

Victoria Folea, PhD

Intro to

Horizon Europe

**The EU Research and Innovation Programme for a
Green, Healthy, Digital and Inclusive Europe**

2021-2027

January 2021

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Intro to Horizon Europe

The EU Research and Innovation Programme for a Green, Healthy, Digital and Inclusive Europe 2021-2027

Disclaimer: We are at the end of January 2021. The Horizon Europe workprogrammes are not yet final. At the moment there are draft workprogrammes ('drafts') that are not yet finalised. There are no calls for proposals, they will start to be opened in April-May 2021.

January 2021

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**Intro to Horizon Europe
The EU Research and Innovation Programme for a Green, Healthy, Digital and Inclusive
Europe
2021-2027**

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Intro to Horizon Europe

The EU Research and Innovation Programme for a Green, Healthy, Digital and Inclusive Europe

2021-2027

This presentation is intended to offer a general idea about the Horizon Europe programme, its structure, objectives and expected impacts.

This presentation offers now only general information about topics and areas. Please note that it can change by the time the workprogramme is officially published.





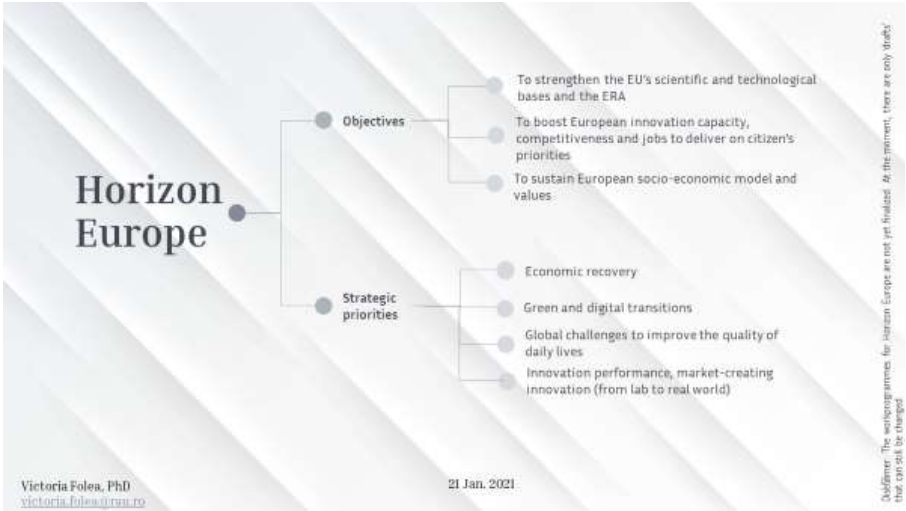
100 billion euro

35% of spending to climate objectives

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Horizon Europe

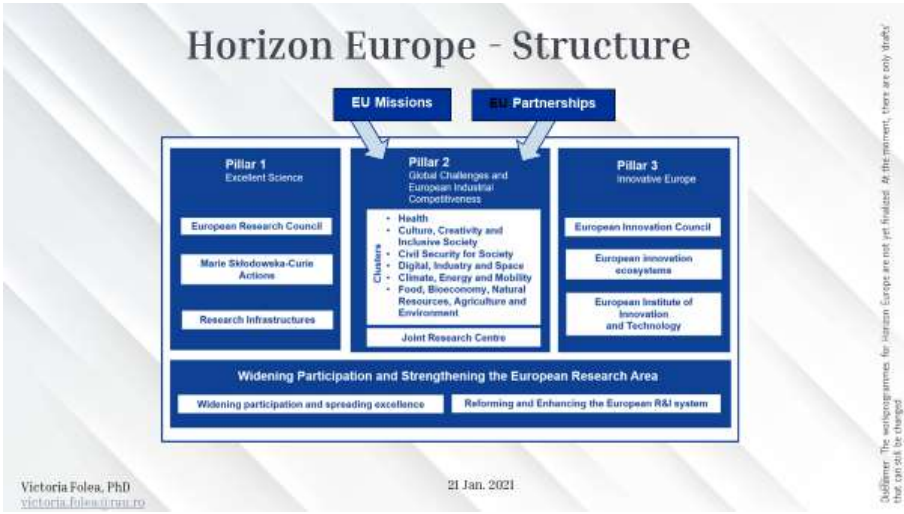
- **Objectives**
 - To strengthen the EU's scientific and technological bases and the ERA
 - To boost European innovation capacity, competitiveness and jobs to deliver on citizen's priorities
 - To sustain European socio-economic model and values
- **Strategic priorities**
 - Economic recovery
 - Green and digital transitions
 - Global challenges to improve the quality of daily lives
 - Innovation performance, market-creating innovation (from lab to real world)

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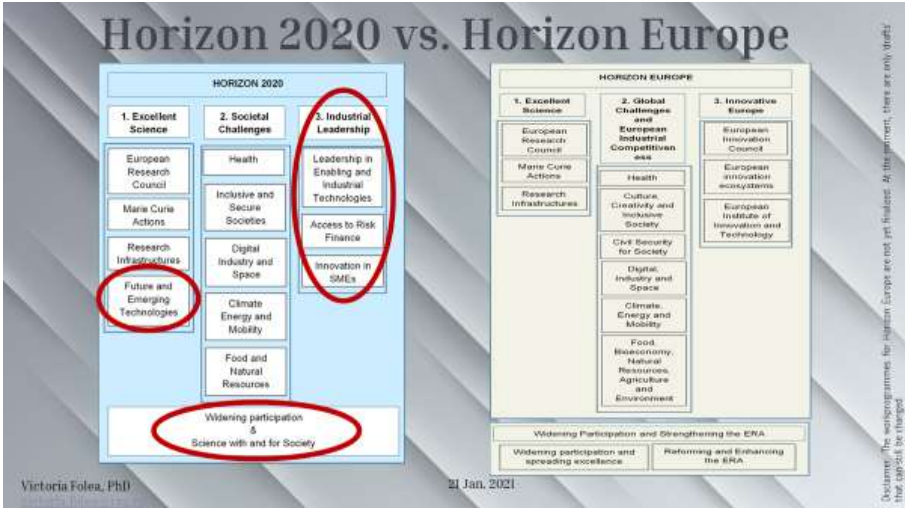
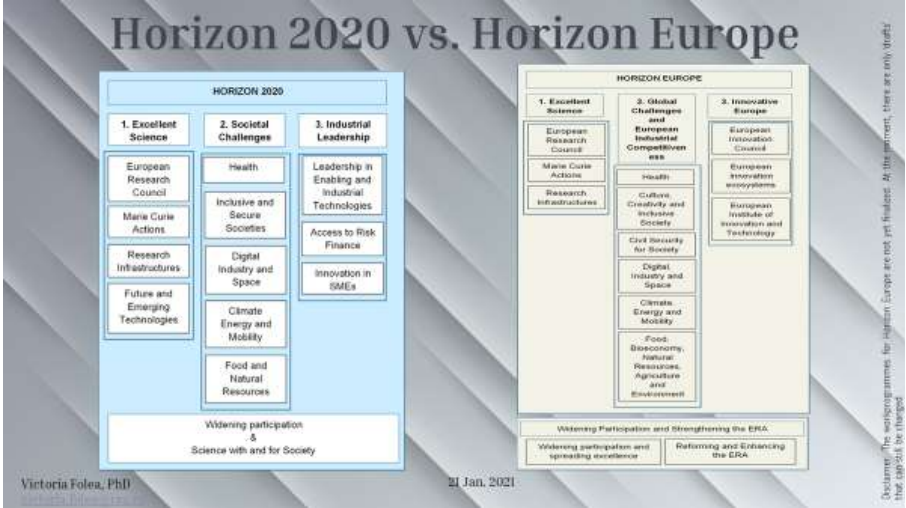
HORIZON EUROPE STRUCTURE



PROPOSED BUDGET



HORIZON 2020 vs HORIZON EUROPE



PILLAR 1 – EXCELLENT SCIENCE

Pillar 1 – Excellent Science



The **Excellent Science** pillar aims to increase the EU's global scientific competitiveness.

- **European Research Council** - frontier research projects defined and driven by top researchers themselves
- **Marie Skłodowska-Curie Actions** - fellowships for experienced researchers, doctoral training networks, exchanges for researchers and entices more young people to a career in research (new knowledge and skills through mobility & training)
- **Research infrastructures** – investments in world-class research infrastructures (integrated & inter-connected).

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Pillar 1 – Excellent Science Budget (proposal 2019)



European Research Council 16.6 BE	Marie Curie Actions 6.8 BE	Research Infrastructures 2.4 BE
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PILLAR 2 – GLOBAL CHALLENGES AND EUROPEAN INDUSTRIAL COMPETITIVENESS

Pillar 2 – Global Challenges and European Industrial Competitiveness


 Horizon Europe - Structure

Clusters

- ▶ Health
- ▶ Culture, Creativity and Inclusive Society
- ▶ Civil Security for Society
- ▶ Digital, Industry and Space
- ▶ Climate, Energy and Mobility
- ▶ Food, Bioeconomy, Natural Resources, Agriculture and Environment

EU Missions

- ▶ Adaptation to climate change including societal transformation
- ▶ Cancer
- ▶ Climate neutral and smart cities
- ▶ Healthy oceans, seas, coastal and inland waters
- ▶ Soil health and food

EU Partnerships

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Pillar 2 – Global Challenges and European Industrial Competitiveness


 Horizon Europe - Structure

Possible topics for calls:

Cluster “Civil Security for Society”

- ▶ fighting crime and terrorism
- ▶ border management
- ▶ infrastructure protection
- ▶ cyber security
- ▶ a disaster-proof society for Europe
- ▶ supporting security research and innovation

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Pillar 2 – Global Challenges and European Industrial Competitiveness

Possible topics for calls:

Cluster “Digital, Industry and Space”

- ▶ climate-neutral, circular and digitised production
- ▶ a digitised, resource-efficient and resilient industry
- ▶ leading data and computing technologies in the world
- ▶ digital and emerging technologies for competitiveness and fit for the Green Deal
- ▶ strategic autonomy in the development, deployment and use of global space infrastructures, services, applications and data
- ▶ people-centred and ethical development of digital and industrial technologies.



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Pillar 2 – Global Challenges and European Industrial Competitiveness

Possible topics for calls:

Cluster “Climate, Energy and Mobility”

- ▶ climate sciences and responses
- ▶ cross-sectoral solutions (including 'competitive and sustainable European value chain for batteries' and 'smart and sustainable communities and cities')
- ▶ sustainable, secure and competitive energy supply
- ▶ efficient, sustainable and inclusive energy use
- ▶ clean and competitive solutions for all modes of transport
- ▶ safe and resilient transport and smart mobility services for passengers and freight.



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Horizon Europe - Structure



Pillar 2 – Global Challenges and European Industrial Competitiveness

Possible topics for calls:

Cluster “Food, Bioeconomy, Natural Resources, Agriculture and Environment”

- ▶ biodiversity and ecosystem services
- ▶ fair, healthy and environmentally friendly food systems from primary production to consumption
- ▶ circular economy and bio-economy
- ▶ clean environment and non-pollution
- ▶ land, oceans and water for climate action
- ▶ resilient, inclusive, healthy and green rural, coastal and urban communities
- ▶ resilient, including, healthy and innovative governance, environmental observation and digital solutions in support of the Green Deal

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PILLAR 3 – INNOVATIVE EUROPE

Pillar 3 – Innovative Europe



European Innovation Council - to make Europe a frontrunner in market-creating innovation.

European Innovation ecosystems – should involve all actors, from students to faculty, researchers, entrepreneurs, investors, and civil servants.

European Institute of Innovation and Technology (EIT) - the EIT fosters the integration of the knowledge triangle of education, research and innovation.

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Pillar 3 – Innovative Europe



European Innovation Council:

- Support to **innovations with breakthrough and disruptive nature** and scale up potential that are too risky for private investors
- **70% of the budget earmarked for SMEs**
- Helping innovators create markets of the future, leverage private finance, scale up their companies
- Innovation centric, risk taking & agile, pro-active management and follow up

Two complementary instruments bridging the gap from idea to investable project:

- **Pathfinder:** grants (from early technology to pre-commercial)
- **Accelerator:** grants only & blended finance (from pre-commercial to market & scale-up)

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Horizon Europe - Structure

Pillar 3 – Innovative Europe Budget (proposal 2019)

European Innovation Council	European innovation ecosystems	European Institute of Innovation and Technology (EIT)
10.5 BE, incl. up to 500 ME for ecosystems		3 BE

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HORIZONTAL ACTIONS

Horizontal Actions

Widening Participation

- ▶ Teaming and twinning
- ▶ European Research Area (ERA) Chairs
- ▶ Consortium of Science and Technology (COST)
- ▶ Support to National Contact Points (NCPs)
- ▶ Brain Circulation and Excellence Initiatives
- ▶ Hop-on

Reforming and Enhancing the European R&I System

- ▶ Partnership changes
- ▶ Open Science
- ▶ Policy Support Facilities
- ▶ Gender Equality
- ▶ Citizen Science
- ▶ Attractive Researcher Careers
- ▶ Responsible Research and Innovation



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Horizontal Actions Budget (proposal 2019)

Widening Participation and Spreading Excellence

Reforming and Enhancing the European R&I System

Min. 3.3% of HE budget



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EURATOM AND INVESTEU

Euratom research and training programme

Objectives:

- Research and training activities to
- Reduce nuclear safety and security risks
- Develop safe nuclear technologies and optimal radiation protection

Budget (proposal):
2.4 BE

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InvestEU for research and innovation

- Stimulates more investment in research and innovation by the private sector
- Leverages and complements national/regional initiatives
- No market distortion: intervention only to address financing gaps in the R&I delivery chain (due to high risk)

Support through:

- InvestEU Fund
- InvestEU Assistance
- InvestEU Portal

Budget (proposal):
200 BE leveraged. Market-based finance

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ESTIMATED TYPES OF GRANTS

Types of actions (grants)

- **Research and Innovation Action (RIA):** funding of research projects addressing clearly defined challenges, which may lead to the development of new knowledge or a new technology
- **Innovation Action (IA):** funding is more focused on activities that are closer to the market. For example, prototyping, testing, demonstrating and upscaling products or services if they are aimed at the production of new or improved products or services
- **Coordination and Support Action (CSA):** funding covers the coordination and networking of research and innovation projects, programmes and policies

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FUNDING AND TENDERS PORTAL

Where to find the calls for proposals

Funding and Tenders Portal:

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

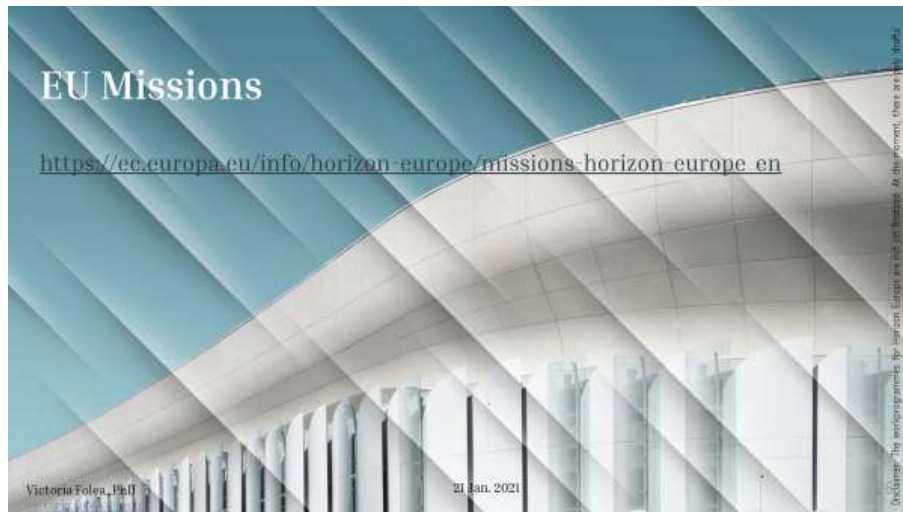
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EU MISSIONS



Mission areas

1. Adaptation to climate change including societal transformation
2. Cancer
3. Climate-neutral and smart cities
4. Healthy oceans, seas, coastal and inland waters
5. Soil health and food

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Mission 1. Adaptation to climate change including societal transformation

Aims: maximise the impact of the EU's support to research and innovation and demonstrate its relevance for society and citizens.

Focus on:

- solutions and preparedness for the impact of climate change to protect lives and assets
- behavioural changes and social aspects by addressing new communities beyond usual stakeholders which help lead to a societal transformation.

https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/adaptation-climate-change-including-societal-transformation_en

REPORT

A Climate Resilient Europe

https://ec.europa.eu/info/publications/climate-resilient-europe_en

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Mission 2. Cancer

Aims: A mission in this area will help set common goals aiming to reverse these frightening trends in cancer.

https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/cancer_en

REPORT

Conquering cancer, mission possible

https://ec.europa.eu/info/publications/conquering-cancer-mission-possible_en

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Mission 3. Climate-neutral and smart cities

Aims: A mission in this area will help us meet the goals and targets set out by international policy frameworks such as the COP21 Paris Agreement, the UN's Sustainable Development Goals (notably SDG11), the Urban Agenda for the EU and the Habitat III New Urban Agenda as cities play a key role in all of them.

https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/climate-neutral-and-smart-cities_en

REPORT

100 Climate-neutral Cities by 2030 – by and for the Citizens

https://ec.europa.eu/info/publications/100-climate-neutral-cities-2030-and-citizens_en

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Mission 4. Healthy oceans, seas, coastal and inland waters

Aims: A mission will be a powerful tool to raise awareness among citizens of the importance of healthy oceans, seas, coastal and inland waters, and help develop solutions on a range of issues.

Focus:

- systemic solutions for the prevention, reduction, mitigation and removal of marine pollution, including plastics
- transition to a circular and blue economy
- adaption to and mitigation of pollution and climate change in the ocean
- sustainable use and management of ocean resources
- development of new materials including biodegradable plastic substitutes, new feed and food
- urban, coastal and maritime spatial planning
- ocean governance
- ocean economics applied to maritime activities

REPORT

**Mission Starfish 2030:
Restore our Oceans and Waters**

https://ec.europa.eu/info/publications/mission-starfish-2030-restore-our-ocean-and-waters_en

https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/healthy-oceans-seas-coastal-and-inland-waters_en

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Mission 5. Soil health and food

Aims: A mission in the area of soil health and food will provide a powerful tool to raise awareness on the importance of soils, engage with citizens, create knowledge and develop solutions for restoring soil health and soil functions.

REPORT

Caring for soil is caring for life

https://ec.europa.eu/info/publications/caring-soil-caring-life_en

https://ec.europa.eu/info/horizon-europe/missions-horizon-europe/soil-health-and-food_en

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How to get involved in EU Missions

The Commission wants to co-create missions and Horizon Europe initiatives with citizens and stakeholders.

People will be invited to:

- participate in online discussions and polls on social media
- attend citizen events and specialised conferences to discuss the focus of missions participate in a range of other activities as the missions evolve

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EU PARTNERSHIPS



EU Partnerships

By bringing private and public partners together, European Partnerships **help to avoid the duplication of investments** and contribute to reducing the fragmentation of the research and innovation landscape in the EU.

Under Horizon Europe partnerships are expected to **establish formal and regular collaboration with other relevant research and innovation initiatives**. This must be reflected in their governance models and joint actions.

They also **provide an overview of the current status of potential synergies among European Partnerships and other EU programmes**

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Types of EU Partnerships

<p>Co-programmes</p> <p>Partnerships between the Commission and private and/or public partners.</p> <p>They are based on memoranda of understanding and/or contractual arrangements.</p>	<p>Co-funded</p> <p>Partnerships involving EU countries, with research funders and other public authorities at the core of the consortium.</p>	<p>Institutionalized</p> <p>These are partnerships where the EU participates in research and innovation funding programmes that are undertaken by EU countries.</p>
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LINKS AND RESOURCES

Resources

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

<https://ec.europa.eu/info/funding-tenders/opportunities/portal/screen/home>

https://ec.europa.eu/info/horizon-europe/missions-horizon-europe_en

https://ec.europa.eu/info/horizon-europe/european-partnerships-horizon-europe_en

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