

# Introduction to Horizon Europe Strategic Plan & Work Programme definition

Turkey in Horizon 2020 Phase II,

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APRE- Agency for the Promotion of European Research



## AGENDA

- ▣ HE Structure & Strategic Plan 2021-2024
- ▣ From EU priorities to Work Programme destinations
- ▣ Strategic Orientations, expected impacts & corresponding Work Programme destinations
- ▣ New approaches for greater impact



EUROPEAN UNION



# HORIZON EUROPE

#HorizonEU





**Mariya Gabriel**, European Commissioner for Innovation, Research, Culture, Education and Youth

*“The programme aims at giving Europe a new push to a global positioning. Horizon Europe is to be **the biggest and most ambitious EU Research Innovation programme ever**. It builds on the success of Horizon 2020 and improves it further by fostering a stronger support to **breakthrough innovation** through the European Innovation Council, by creating greater **impact** through R&I **missions** and by streamlining **partnerships** landscape.”*



## 6 Commission priorities for 2019-24

### A European Green Deal

Striving to be the first climate-neutral continent



### A Europe fit for the digital age

Empowering people with a new generation of technologies

### An economy that works for people

Working for social fairness and prosperity



### A stronger Europe in the world

Europe to strive for more by strengthening our unique brand of responsible global leadership

### Promoting our European way of life

Building a Union of equality in which we all have the same access to opportunities.



### A new push for European democracy

Nurturing, protecting and strengthening our democracy



# Our vision

A sustainable, fair and **prosperous** future for **people** and **planet** based on European values.

- Tackling **climate change** (35 % budgetary target)
- Helping to achieve **Sustainable Development Goals**
- Boosting the Union's **competitiveness and growth**



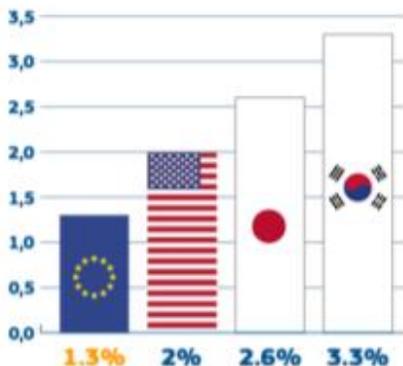
Credits: <https://www.un.org/sustainabledevelopment/sustainable-development-goals/>



## While benefiting from world-class research and strong industries...

Our knowledge and skills are our main resources.

- **7%** of the world's population
- **20%** of global R&D
- **1/3** of all high-quality scientific publications



**1.3%**  
EU business  
R&D  
investment

**...Europe can do better at transforming this into leadership in innovation and entrepreneurship**

## A BUDGET & STRUCTURE FIT FOR ITS AMBITIONS

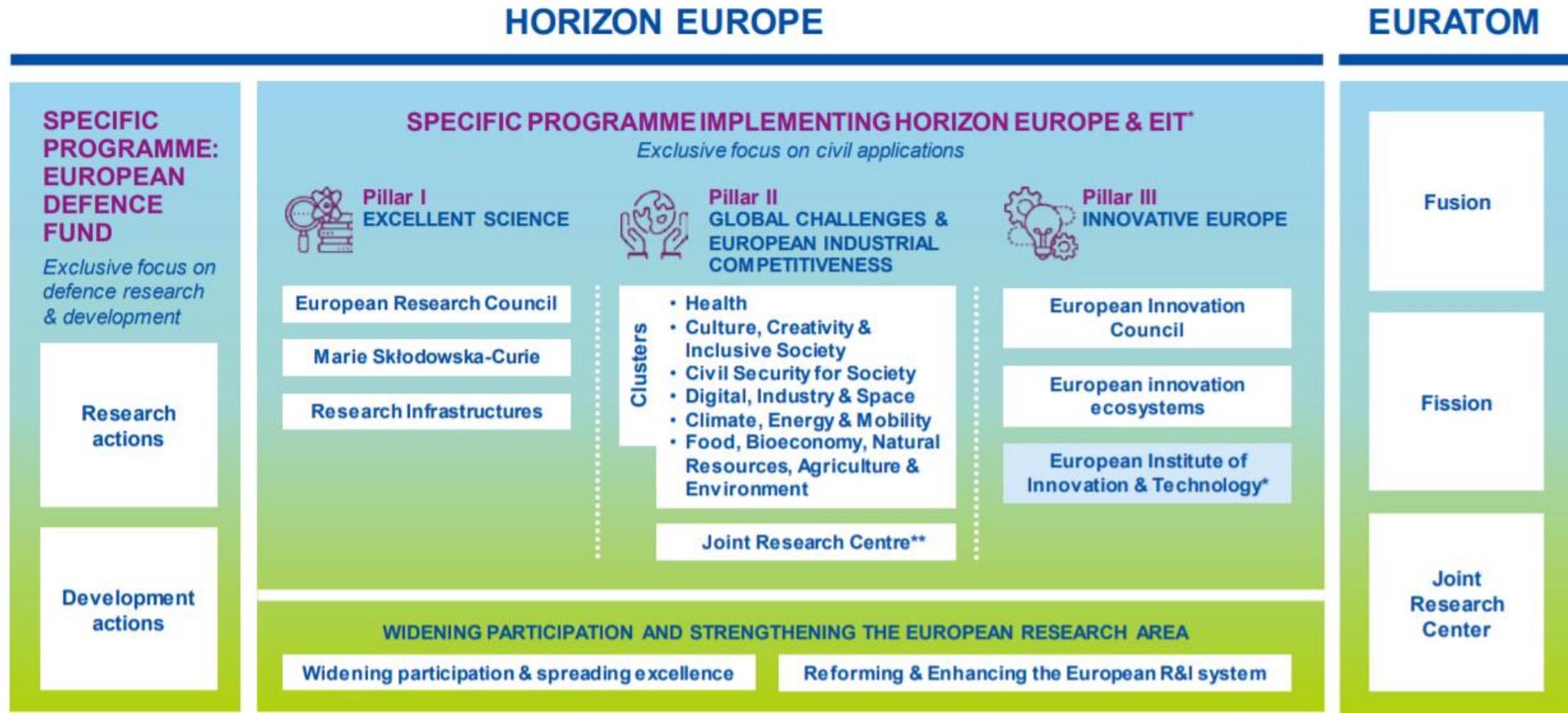
Horizon Europe will have a budget of around **€95.5 billion** for 2021-2027 (current prices). This includes €5.4 billion (current prices) from **NextGenerationEU** to boost our recovery and make the EU more resilient for the future, as well as an additional reinforcement (compared to the MFF agreement in July 2020) of €4.6 billion (current prices).

Horizon Europe will be implemented also through the **European Defence Fund** and complemented by the **Euratom Research and Training Programme**.





# HORIZON EUROPE STRUCTURE



\* European Institute of Innovation & Technology (EIT) is not part of the Specific Programme

\*\* Non-nuclear activities of JRC



## 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 →
-  Encourage participation →

## Key Novelties in Horizon Europe

European Innovation Council

R&I Missions

Extended association possibilities

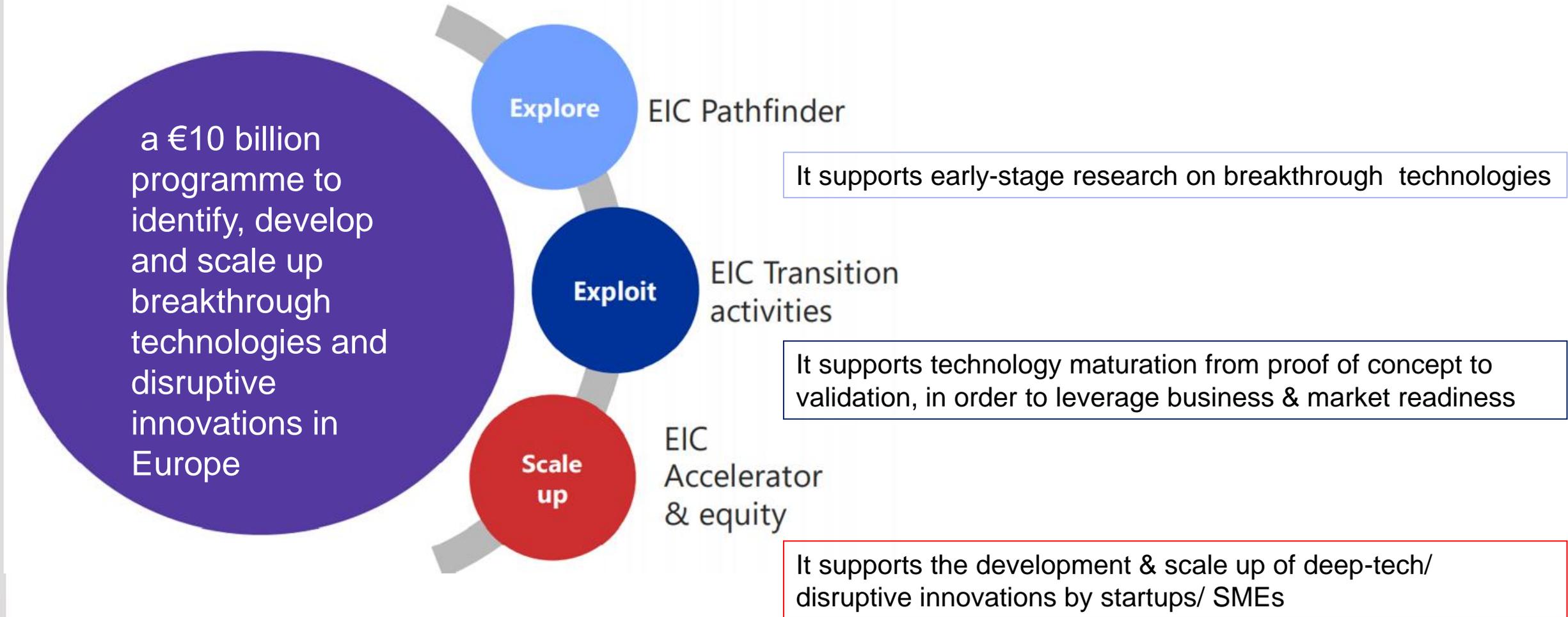
Open science policy

New approach to Partnerships

Spreading Excellence



# European Innovation Council





## R&I 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 (drawing on inputs from other pillars)



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



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



**Mission  
areas**



**Cancer**

**Climate-neutral  
and smart cities**



**Soil health  
and food**





## New approach to European Partnerships

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

### Key features

- Simple architecture and toolbox
- Coherent life-cycle approach
- Strategic orientation

#### 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 Articles 185 / 187 of TFEU and the EIT-Regulation supported by Horizon Europe





**HORIZON  
2020**

- **EU INVESTMENT** of **€1**
- **+ €2.31** invested by **PARTICIPATING COUNTRIES**

## DID YOU KNOW?



European Partnerships are initiatives where the EU, together with private and public partners, commit to jointly support the development and implementation of a programme of research and innovation activities. The partners could represent industry, universities, research organisations, bodies with a public service remit at local, regional, national or international level or civil society organisations, including foundations and NGOs. Partnerships are not new - they were first introduced in 2002 as part of the European Research Area to overcome fragmentation of research effort.

# EUROPEAN PARTNERSHIPS IN THE (49) STRATEGIC PLANNING 2021-24

## *HEALTH*

1. EU-Africa Global
2. Health Innovative Health Initiative
3. Chemicals Risk Assessment
4. Fostering an ERA for Health research
5. Transforming Health and Care Systems
6. Personalised Medicine
7. Rare Diseases
8. One Health AMR

## *DIGITAL, INDUSTRY AND SPACE*

1. High Performance Computing
2. Key Digital Technologies
3. Smart Networks and Services
4. AI, data and robotics
5. Photonics Europe
6. Clean Steel - Low Carbon Steelmaking
7. European Metrology
8. Made in Europe
9. Carbon Neutral and Circular Industry
10. Global competitive space systems

## *PILLAR III AND CROSS-PILLAR*

1. EIT Climate KIC
2. EIT Health
3. EIT Manufacturing
4. EIT Food
5. EIT InnoEnergy
6. EIT Raw Materials
7. EIT Digital
8. EIT Urban Mobility
9. EIT Cultural and Creative Industries
10. Innovative SMEs
11. European Open Science Cloud (EOSC)

## *CLIMATE, ENERGY AND MOBILITY*

1. Transforming Europe's rail system
2. Integrated Air Traffic Management
3. Clean Aviation
4. Clean Hydrogen
5. Built environment and construction
6. Towards zero-emission road transport
7. Mobility and Safety for Automated Road Transport
8. Batteries
9. Clean Energy Transition
10. Sustainable, Smart and Inclusive Cities and Communities
11. Smart and zero-emission waterborne transport

## *FOOD, BIOECONOMY, NATURAL RESOURCES, AGRICULTURE AND ENVIRONMENT*

1. Accelerating farming systems transition
2. Animal health: Fighting infectious diseases
3. Agriculture of data
4. Safe and Sustainable Food System for People, Planet & Climate
5. Rescuing biodiversity to safeguard life on Earth
6. A climate neutral, sustainable and productive Blue Economy
7. Circular bio-based Europe
8. Water4All: Water security for the planet

*Cluster allocation tbc*  
Pandemic Preparedness  
and societal resilience



## 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

### Extended openness to association

- Third countries with good capacity in science, technology and innovation
- Taking into account objective of driving economic growth in Europe through innovation
- General opening for international participation
- Intensified targeted actions (flagship initiatives, joint calls, etc.)



## Open Science across the programme

Open Science

Better dissemination and exploitation of R&I results and support to active engagement of society

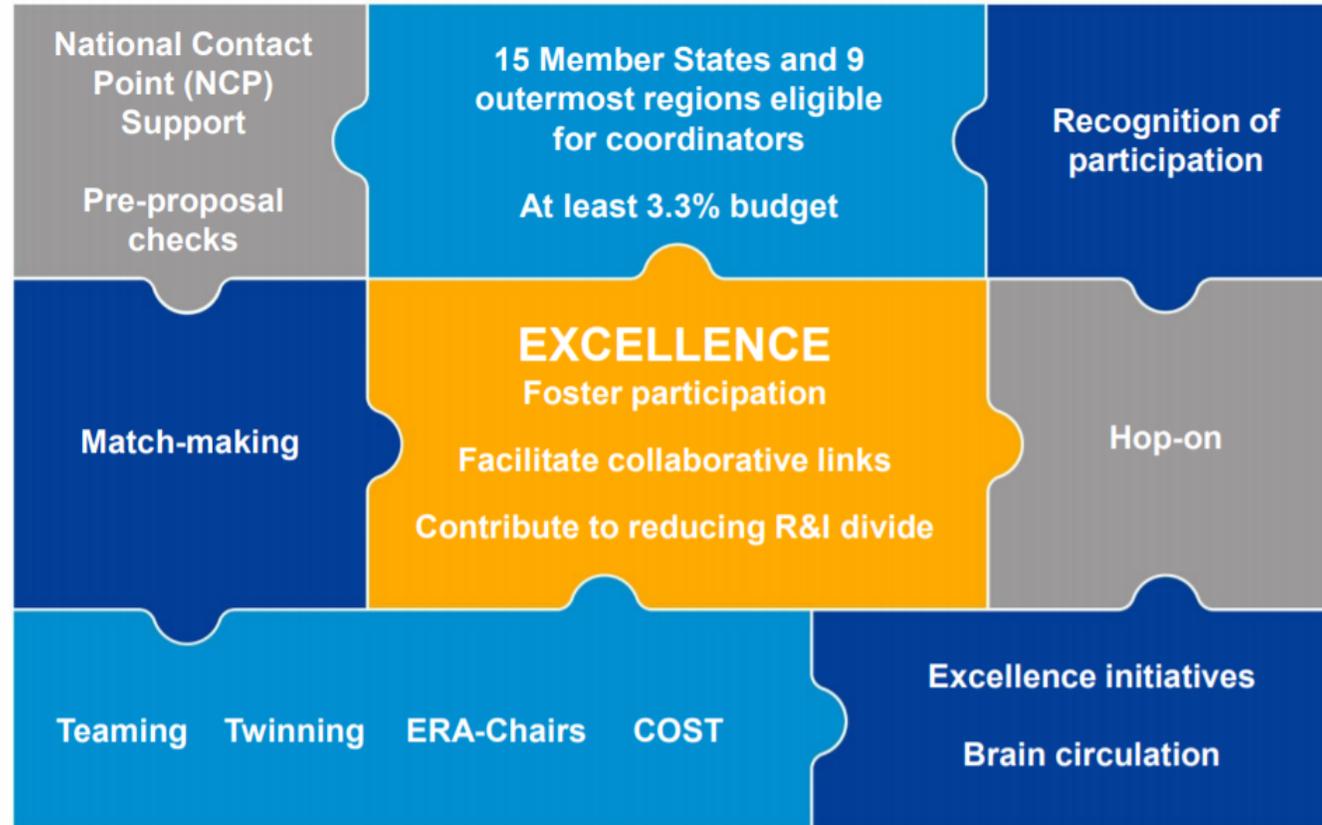
**Mandatory Open Access to publications:** beneficiaries shall ensure that they or the authors retain sufficient intellectual property rights to comply with open access requirements

**Open Access to research data ensured:** in line with the principle "as open as possible, as closed as necessary"; Mandatory Data Management Plan for FAIR (Findable, Accessible, Interoperable, Re-usable) and Open Research Data

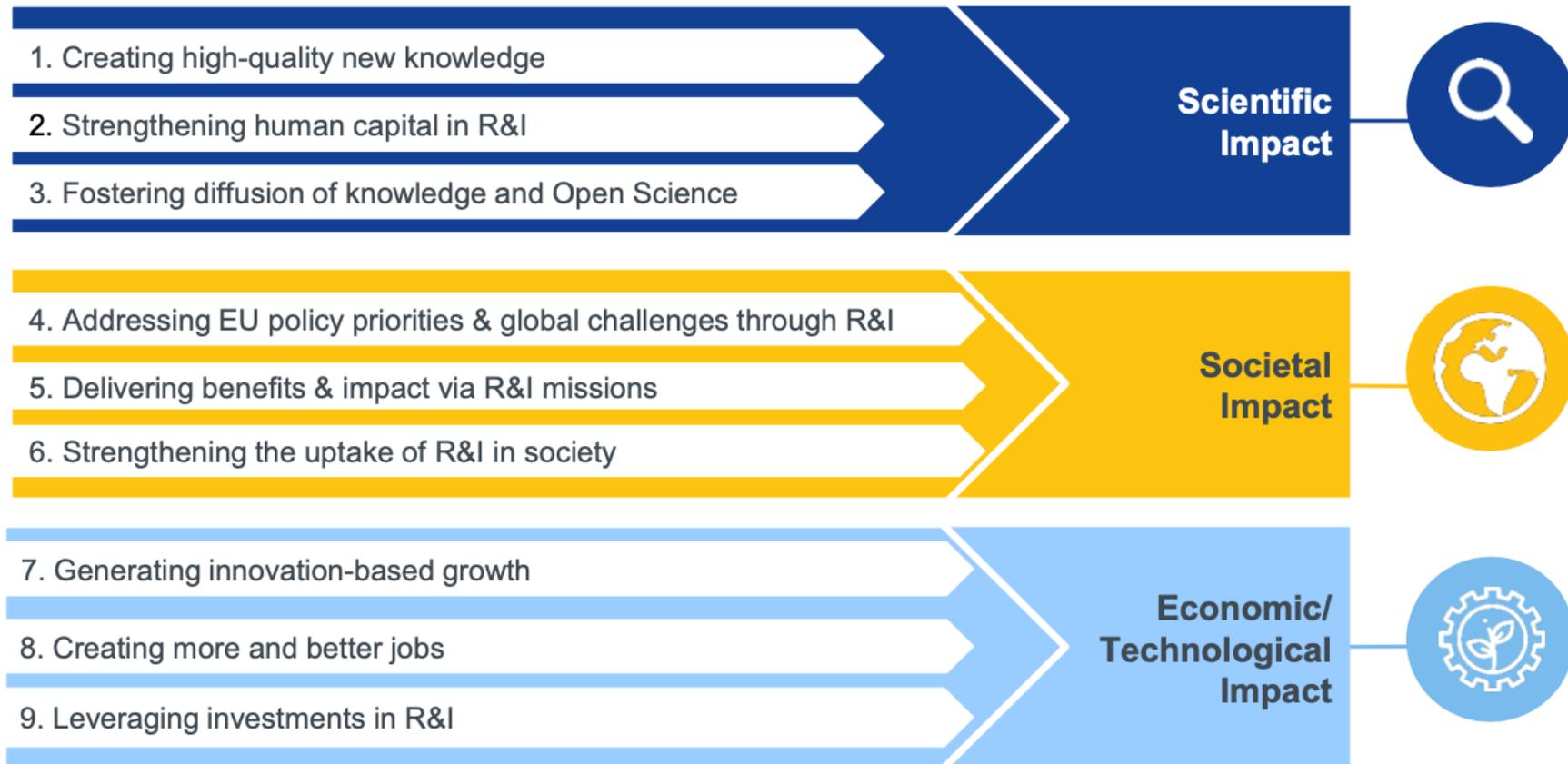
- Support to researcher skills and reward systems for open science
- Use of European Open Science Cloud



## Widening participation/spreading excellence



- Early framing of the overarching **objectives and targeted impacts** of the FP and developing monitoring frameworks like the nine Horizon Europe Key Impact Pathways (below)



Source: Horizon Europe Key Impact Pathways



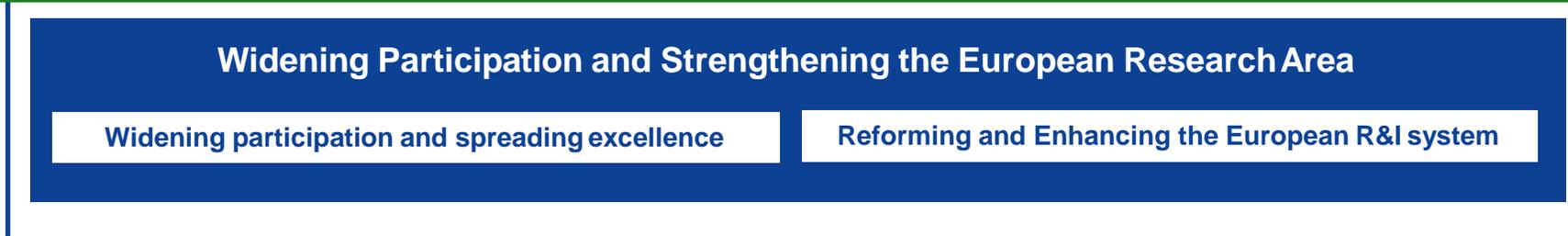
# HORIZON EUROPE



# Horizon Europe



- **Coherent approach between different Pillars**
- **Systemic approach based on impact (interdisciplinary and intersectoral)**





# SPECIFIC OBJECTIVES



to develop, promote and advance scientific excellence, support the creation and diffusion of **high-quality new fundamental and applied knowledge, skills, technologies and solutions**, training and mobility of researchers, attract talent at all levels and contribute to full engagement of Union's talent pool in actions supported under this Programme; bottom up.

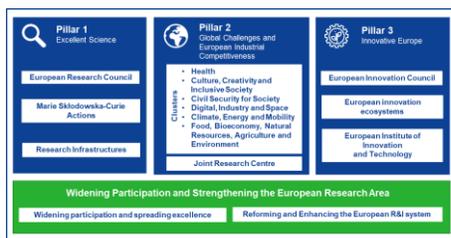


to generate knowledge, strengthen **the impact of research and innovation** in developing, supporting and implementing Union policies and support the access to and uptake of innovative solutions in European industry, notably in SMEs, and society to address global challenges, including climate change and the Sustainable Development Goals; top down.

# SPECIFIC OBJECTIVES



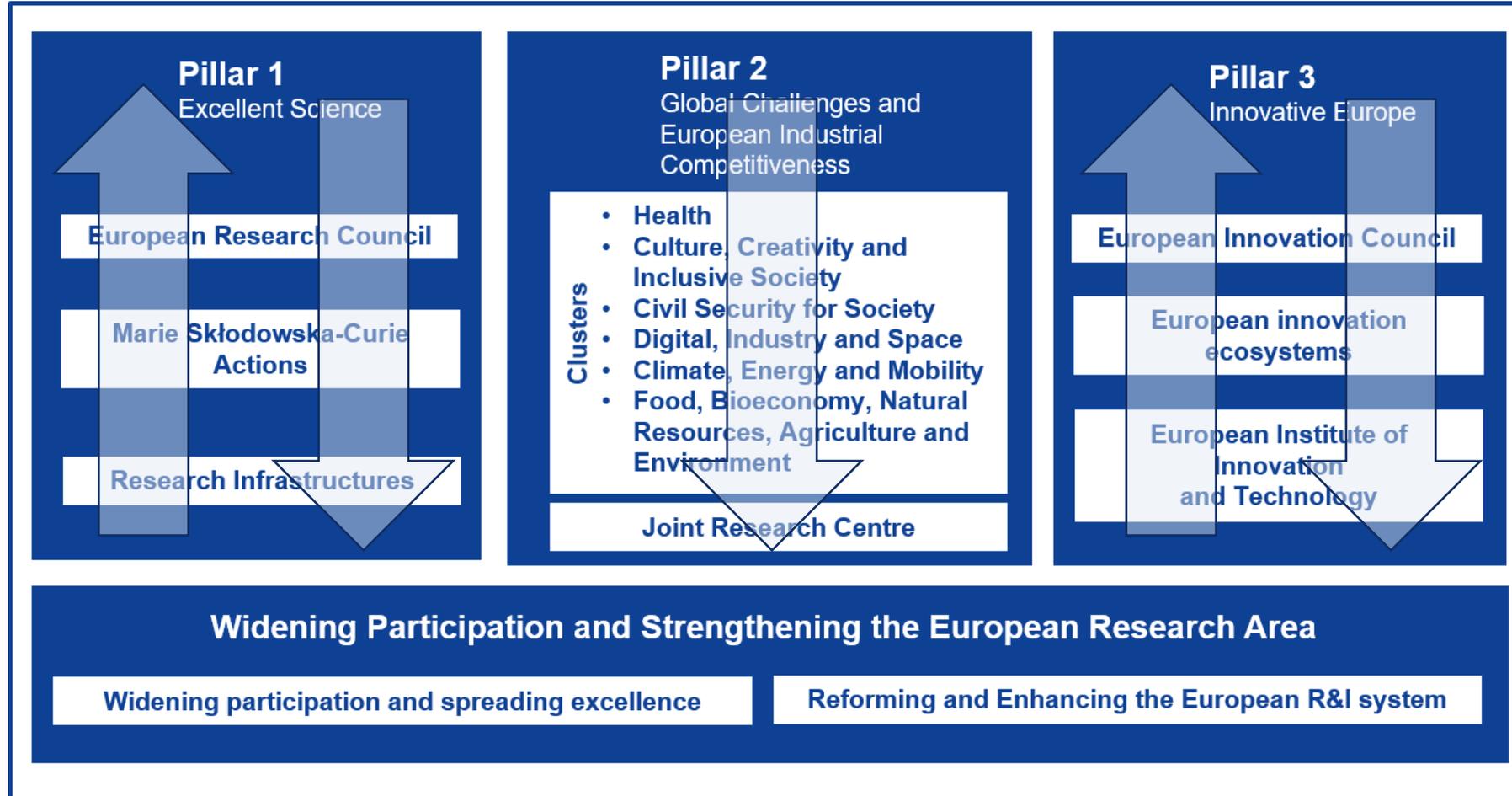
to foster **all forms of innovation**, facilitate technological development, demonstration and knowledge and technology transfer, strengthen deployment and exploitation of innovative solutions; bottom up



to optimise the Programme's delivery for **strengthening and increasing the impact and attractiveness of the European Research Area**, to foster the excellence-based participations from all Member States, including low R&I performing Member States, in Horizon Europe and to facilitate collaborative links in European research and innovation. Top down

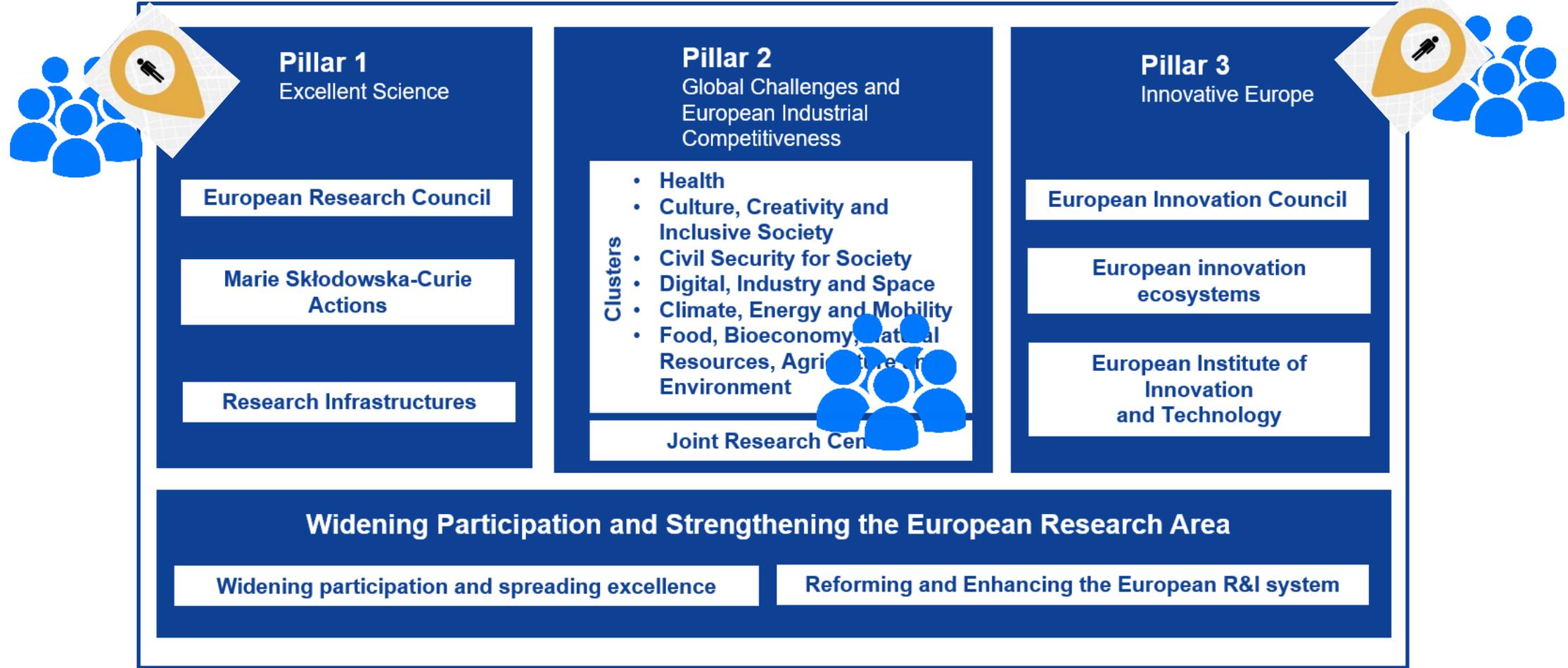


# Horizon Europe





# Horizon Europe

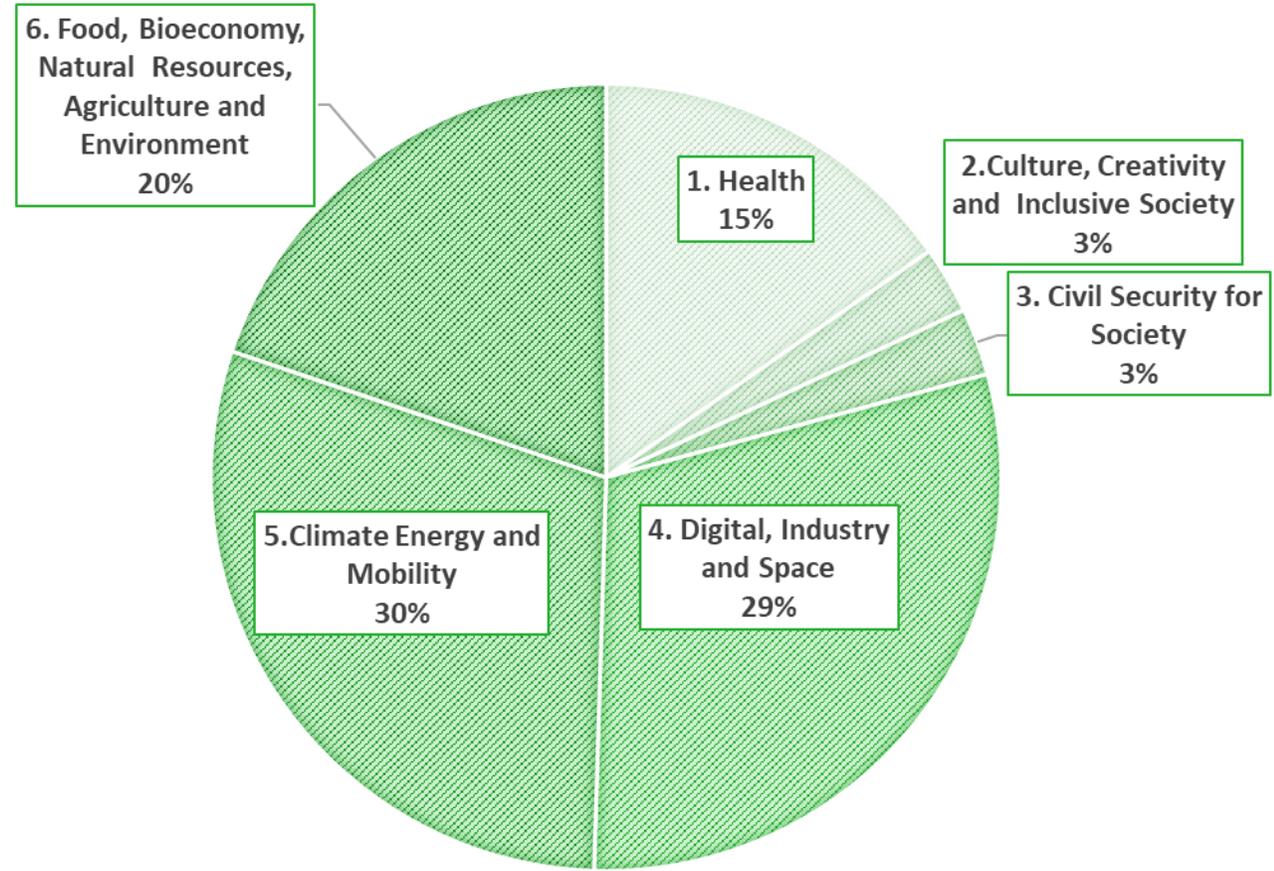
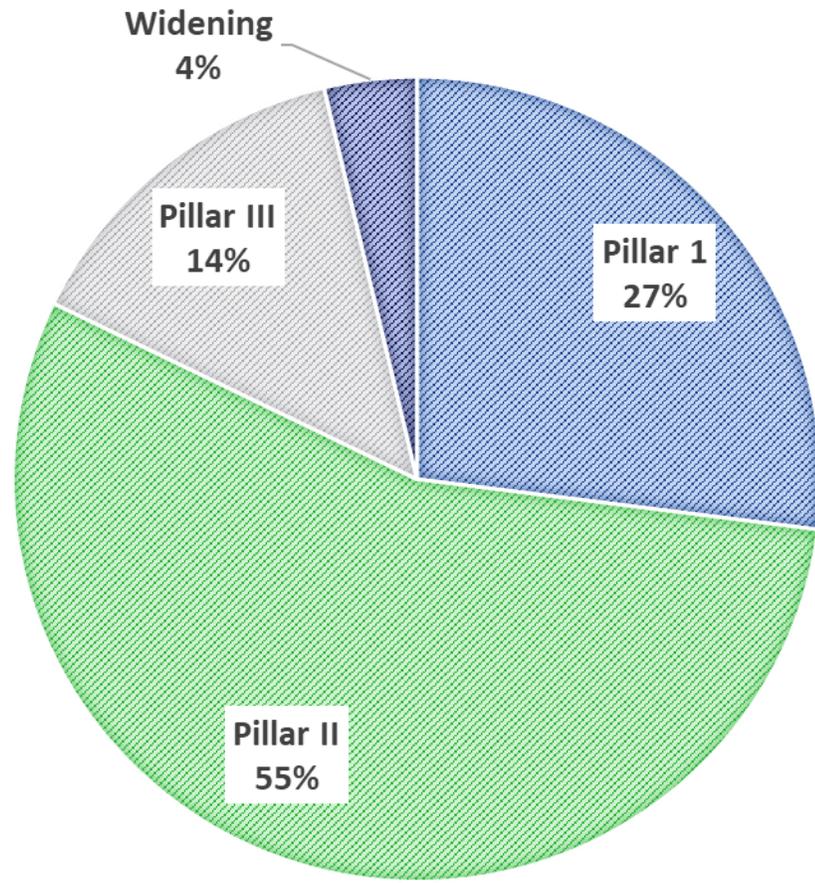




# Budget Breakdown



# Budget - Distribution





Tema	Miliardi €	% sul totale
<b>Pillar I</b>	<b>25,013</b>	<b>26,19%</b>
ERC	16,004	16,75%
MSCA	6,603	6,91%
Reasearch Infrastructures	2,406	2,52%
<b>Pillar II</b>	<b>53,517</b>	<b>56,03%</b>
<b>Clusters</b>	<b>51,547</b>	<b>53,96%</b>
1. Health	8,246	8,63%
2. Culture Creativity Inclusive Society	2,281	2,39%
3. Civil Security for Society	1,597	1,67%
4. Digital, Industry and Space	15,348	16,07%
5. Cimate, Energy and Mobility	15,123	15,83%
6. Food, Bioeconomy, Natural Resources, Agriculture, Environment	8,952	9,37%
JRC	1,970	2,06%
<b>Pillar III</b>	<b>13,599</b>	<b>14,24%</b>
EIC	10,105	10,58%
Innovation Ecosystems	0,528	0,55%
EIT	2,966	3,11%
<b>Strengthening ERA</b>	<b>3,393</b>	<b>3,55%</b>
Widening participation spreading exc.	2,955	3,09%
EU R&I System	0,438	0,46%
<b>TOTALE</b>	<b>95,522</b>	<b>100,00%</b>

ERC

CL 4-5

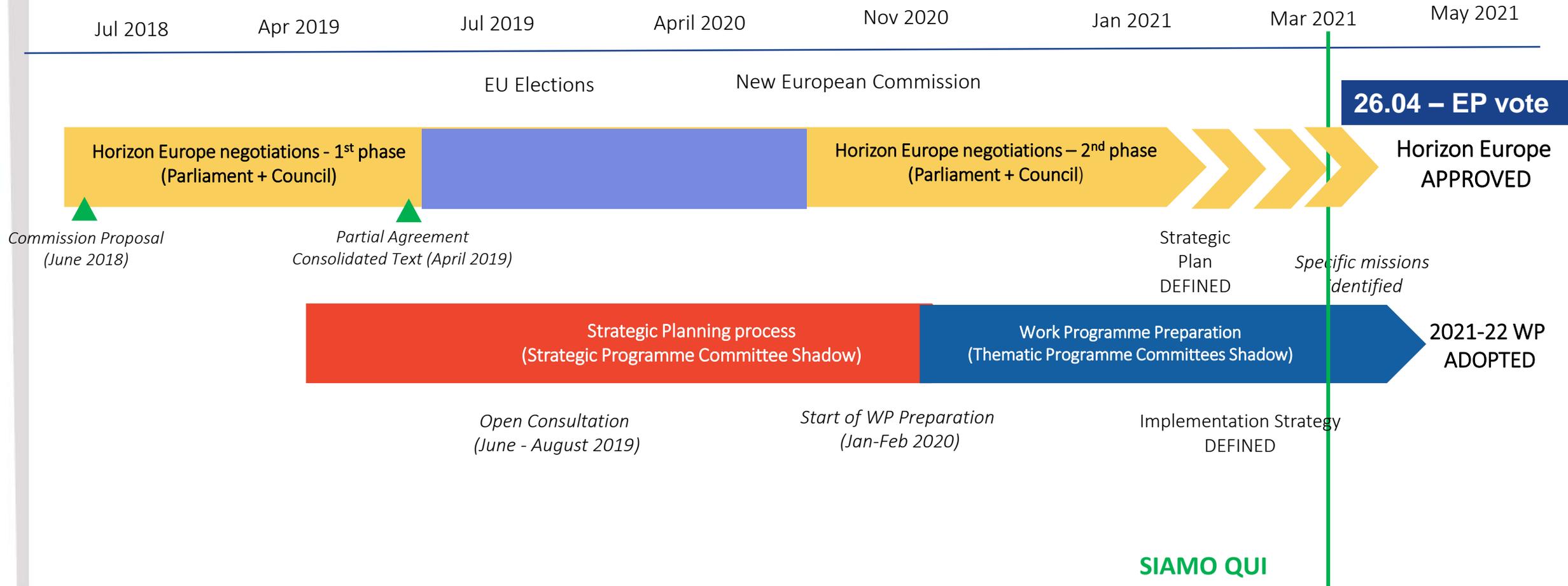
EIC



# Strategic Planning



# The Process





# Strategic Plan for implementing Horizon Europe

The Strategic Plan (*new implementing act by the Commission*) will prepare the content in the work programmes and calls for proposals for the first four years

- Strategic orientation for R&I support, expected impacts
- Partnerships and missions
- Areas for international cooperation
- Issues such as:
  - Balance between research and innovation
  - Social Sciences and Humanities
  - Key Enabling Technologies and strategic value chains
  - Gender
  - Ethics and integrity
  - Dissemination and exploitation



Horizon Europe – Consolidated text



Shadow Programme Committee

Open consultation with relevant stakeholder On Strategic Planning



Von der Leyen Priorities

- Missions
- Strategic Planning
- R&I Priorities
- International Cooperation
- co-programmed e co-funded Partnerships



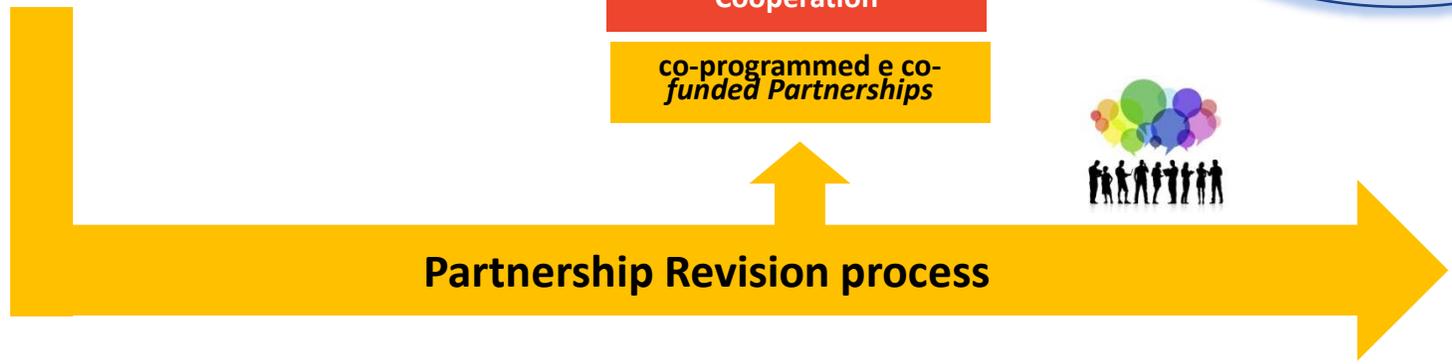
5 Mission Boards



Shadow Programme Committees

Horizon Europe Work Programmes

Calls for Proposals



Partnership Revision process



Institutionalised Partnerships



# Strategic plan gives direction to the work programme



## Main Features

- Early involvement and extensive exchanges with Member States
- Extensive exchanges with the European Parliament
- Consultations with stakeholders and public at large



# HORIZON EUROPE is an IMPACT DRIVEN programme



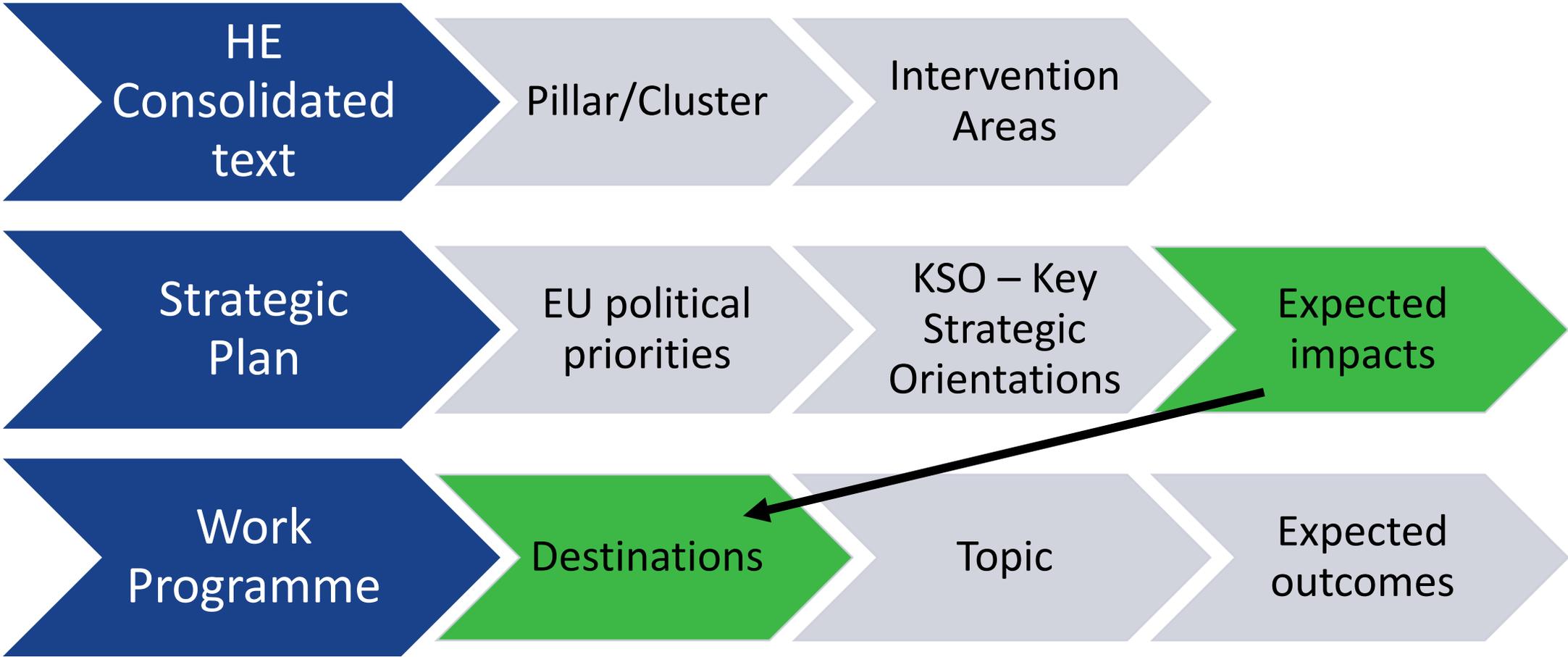


## Strategic orientations that guide research and innovation

- The **strategic plan** defines **four key strategic orientations**.
- Each of the **key strategic orientations** encompasses three to four **impact areas**, which in turn link to a number of **expected impacts**.
- They are a core element of the impact-driven approach of Horizon Europe, because they describe the long-term effects to which research and innovation are due to contribute.
- In total, the strategic plan defines **32 expected impacts** that cover a wide range of social, economic, ecological and scientific aspirations.
- The strategic plan outlines how the six Clusters of Horizon Europe's Pillar II, 'Global challenges and European industrial competitiveness', will contribute to the key strategic orientations and the corresponding expected impacts.



# Logical framework → IMPACT PATHWAY





# How does it impact in Work Programme structure?

STRATEGIC PLAN

WORK PROGRAMME

PROJECT PROPOSAL

## DEFINITION

<b>EC POLICY PRIORITY</b>	Based on the Political Guidelines for the European Commission 2019-2024 with a focus on three key priorities : Green Deal, Europe fit for a digital age, Economy that works for people
<b>KEY STRATEGIC ORIENTATIONS FOR R&amp;I SUPPORT</b>	= A set of strategic policy objectives that set the directions for R&I investments in order to achieve the political guidelines and policy objectives of the new Commission
<b>EXPECTED IMPACTS</b> => <i>DESTINATIONS</i>	= long term targeted effects on society (incl. the environment), the economy and science enabled by the outcomes of EU R&I investment
<b>EXPECTED OUTCOMES</b> => <i>TOPICS</i>	= Uptake, diffusion, use and/or deployment of project's outputs expected by direct project target groups (medium term).
<b>EXPECTED OUTPUTS</b> => <i>DELIVERABLES</i>	= Deliverables to be generated by the project during its implementation, such as a report, a database, a publication, a prototype, trained researchers, new infrastructures, etc. (short term).



# How does it impact in Work Programme structure?

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**STRATEGIC PLAN**

- POLICY PRORITIES
- KSO
- EXPECTED IMPACT



# How does it impact in Work Programme structure?

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**WP**

- DESTINATIONS/EXPECTED IMPACTS
- TOPICS/EXPECTED OUTCOMES



# How does it impact in Work Programme structure?

STRATEGIC PLAN

WORK PROGRAMME

PROJECT PROPOSAL

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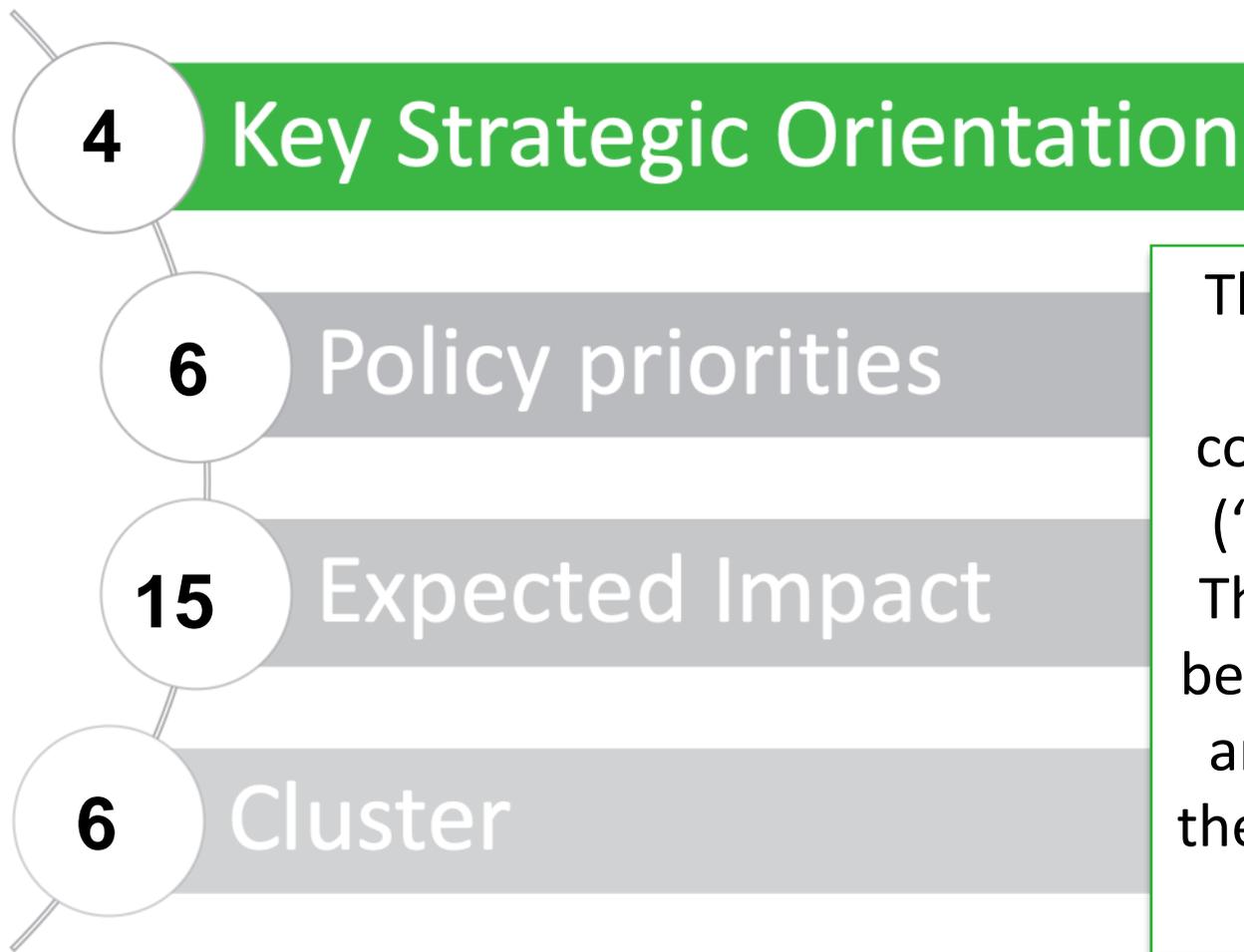
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### PROPOSAL

- DELIVERABLES/EXPECTED OUTPUTS/
- TOPICS/EXPECTED OUTCOMES
- DESTINATIONS/EXPECTED IMPACTS



## II Pillar – Transversal elements



The **key strategic orientations** have been defined to set out the R&I contribution to EC political priorities ('whole of government' approach). They aim at creating a strong bridge between R&I and EU policy priorities, and at giving directionality towards the UN SDGs – across all clusters (and HE parts)



## Four key strategic orientations for greater impact

**Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains** to accelerate and steer the digital and green transitions through human-centred technologies and innovations



**Restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources** to ensure food security and a clean and healthy environment



**Making Europe the first digitally enabled circular, climate-neutral and sustainable economy** through the transformation of its mobility, energy, construction and production systems



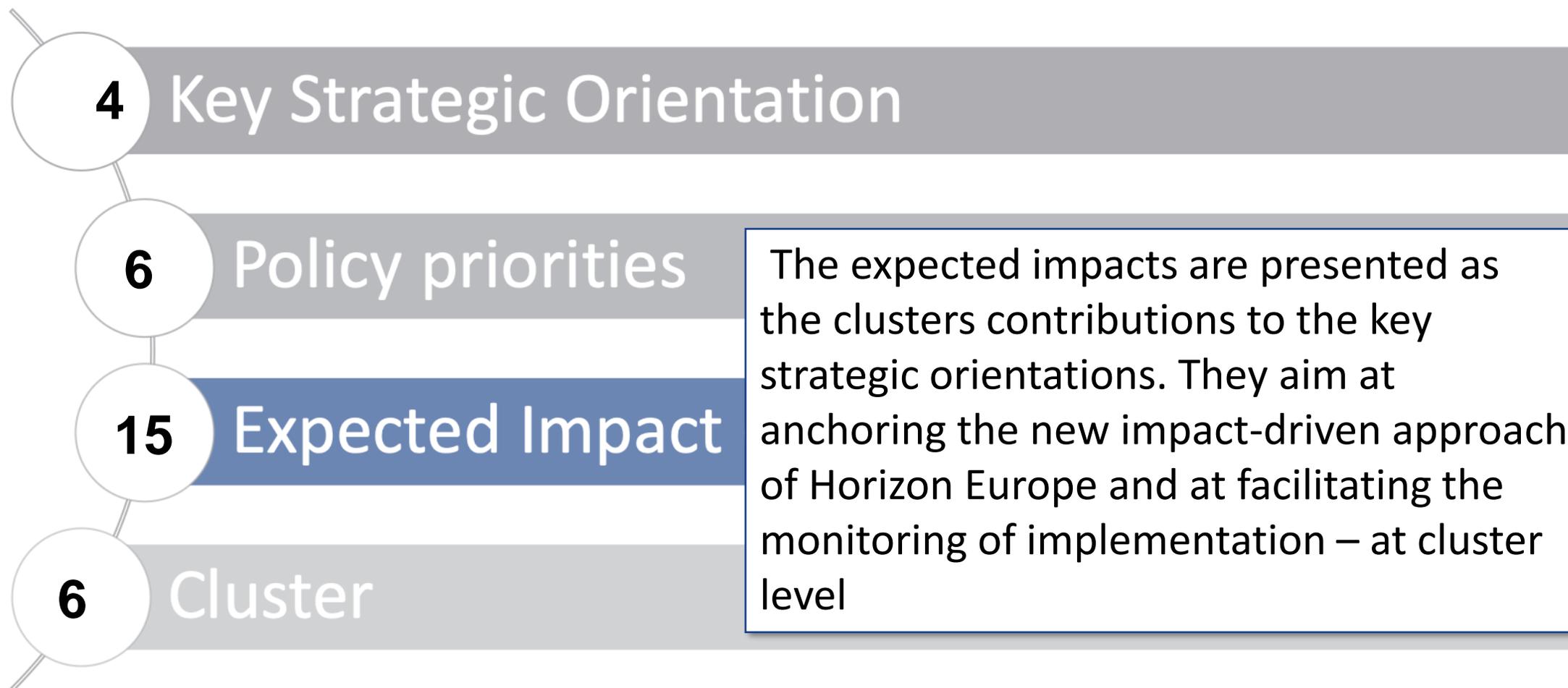
**Creating a more resilient, inclusive and democratic European society**, prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, and empowering all citizens to act in the green and digital transitions



[Strategic Plan 2021-2024](#)



## II Pillar – Transversal elements





KSO	IMPACT AREAS	CLUSTERS
<b>1. Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains</b> to accelerate and steer the digital and green transitions through human-centred technologies and innovations	<ul style="list-style-type: none"><li>• A competitive and secure data-economy</li><li>• Industrial leadership in key and emerging technologies that work for people</li><li>• Secure and cybersecure digital technology</li><li>• High quality digital services for all</li></ul>	Cluster 1 (Health) Cluster 2 (Culture, Creativity and Inclusive Society) Cluster 3 (Civil security for society) Cluster 4 (Digital, Industry and Space) Cluster 5 (Climate, Energy and Mobility)
<b>2. Restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources</b> to ensure food security and a clean and healthy environment;	<ul style="list-style-type: none"><li>• Enhancing ecosystems and biodiversity on land and in waters</li><li>• Clean and healthy air, water and soil</li><li>• Sustainable food systems from farm to fork on land and sea</li></ul>	Cluster 1 (Health) Cluster 4 (Digital, Industry and Space) Cluster 5 (Climate, Energy and Mobility) Cluster 6 (Food, Bioeconomy, Natural Resources, Agriculture and Environment)



KSO	IMPACT AREAS	CLUSTERS
<b>3. Making Europe the first digitally enabled circular, climate-neutral and sustainable economy</b> through the transformation of its mobility, energy, construction and production systems	<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>	Cluster 1 (Health) Cluster 4 (Digital, Industry and Space) Cluster 5 (Climate, Energy and Mobility) Cluster 6 (Food, Bioeconomy, Natural Resources, Agriculture and Environment)
<b>4. Creating a more resilient, inclusive and democratic European society</b> , prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, and empowering all citizens to act in the green and digital transitions.	<ul style="list-style-type: none"><li>• A resilient EU prepared for emerging threats</li><li>• A secure, open and democratic EU society</li><li>• Good health and high-quality accessible healthcare</li><li>• Inclusive growth and new job opportunities</li></ul>	Cluster 1 (Health) Cluster 2 (Culture, Creativity and Inclusive Society) Cluster 3 (Civil security for society) Cluster 4 (Digital, Industry and Space) Cluster 5 (Climate, Energy and Mobility) Cluster 6 (Food, Bioeconomy, Natural Resources, Agriculture and Environment)



## THE EIGHT HORIZONTAL TOPICS





## Strategic planning and the first strategic plan (2021-2024)

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The first Horizon Europe Strategic Plan (2021-2024) which sets out key strategic orientations for the support of research and innovation, was adopted on 15 March 2021.

The work programme for the European Research Council (ERC) was adopted on 22 February 2021. The [work programme](#) for the European Innovation Council (EIC) was adopted on 17 March and the [EIC](#) was formally launched on 18 March. The main work programme dedicated to COVID-19 variants will be adopted in March the complete main work programme is expected to be adopted in April.

The first calls will open following the adoption of the work programme each time.



## DESTINATION

- Under each destination, before the texts of the themes themselves, there is an important introduction that explains the relative political objectives, which specifies the elements to be taken into account for all the themes of the Destination - including international cooperation - and which identifies specific impact target.
- Proposals should establish a credible path for such specific targeted impacts.



## WORK PROGRAMME (parameters)

### CALLS

- **Annual:** A ‘call for proposals’ will comprise one topic or group of topics with a single common deadline (call deadline model)
- •Bring together **limited number of topics** in **coherent package** aimed at achieving a **specific subset of the medium and long-term targeted impacts** set out in the Strategic Plan
- •Applicants will have to **demonstrate in their proposals a clear narrative of their expected pathway** to contribute these impacts

### TOPICS

- **“Targeted outcomes”** → specific outcomes and shorter-term impacts/achievements which contribute to the medium and long-term impacts of the Strategic Plan
- **“Scope”** → brief description, framing the family of solutions/value chains/systems to be developed, in as non-prescriptive a manner as possible, including where relevant the integration of SSH, gender dimension, international cooperation, synergies etc.
- No **“Specific challenge”** section





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