

**HORIZON EUROPE  
THE NEXT EU RESEARCH & INNOVATION  
PROGRAMME (2021 – 2027)**

# Pillar II

**Global Challenges and  
Industrial Competitiveness**

**#HorizonEU**

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# Horizon Europe: investing in R&I to shape our future

- The vision:  
" a Europe that protects,  
a Europe that empowers,  
a Europe that defends"  
*Jean-Claude Juncker*
- Tackling **climate change**  
(35 % budgetary target)
- Helping to achieve **Sustainable Development Goals**
- Boosting the Union's  
**competitiveness and growth**



Credits: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>

# Lessons Learned

## from Horizon 2020 Interim Evaluation



**Support breakthrough innovation**



**Create more impact through mission-orientation and citizens' involvement**



**Strengthen international cooperation**



**Reinforce openness**



**Rationalise the funding landscape**



# Key Novelties

## in Horizon Europe

**European Innovation Council**

**R&I Missions**

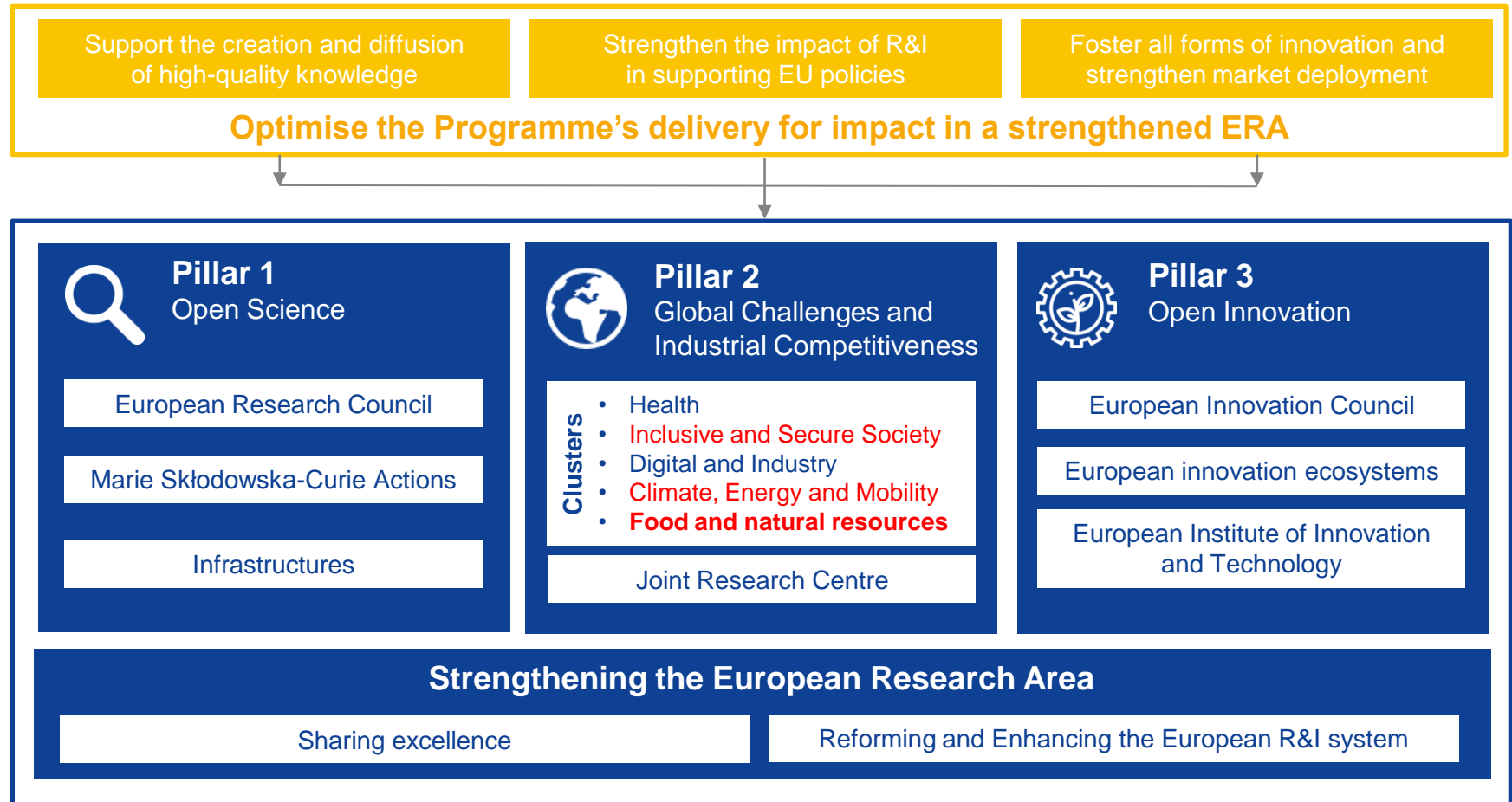
**Extended association possibilities**

**Open science policy**

**New approach to Partnerships**

# Horizon Europe: evolution not revolution

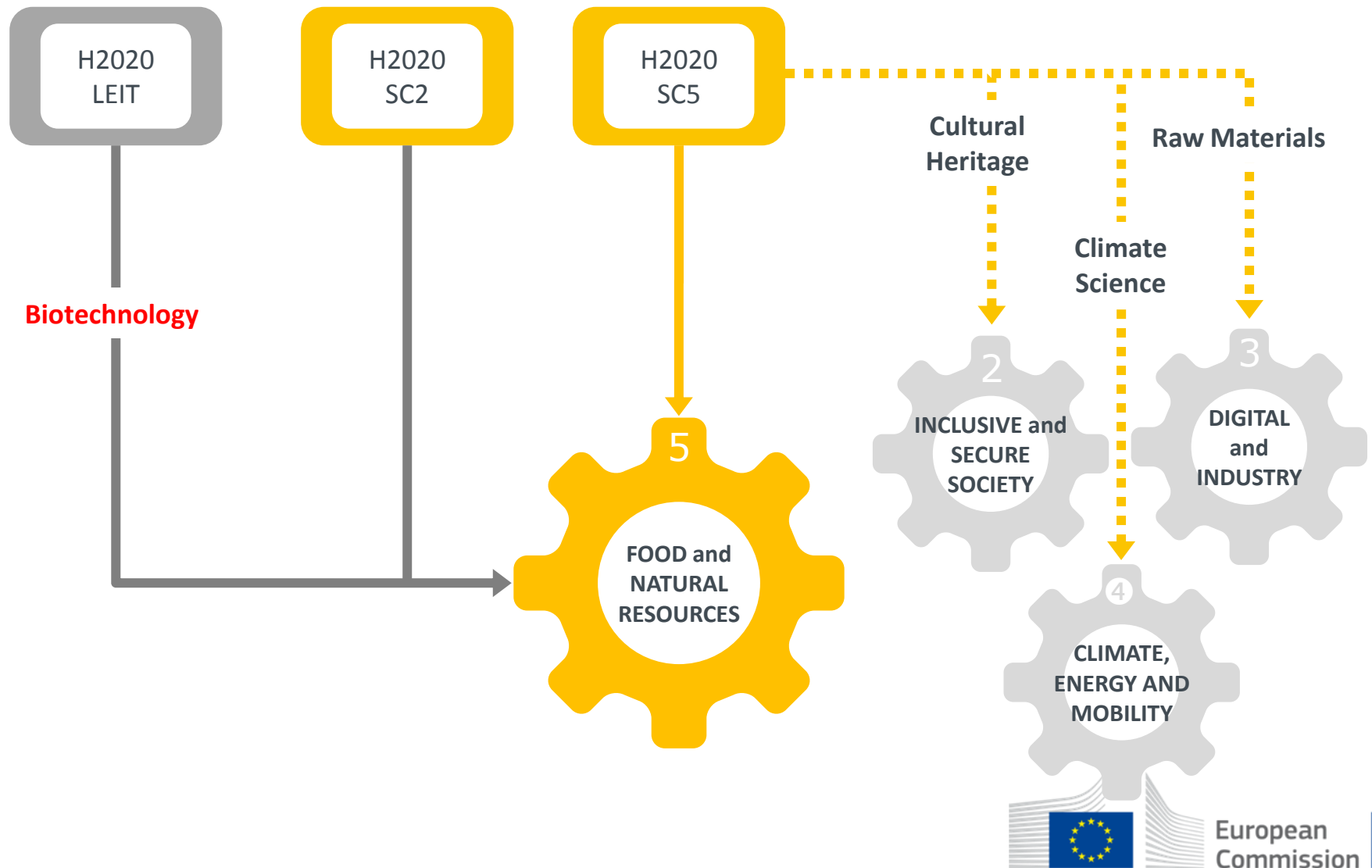
## Specific objectives of the Programme



# CLUSTER 5: Food and natural resources: Why a single cluster?

- **Addressing under one cluster the interlinked challenges** of eco-systems, health of our planet, sustainable agricultural, forest and marine production, and sustainable consumption
- **Strong linkages with key EU programmes and SDGs**
- **Bringing together the concepts of circular economy, bioeconomy and blue economy**, with a coherent contribution of R&I to EU policies in these areas
- **Mainstreaming** a participatory approach to R&I, working on the overall **system**, and exploitation of big data

# CLUSTER 5 – What moves in / out



# Key Facts and figures

- **Natural Resources:** planetary boundaries are exceeded. We operate **beyond safe limits** for Genetic biodiversity, Nitrogen and Phosphorus cycles, Land-system change and Climate change.
- **Agriculture and Forestry:** highly diverse sectors covering **85%** of the EU territory (agriculture 50 %), driving rural economies; the agri-food sector provides **44m jobs** in the EU; EU agriculture contributes to 10% of GHG emissions;
- **Food production:** 12 plant species provide for  $\frac{3}{4}$  of world **food production**. From farm to fork we use 70% of fresh water resources (Europe : 50%) and 30% of energy. By 2050 we need to feed 9 billion people on the planet and meet **60% more food demand**.
- **Oceans:** cover  $\frac{3}{4}$  of the Earth's surface, but **largely unknown**; Provide half of the oxygen and the largest carbon sink and host the greatest biodiversity of the planet.
- **Circular economy:** only 40% of EU waste is reused or recycled; the circular economy resource productivity **growth potential** is up to **3 %** annually in the EU;



# Clusters and Sustainable Development Goals

## Cluster 5: Food and natural resources





# CLUSTER 5 Food and Natural Resources

## How will it be implemented?

**Collaborative projects** remain the default:

- Consortiums of **at least three independent legal entities** and with at least one of them established in a Member State (art. 18.2 FP/RfP)
- Competitive and Open calls for proposals, as **regular calls**, calls for **missions** and **partnerships**

The **Work Programme**, endorsed by the **Programme Committee** for this cluster, will identify **topics** for each call.

# CLUSTER 5: Food and Natural Resources: synergies with other MFF programs

- Under the **European Agricultural Guarantee Fund** and the **European Agricultural Fund for Rural Development** the implementation and deployment of innovative solutions can be promoted. The European Innovation Partnership (EIP-AGRI) bridges research and practice through the involvement of all actors (researchers, farmers, advisors, etc.).
- **European Maritime and Fisheries Fund (EMFF)** supports the rolling out of novel technologies and innovative products, processes and services.
- The **European Regional Development Fund (ERDF)** may support the take-up of results emerging from this cluster.
- **LIFE** for links to better environmental policy implementation and deployment at national and (inter-)regional scale where it can help address environmental, climate or clean energy transition issues.
- The **InvestEU** Fund can finance innovators and innovations coming from this cluster, to enable their roll-out and scale-up.
- The **Single Market Programme** will support the competitiveness of SMEs and entrepreneurship (e.g. Enterprise Europe Network).

# CLUSTER 5: Food and natural resources: what is in it?

## 7 intervention areas:

- Environmental observation
- Biodiversity and natural capital
- Agriculture, forestry and rural areas
- Sea and oceans
- Food systems
- Bio-based innovation systems
- Circular systems

# CLUSTER 5: Food and natural resources: intervention areas in key words

## Environmental observation (SP Annex I, 5.2.1)

- Underpinning R&I through Earth Observation for the sustainable use and monitoring of food and natural resources and more broadly the Earth System;
- Deploying, exploiting and up taking user-oriented technologies and applications;
- Addressing gaps in Earth Observation through GEOSS and EuroGEOSS, including in support of COPERNICUS products and services.

# CLUSTER 5: Food and natural resources: intervention areas in key words

## Biodiversity and natural capital (SP Annex I, 5.2.2)

- State, value and trends of biodiversity, ecosystems and their services, natural capital and the 'planetary boundaries' & eco-toxicology of new compounds;
- Mainstreaming biodiversity and ecosystems services in decision making, enhancing the science-policy interface, including in international processes;
- Nature-based solutions for addressing challenges in cities, rural, marine and coastal areas applying multi-actor living labs approaches.
- Governance aspects of transition to sustainability – in economic, social and natural systems across scales local to global.

# CLUSTER 5: Food and natural resources: intervention areas in key words

## Agriculture, forestry and rural areas (SP Annex I, 5.2.3)

- Sustainable management of land and efficient use of natural resources (e.g. soils, water, nutrients and biodiversity including genetic resources);
- Diverse and resilient production systems using and delivering a range of ecosystems services; the potential of agriculture and forestry as carbon sinks;
- Integrated approaches towards plant pests and diseases; animal health and welfare; tackling antimicrobial resistance and biological and agro-chemical hazards;
- Digital innovations in farming, forestry and across value chains in rural areas;
- Rural development, skills and Agricultural Knowledge and Innovation Systems (AKIS).

# CLUSTER 5: Food and natural resources: intervention areas in key words

## Sea and oceans (SP Annex I, 5.2.4)

- Sustainably manage, protect and restore marine and coastal ecosystems and prevent marine pollution;
- Sustainably unlock the vast and unexploited potential of seas and oceans, producing more food, while alleviating pressure on land and fresh water resources;
- Partnering approaches and macro-regional strategies, ocean governance and UN Decade of Ocean Science for Sustainable Development.



# CLUSTER 5: Food and natural resources: intervention areas in key words

## Food systems (SP Annex I, 5.2.5)

- Food systems transformation – environmentally sustainable, circular and resource efficient food systems from land and sea;
- Healthy diets and personalised nutrition;
- Food safety and authenticity;
- Consumer behaviour, lifestyle and motivations for better health and environmental sustainability along the food value chain

# CLUSTER 5: Food and natural resources: intervention areas in key words

## Bio-based innovation systems (SP Annex I, 5.2.6)

- Laying the foundations for the transition away from fossil-based into bio-based materials and products;
- Capitalising on the potential of living resources, life sciences and industrial biotechnology for new discoveries, products and processes;
- New economic activities and employment to regions, cities and revitalising rural and coastal areas;
- Strengthen the circularity of the bioeconomy.

# CLUSTER 5: Food and natural resources: intervention areas in key words

## Circular systems (SP Annex I, 5.2.7)

- Systemic transition to a resource-efficient and circular economy;
- Metrics, indicators and governance, involving new business models, new products and services, new financing and new multi-stakeholder and cross-value chain collaborations;
- Sustainable and regenerative development of cities and peri-urban areas and regions;
- Eco-innovation for prevention and remediation of environmental pollution;
- Circular use of water resources.

# CLUSTER 5: Food and natural resources: What's new?

More **impact-focused R&I** – supporting the implementation of EU policy goals like the shift towards a circular economy, bio-economy and blue economy

New **holistic / system-wide / integrated view**

More **synergies** across R&I areas, along the full innovation cycle:

- ☐ between intervention areas (e.g. circular and bio-based systems)
- ☐ between clusters (e.g. digital and agriculture; marine & maritime)
- ☐ between pillars (through wide / joint Missions)
- ☐ with other EU / funding instruments (e.g. EARD, EMFF)



# Thank you

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<http://ec.europa.eu/horizon-europe>