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Technical Assistance for Turkey in Horizon 2020 Phase-II  
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# General & Introductory Training (Webinar) Cluster 5: Climate, Energy and Mobility

General & Introductory Training (Webinar) (GIT-6)

*Helen Fairclough, UK National Contact Point for Energy*

Online, 7/4/2021

# Introductions

Helen Fairclough

- UK National Contact Point for Energy
- Programme Committee expert
- Work Package leader in Horizon 2020 project
- Member of the Mission Innovation Secretariat
- Stakeholder trainer in Ankara and Istanbul



# Overview

- Horizon Europe & the Strategic Plan 2021-2024
- From EU priorities to Work Programme destinations
- Key Strategic Orientations, expected impacts & corresponding Work Programme destinations
- New approaches for greater impact
- Horizon 2020 to Horizon Europe



# What is Horizon Europe?

The ambitious EU research and innovation framework programme (2021-2027)



fuel EU's **scientific and technological excellence** and the strengthen the European Research Area (ERA)

**Science & technology**



tackle policy priorities, including **green and digital transitions** and Sustainable Development Goals

**Society**



boost Europe's **innovation uptake, competitiveness** and **jobs**

**Economy**

# Legislative Package

Horizon Europe will be based on two legal acts:

1. [Structure, Rules for Participation and Dissemination](#)
2. Specific Programmes – setting out the Thematic Clusters and the Broad Lines of Actions for future research and innovation activities

The European Parliament and the Council of the EU reached a [provisional agreement](#) on Horizon Europe in March and April 2019. The European Parliament [endorsed](#) the provisional agreement on 17 April 2019.



# Agreement on Horizon Europe

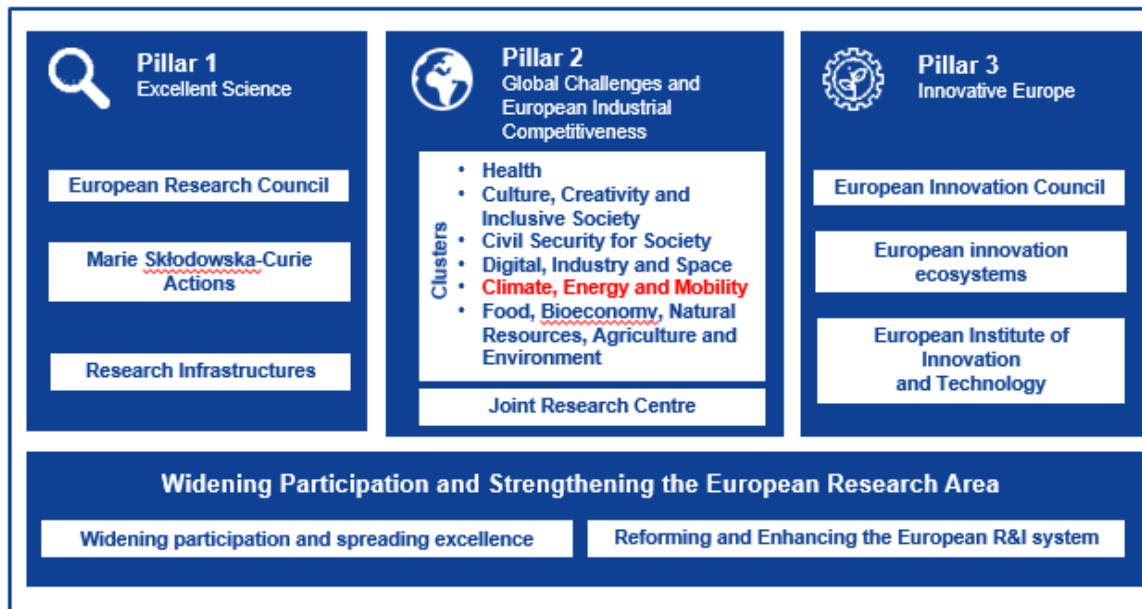
The EU institutions reached a [political agreement on Horizon Europe](#) on 11 December 2020 and set the budget for Horizon Europe at **€95.5 billion** in current prices (including €5.4 billion from the Next Generation of the EU – Recovery Fund).

On this basis, the European Parliament and the Council of the EU proceed towards the adoption of the legal acts.

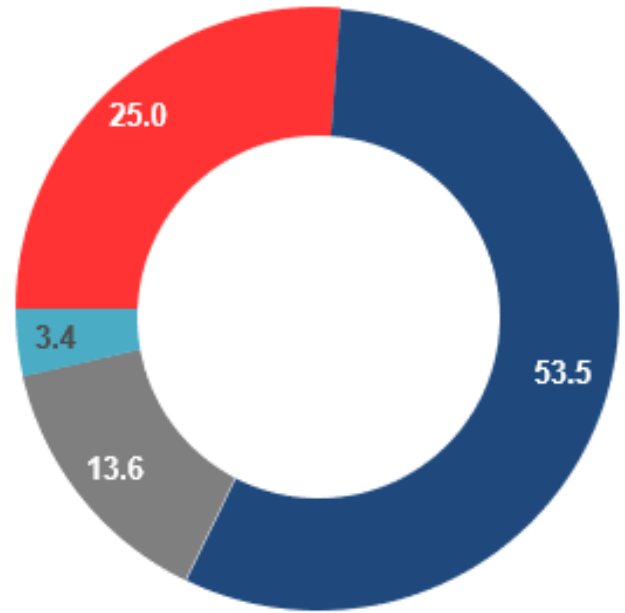


# Horizon Europe structure

According to the agreement, Horizon Europe will be structured in **three pillars**, supported by activities aimed at widening participation and strengthening the European Research Area.



# Horizon Europe budget



## Political agreement December 2020 *€ billion in current prices*

- Pillar 1 Excellent Science
- Pillar 2 Global challenges and European ind. comp.
- Pillar 3 Innovative Europe
- Widening Part and ERA



# Strategic Plan for Implementing Horizon Europe

The [Strategic Plan](#) aims to provide a coherent approach for the development of the Work Programmes for the first four years of Horizon Europe (2021-2024).

It focuses in particular on the ‘Global challenges and European industrial competitiveness’ pillar and also covers relevant activities in other pillars and parts of Horizon Europe.



# Strategic Plan contents

It includes the following elements:

- Key strategic orientations for R&I support
- Identification of European Partnerships
- Identification of missions
- Areas for international cooperation
- Issues of a cross-cutting nature



# The development of the first Strategic Plan

- Prepared following an extensive co-design process involving the European Parliament, Member States, stakeholders and the public at large.
- More than 8000 contributions were submitted in various stages of the strategic planning process.
- The inclusive co-design process aims to ensure the broadest possible ownership and optimise the overall **impact** of Horizon Europe.
- It was [adopted](#) in March 2021.



# Targeting of investment

This first strategic plan sets out the **Key Strategic Orientations** for the targeting of investments in the programme's first 4 years.

- A. Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains;**
- B. Restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources;
- C. Making Europe the first digitally enabled circular, climate-neutral and sustainable economy;**
- D. Creating a more resilient, inclusive and democratic European society.

**International cooperation underpins all four orientations, as it is essential for tackling many global challenges.**

# From the strategic plan to the Work Programme

- The four Key Strategic Orientations are supported by 15 **impact** areas.
- These strategic orientations will guide the Horizon Europe work programmes until 2024 and will provide the basis for building synergies with other EU programmes and funds, as well as national level activity.
- The **impacts** are structured by the six clusters that make up Horizon Europe's second Pillar, 'Global Challenges and European Industrial Competitiveness'.



# From the strategic plan to Cluster 5

KEY STRATEGIC ORIENTATIONS (KSO)	IMPACT AREAS	EXPECTED IMPACTS	DESTINATIONS IN CLUSTER 5
KSO A: Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains	<ul style="list-style-type: none"> <li>Industrial leadership in key and emerging technologies that work for people</li> </ul>	22. Clean and sustainable transition of the energy and transport sectors	<b>2. Cross-sectoral solutions for the climate transition</b>
		25. Climate-neutral and environmental-friendly mobility	5. Clean and competitive solutions for all transport modes
KSO C: Making Europe the first digitally enabled circular, climate neutral and sustainable economy	<ul style="list-style-type: none"> <li>Climate change mitigation and adaptation</li> <li>Affordable and clean energy</li> <li>Smart and sustainable transport</li> <li>Circular and clean economy</li> </ul>	21. Transition to a climate-neutral and resilient society and economy	1. Climate sciences and responses for the transformation towards climate neutrality
		23. Efficient, clean, sustainable, secure, and competitive energy supply	<b>3. Sustainable, secure and competitive energy supply</b>
		24. Efficient and sustainable use of energy	<b>4. Efficient, sustainable and inclusive energy use</b>
		26. Safe, seamless, smart, inclusive, resilient, climate neutral and sustainable mobility systems	6. Safe Resilient Transport and Smart Mobility services for passengers and goods

# Cluster 5 2021 Calls for Proposals

## Cluster 5 – Climate, Energy & Mobility

### Key Themes

€15bn funding (2021-27)  
177 call topics in 2021-22

Destinations 1 & 2

**Climate and cross-cutting**

- Climate sciences and responses
- Batteries
- Emerging breakthrough technologies
- Citizens and stakeholder engagement
- Communities and cities

€0.5bn – 2021/22

- 1<sup>st</sup> Calls Open: 15 Apr 2021
- Deadlines: 7 Sept 2021 and 19 Oct 2021

Destinations 3 & 4

**Energy**

- Renewables
- Energy Systems and grids
- Carbon Capture, Utilisation and Storage
- Cross cutting issues
- Energy efficient buildings
- Industrial decarbonisation

€1.4bn – 2021/22

- 1<sup>st</sup> Calls Open: 15 Apr 2021
- Deadlines: 26 Aug 2021 and 19 Oct 2021

Destinations 5 & 6

**Mobility**

- Zero emission transport
- Aviation
- Waterborne transport
- Impact of transport on the environment and human health
- Connected, Cooperative and Automated Mobility
- Safety and resilience
- Multimodal and sustainable transport systems

€0.9bn – 2021/22

- 1<sup>st</sup> Calls Open: 15 April 2021
- Deadlines: 7 Sept 2021 and 19 Oct 2021



# Impact in Horizon Europe

The Commission's proposal for Horizon Europe includes a groundbreaking approach for capturing and communicating impact - the Key Impact Pathways.

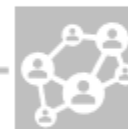
1. Creating high-quality new knowledge
2. Strengthening human capital in R&I
3. Fostering diffusion of knowledge and Open Science

**Scientific  
Impact**



4. Addressing EU policy priorities & global challenges through R&I
5. Delivering benefits & impact via R&I missions
6. Strengthening the uptake of R&I in society

**Societal  
Impact**



7. Generating innovation-based growth
8. Creating more and better jobs
9. Leveraging investments in R&I

**Economic  
Impact**





# Project impact pathways

- Increased focus on impact in Horizon Europe as we no longer have the luxury of time
- The Call topic description starts with “Expected outcome”

Impact in the proposal – aspects to be taken into account:

- Credibility of the pathways to achieve the expected outcomes and impacts specified in the work programme, and the likely scale and significance of the contributions due to the project.
- Suitability and quality of the measures to maximise expected outcomes and impacts, as set out in the dissemination and exploitation plan, including communication activities

# Impact pathway – NEW- Section 2.3

- What are the **specific needs** that triggered this project?
- **Expected results** - What do you expect to generate by the end of the project?
- **Dissemination, exploitation and communication measures** - What dissemination, exploitation and communication measures will you apply to the results?
- **Target groups** - Who will use or further up-take the results of the project? Who will benefit from the results of the project?
- **Outcomes** - What change do you expect to see after successful dissemination and exploitation of project results to the target group(s)?
- **Impacts** - What are the expected wider scientific, economic and societal effects of the project contributing to the expected impacts outlined in the respective destination in the work programme?

# Impact in Destination 3 - renewables

**Availability of disruptive renewable energy and renewable fuel technologies and systems in 2050 in order to accelerate the replacement of fossil-based energy technologies**

Example Call topics:

- CL5-2021-D3-02-02: Next generation of renewable energy technologies
- CL5-2021-D3-02-09: Carbon-negative sustainable biofuel production

**Reduced cost and improved efficiency of renewable energy and renewable fuel technologies and their value chains**

Example Call topics:

- CL5-2021-D3-01-01: Demonstration of wave energy devices to increase experience in real sea condition
- CL5-2021-D3-02-16: Innovative biomethane production as an energy carrier and a fuel

# Impact in Destination 3 – energy systems

**Increased flexibility and resilience of the energy system, based on technologies and tools to plan and operate different networks for different energy carriers simultaneously in a coordinated manner**

Example Call topic:

- CL5-2021-D3-01-05: Energy Sector Integration: Integrating and combining energy systems to a cost-optimised and flexible energy system of systems

**Enhance consumer satisfaction and increased system flexibility**

Example Call topics:

- CL5-2021-D3-01-06: Increasing energy system flexibility based on sector-integration services to consumers
- CL5-2022-D3-01-08: Supporting the action of consumers in the energy market and guide them to act as prosumers, communities and other active forms of active participation in the energy activities

# Impact in Destination 3 – CCUS

## Accelerated rollout of infrastructure for CCUS hubs and clusters

Example Call topic:

- CL5-2021-D3-01-15: Integration of CCUS in hubs and clusters, including knowledge sharing activities

## Proven feasibility of integrating CO<sub>2</sub> capture, storage and use in industrial facilities

Example Call topic:

- CL5-2022-D3-01-15: Decarbonising industry with CCUS

# Impact in Destination 4 – Buildings

**Building stocks that effectively combine energy efficiency, renewable energy sources and digital and smart technologies**

Example Call topic:

- CL5-2022-D4-01-02: Renewable-intensive, energy positive homes

**Higher quality, more affordable built environment preserving climate, environment and cultural heritage and ensuring better living conditions**

Example Call topic:

- CL5-2022-D4-02-03: Sustainable and resource-efficient solutions for an open, accessible, inclusive, resilient and low-emission cultural heritage

# Impact in Destination 4 – Industry

## Thermal energy management in industry

Example Call topic:

- CL5-2021-D4-01-04: Full-scale demonstration of heat upgrade technologies with supply temperature in the range 90 - 160°C

# Horizon 2020 to Horizon Europe

## Lessons Learned

from Horizon 2020 Interim Evaluation



Support breakthrough innovation



Create more impact through mission-orientation and citizens' involvement



Rationalise partnerships' landscape



Reinforce openness



Strengthen international cooperation



Encourage participation



## Key Novelties

in Horizon Europe

European Innovation Council

EU Missions

New approach to partnerships

Open science policy

Extended association possibilities

Spreading Excellence





# 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**)

**European  
Innovation Council –  
a one-stop-shop**

- Helping researchers and innovators create markets of the future, leverage private finance, scale up their companies
- Innovation centric, risk taking & agile, pro-active management and follow up
- Mostly 'bottom up', but also targeting strategic challenges
- EIC Programme Managers to develop visions for breakthroughs and steer portfolios

Complementary instruments bridging the gap from idea to market

## PATHFINDER

R&I grants  
(from early technology  
to proof of concept)

## TRANSITION

R&I grants  
(proof of concept to  
pre-commercial)

## ACCELERATOR

Grants & investment (via EIC Fund) for  
single SMEs & start-ups  
(from pre-commercial to market & scale-up)



## EU Missions

### R&I Missions

Relating EU's research and innovation better to society and citizens' needs; with strong visibility and impact

A mission is a portfolio of actions across disciplines intended to achieve a **bold and inspirational and measurable goal** within a set timeframe, with **impact** for society and policy making as well as relevance for a significant part of the European population and wide range of European citizens.

Horizon Europe defines mission characteristics and elements of governance, and **5 missions areas**. Specific missions will be programmed within the Global Challenges and European Industrial Competitiveness pillar, but may also benefit from actions carried out within other parts of the Programme as well as complementary actions carried out under other Union programmes.

## Five Missions Areas



**Adaptation to  
climate change,  
including societal  
transformation**



**Cancer**



**Healthy oceans,  
seas, coastal &  
inland waters**



**Climate-neutral  
& smart cities**



**Soil health &  
food**



# New approach to European Partnerships

New generation of objective-driven and more ambitious partnerships in support of agreed EU policy objectives

## Key Features

- **Strategic orientation**
- **Systemic approach**
- **Simple architecture and toolbox**
- **Common set of criteria for the life-cycle**

### CO-PROGRAMMED

Based on Memoranda of Understanding/contractual arrangements; implemented independently by the partners and by Horizon Europe

### CO-FUNDED

Based on a joint programme agreed and implemented by partners; commitment of partners for financial and in-kind contributions

### INSTITUTIONALISED

Based on long-term dimension and need for high integration; partnerships based on Art 185/187 of TFEU and the EIT legal acts for 2021-2027



## Open Science across the programme

Open  
Science

Mainstreaming of open science practices for improved quality and efficiency of R&I, and active engagement of society

**Mandatory immediate Open Access to publications:** beneficiaries must retain sufficient IPRs to comply with open access requirements;

**Data sharing as 'open as possible, as closed as necessary':** mandatory Data Management Plan for FAIR (Findable, Accessible, Interoperable, Reusable) research data

- Work Programmes may incentivize or oblige to adhere to **open science practices** such as involvement of citizens, or to use the **European Open Science Cloud**
- Assessment of open science practices through the **award criteria** for proposal evaluation
- Dedicated support to **open science policy actions**
- **Open Research Europe** publishing platform



# International Cooperation

## International Cooperation

Tackling together global societal challenges; access to the world's best talents, expertise and resources; enhanced supply and demand of innovative solutions

## Association to Horizon Europe

- Third countries with good capacity in science, technology and innovation
- Taking into account objective of driving economic growth in Europe through innovation
- Intensified targeted actions
- Strengthened support to multilateral cooperation
- Openness to international participation balanced with the promotion of EU strategic autonomy



# Q&A

Time to ask your  
questions!

Teşekkür ederim!

Thank you!



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