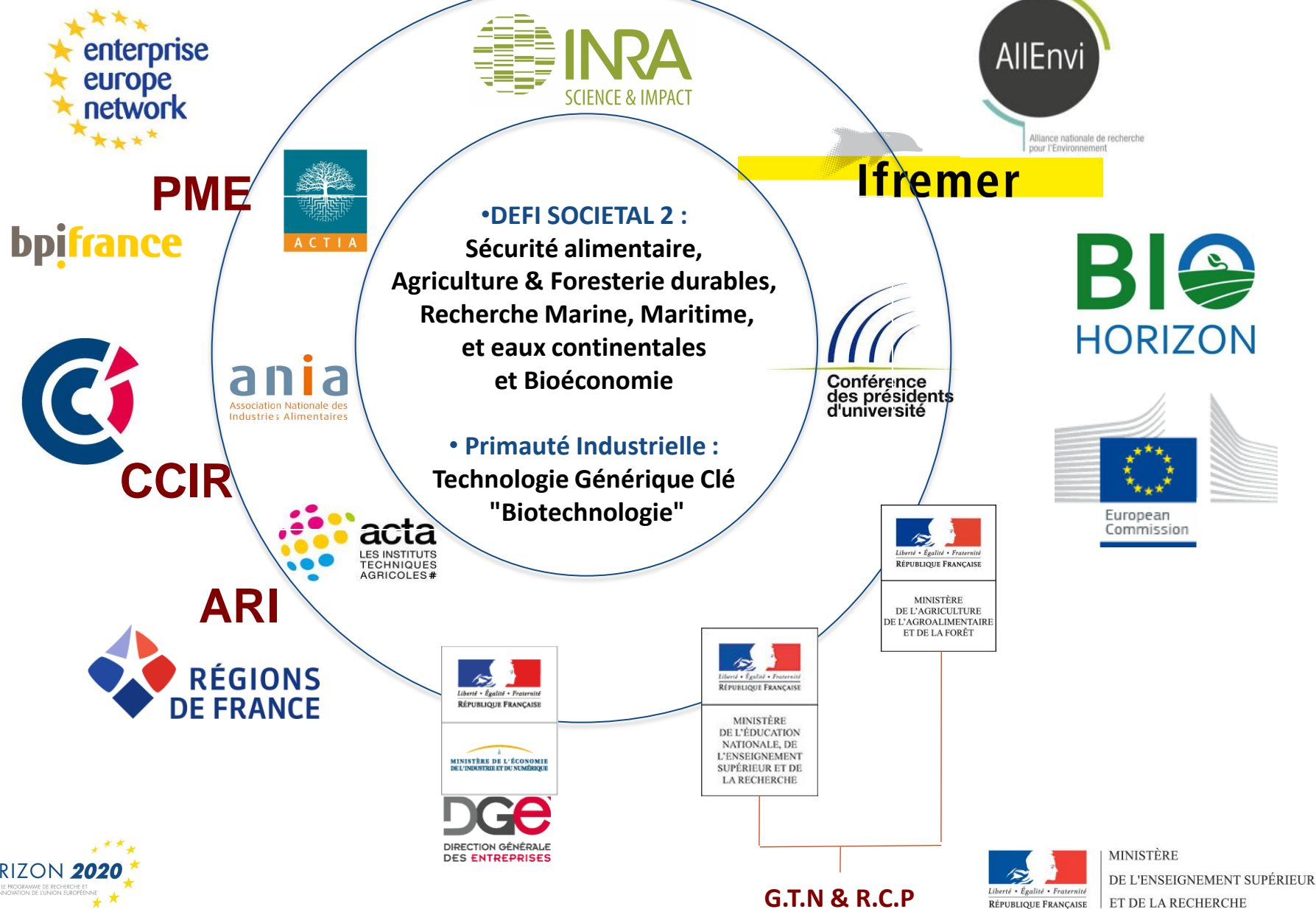
Conférence
des présidents
d'université



MINISTÈRE
DE L'ENSEIGNEMENT SUPÉRIEUR
ET DE LA RECHERCHE

Le 2e cercle

Le soutien stratégique du PCN-BIO



Les contacts au PCN-BIO français (1/2)

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En savoir plus...

- <http://ec.europa.eu/research/horizon2020/>
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 - [desktop/en/experts/index.html](http://ec.europa.eu/research/participants/portal/desktop/en/experts/index.html) (*expert evaluators*)
- <http://www.horizon2020.gouv.fr>

