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# El nuevo Programa Marco: Horizon Europe 2021-2027

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*H2020 programme officer at SOST-CDTI*

*10 May 2019*



CDTI Centro para el Desarrollo Tecnológico Industrial | E.P.E.

# Entidades con competencias en I+D+i en Europa...



European Commission



**Dirección General de  
Investigación e Innovación**



European Parliament



Council of the  
European Union



Hay vida más allá de H2020...



# HORIZON EUROPE (2021 – 2027)



# A MODERN EU BUDGET FOR A UNION THAT PROTECTS, EMPOWERS AND DEFENDS



*'Today is an important moment for our Union. The new budget is an opportunity to shape our future as a new, ambitious Union of 27 bound together by solidarity. With today's proposal we have put forward both a vision for the kind of Union we want, as well as a pragmatic plan for how we can make it happen. For the first time in our history, a rule of law mechanism will ensure sound financial management of the Union's budget and protect taxpayer's money. The ball is now in the court of Parliament and Council and I believe we should aim to have agreement before the European Parliament elections next year.'*

Jean-Claude Juncker, President of the European Commission, 2 May 2018

*'This budget proposal is truly about EU added value. We invest even more in areas where one single Member State cannot act alone or where it is more efficient to act together - be it research, migration, border control or defence. And we continue to finance traditional - but modernised - policies, such as Common Agricultural Policy and Cohesion Policy, because we all benefit from the high standard of our agricultural products and regions catching up economically.'*

Günther H. Dettinger, Commissioner for Budget & Human Resources, 2 May 2018



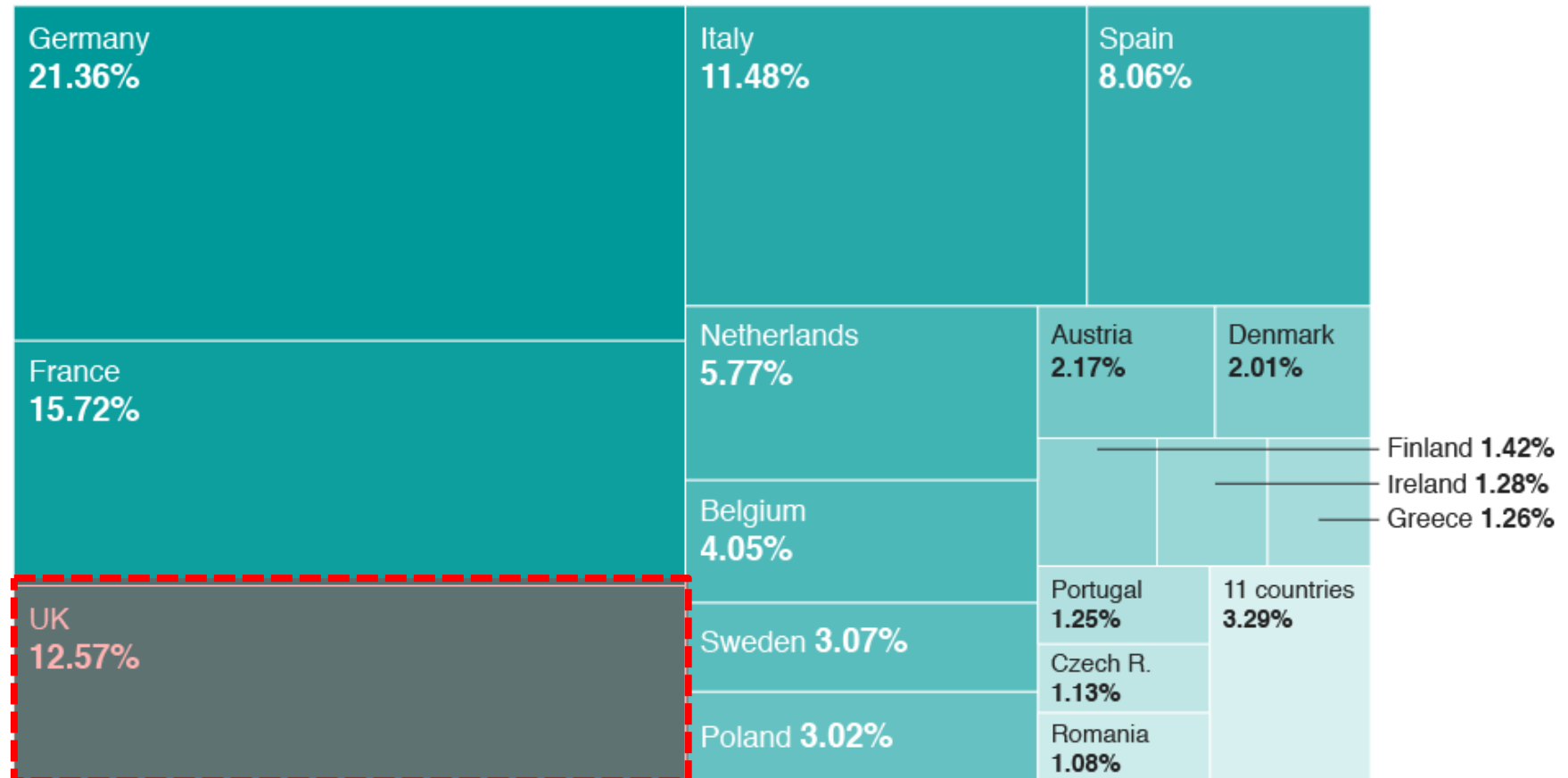
Presentation of the new budget for the EU 2021-2027 on **02-May-2018**.

- ❑ **Increases** → **Research and innovation**, young people, the digital economy, border management, security and defence... For instance, the budget of Erasmus+ and the European Solidarity Corps will be doubled.
- ❑ **Savings** → Common **Agricultural Policy** and **Cohesion Policy** is moderately reduced - both by around 5% - to reflect the new reality of a Union at 27.
- ❑ **New revenues** → Focussed in:
  - ❑ **Modernise existing own resources** → Among others, the simplification of the VAT (Value Added Tax-based) own resource.
  - ❑ **Introduce a basket of new own resources** consisting of:
    - ❑ A 3% call rate applied to the new **Common Consolidated Corporate Tax Base**;
    - ❑ A 20% share of the auctioning revenue of the **European Emissions Trading System**;
    - ❑ National contribution on the basis of the amount of **non-recycled plastic packaging waste** in each Member State.



# Some boundary conditions...

2015 EU budget 145bn euros: Contributions by country (%)



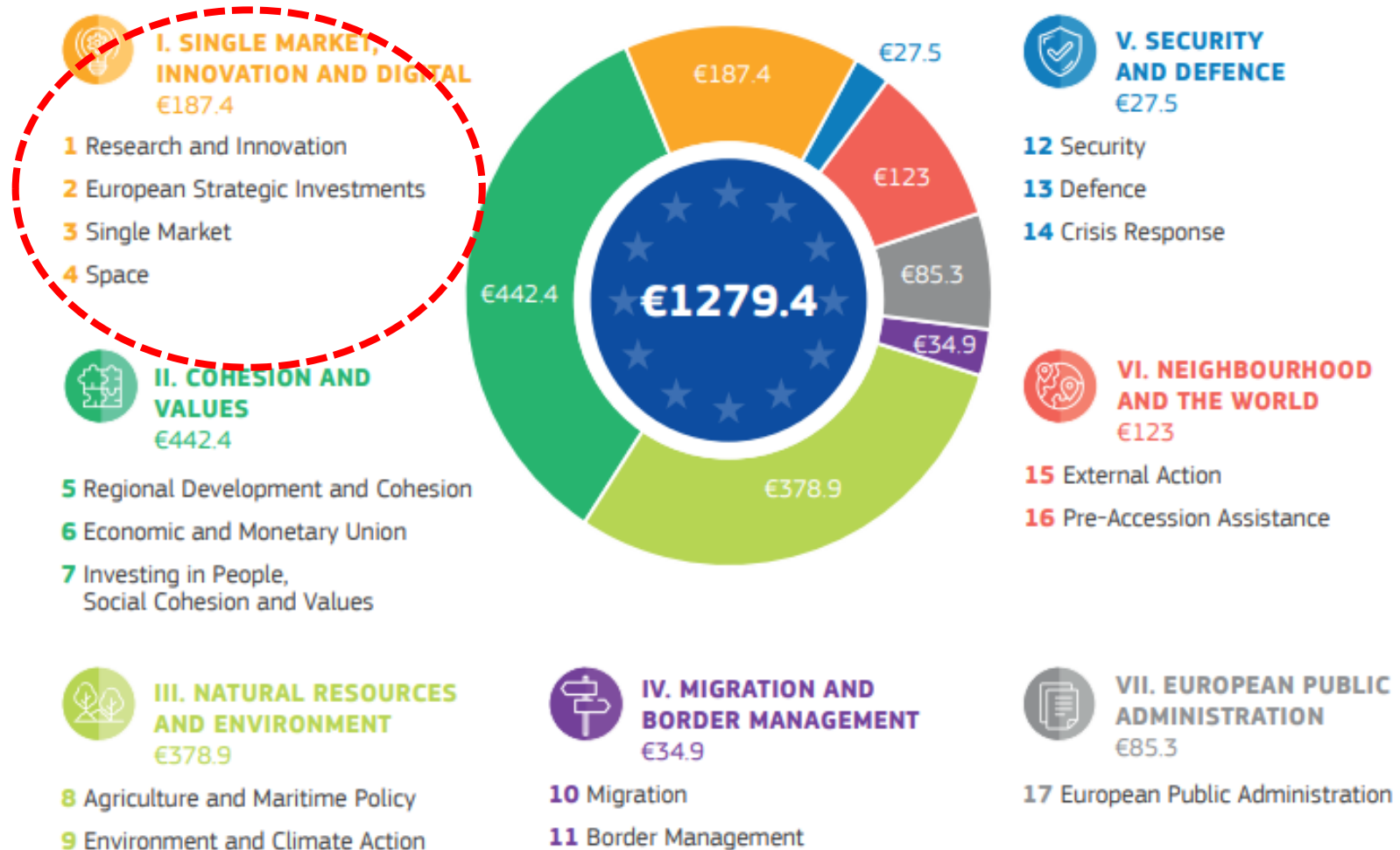
Source: European Commission/HM Treasury



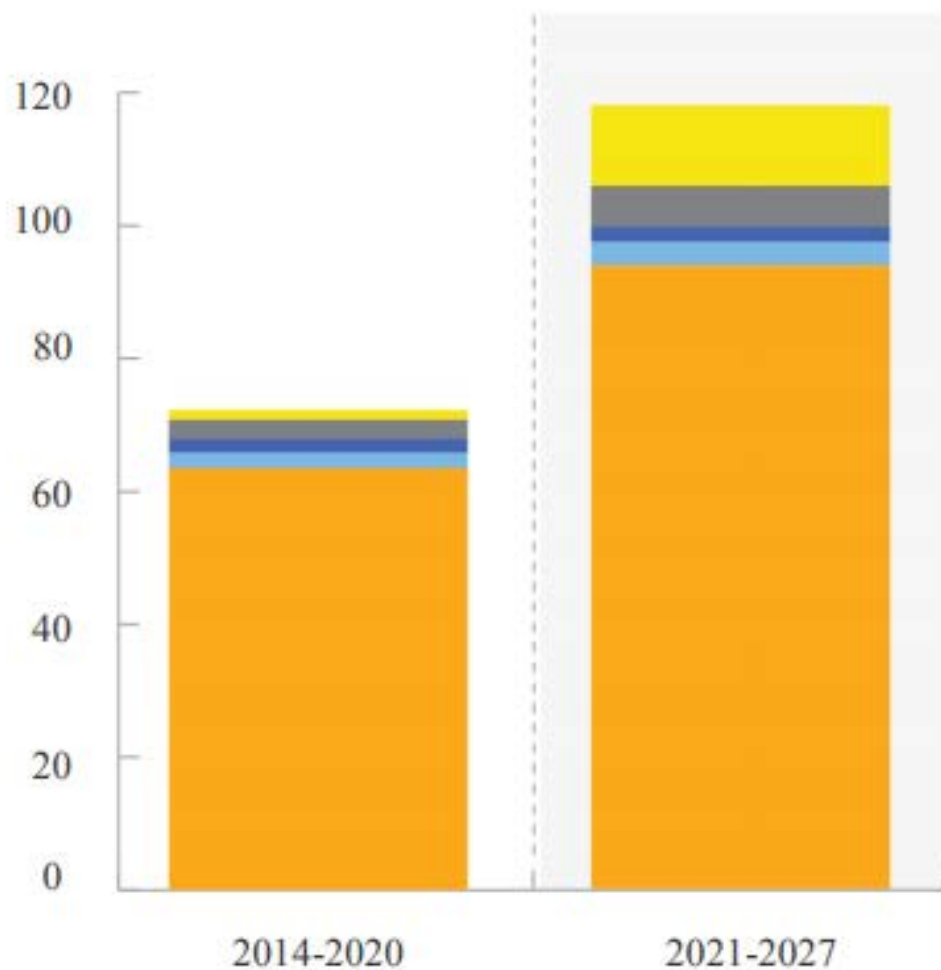
# New MFF for the EU...

## THE NEW MULTIANNUAL FINANCIAL FRAMEWORK 2021 - 2027 A BUDGET FOR A UNION THAT PROTECTS, EMPOWERS AND DEFENDS

In billion euro, current prices



# ... and the budget for R&D&Innovation...



**114,8 Billion Euros**

Digital Europe Programme and Connecting Europe Facility – Digital

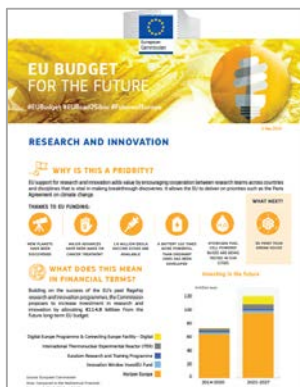
International Thermonuclear Experimental Reactor (ITER)

Euratom Research and Training Programme

Innovation Window InvestEU Fund

Horizon Europe

\*Current billion Euros...  
**a la baja!!!!**



# ... Sobre la estructura de “Horizon Europe” 2021-2027

**Horizon Europe**, with a budget of **€97.6 billion**, is the biggest ever research and innovation funding programme. It is designed around three pillars:

- the **Open Science pillar** supports researchers through fellowships and exchanges as well as funding to projects defined and driven by researchers themselves, through the European Research Council and the Marie-Sklodowska-Curie actions.
- The **Global challenges pillar** directly supports research relating to societal challenges, setting EU-wide missions with ambitious goals around issues that worry us daily such as such as the fight against cancer, clean mobility and plastic-free oceans. Industrial leadership will be prominent within this pillar and throughout the programme as a whole.
- The **Open Innovation pillar** aims to make Europe a front runner in market-creating innovation. A **European Innovation Council** will offer a one-stop shop for high potential and breakthrough technologies and innovative companies with potential for scaling up.

Open Science

Global challenges

Open Innovation



**HORIZON  
EUROPE**

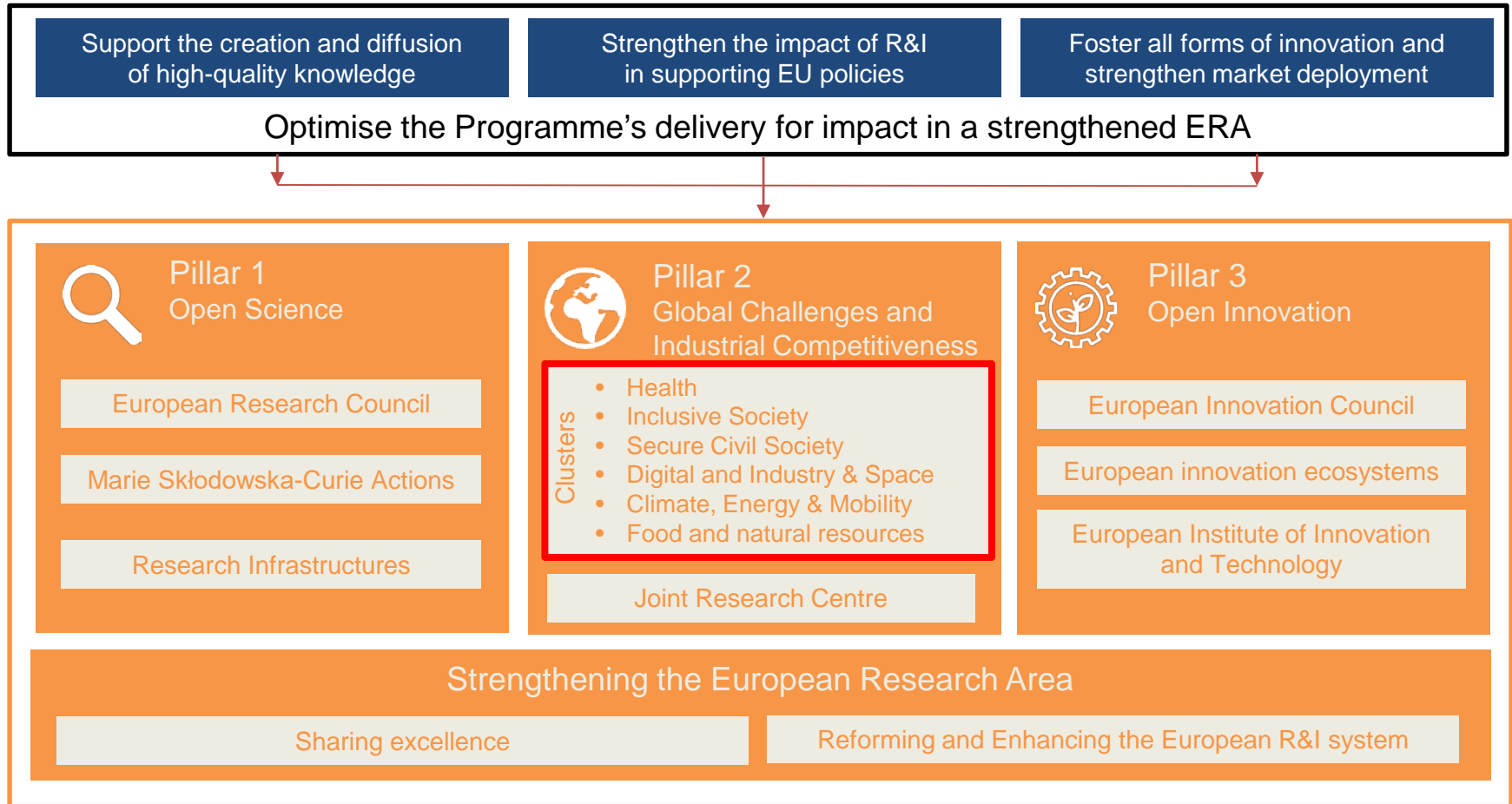


# To highlight...

- **InvestEU** provides an EU guarantee mobilise public and private financing in the form of loans, guarantees, equity or other market-based instruments, to strategic investments in the support of Research and Development through a dedicated investment window. With a contribution from the EU budget of €15.2 billion, InvestEU will mobilise more than **€650 billion** of additional investment across Europe.
- **EU Cohesion Policy** plays an important part of the EU funds for Research & Innovation through an increased focus on innovation and Smart Specialisation strategies. The “Seal of Excellence” allows projects successfully evaluated under Horizon Europe to be funded at regional level under the European Structural and Investment Funds.
- The new **European Defence Fund** with an overall budget of **€13 billion**, will boost Europe’s ability to protect and defend its citizens. It will offer EU funded grants for collaborative projects which address emerging and future defence and security threats and bridge technological gaps.
- **ITER, the International Thermonuclear Experimental Reactor**, is a first-of-a-kind, long-term project to build and operate a reactor to test the feasibility of fusion as an energy source. **€6 billion** will be allocated to it.
- The **Euratom** Research and Training Programme funds research and training on the safety of nuclear energy production.
- The new **Digital Europe Programme**, with **€9.2 billion** aims to bring the benefits of the digital transformation to all European citizens and businesses. The programme will boost frontline investments in high-performance computing and data, artificial intelligence, cybersecurity and advanced digital skills. It will promote large-scale deployment of digital technologies across economic sectors and it will support the digital transformation of public services and businesses.

# Horizon Europe: evolution not revolution...

## Specific objectives of the Programme





## Pillar 1

# OPEN SCIENCE:

reinforcing and extending the excellence of the Union's science base

## European Research Council

- Frontier research by the best researchers and their teams

€ 16.6 billion

## Marie Skłodowska-Curie Actions

- Equipping researches with new knowledge and skills through mobility and training

€ 6.8 billion

## Research Infrastructures

- Integrated and inter-connected world-class research infrastructures

€ 2.4 billion

## Pillar 2

# Global Challenges & Industrial Competitiveness:

boosting key technologies and solutions underpinning  
EU policies & Sustainable Development Goals

Clusters implemented through usual calls, missions & partnerships	Budget (€ billion)
Health	€ 7.7
Inclusive Societies	} € 2.8
Secure Societies	
Digital and Industry	€ 15
Climate, Energy and Mobility	€ 15
Food and Natural Resources	€ 10
<b>Joint Research Centre</b> supports European policies with independent scientific evidence & technical support throughout the policy cycle	€ 2.2

# Clusters in 'Global Challenges and Industrial Competitiveness'

Clusters	Areas of intervention	
Health	<ul style="list-style-type: none"> <li>* Health throughout the life course</li> <li>* Non-communicable and rare diseases</li> <li>* Tools, technologies and digital solutions for health and care</li> </ul>	<ul style="list-style-type: none"> <li>* Environmental and social health determinants</li> <li>* Infectious diseases</li> <li>* Health care systems</li> </ul>
Inclusive Societies	<ul style="list-style-type: none"> <li>* Democracy</li> <li>* Social and economic transformations</li> </ul>	<ul style="list-style-type: none"> <li>* Cultural heritage</li> </ul>
Secure Societies	<ul style="list-style-type: none"> <li>* Disaster-resilient societies</li> <li>* Protection and Security</li> </ul>	<ul style="list-style-type: none"> <li>* Cybersecurity</li> </ul>
Digital and Industry	<ul style="list-style-type: none"> <li>* Manufacturing technologies</li> <li>* Advanced materials</li> <li>* Next generation internet</li> <li>* Circular industries</li> <li>* Space</li> </ul>	<ul style="list-style-type: none"> <li>* Key digital technologies</li> <li>* Artificial intelligence and robotics</li> <li>* Advanced computing and Big Data</li> <li>* Low carbon and clean industry</li> </ul>
Climate, Energy and Mobility	<ul style="list-style-type: none"> <li>* Climate science and solutions</li> <li>* Energy systems and grids</li> <li>* Communities and cities</li> <li>* Industrial competitiveness in transport</li> <li>* Smart mobility</li> </ul>	<ul style="list-style-type: none"> <li>* Energy supply</li> <li>* Buildings and industrial facilities in energy transition</li> <li>* Clean transport and mobility</li> <li>* Energy storage</li> </ul>
Food and Natural Resources	<ul style="list-style-type: none"> <li>* Environmental observation</li> <li>* Agriculture, forestry and rural areas</li> <li>* Food systems</li> <li>* Circular systems</li> </ul>	<ul style="list-style-type: none"> <li>* Biodiversity and natural capital</li> <li>* Sea and oceans</li> <li>* Bio-based innovation systems</li> </ul>

## OPEN INNOVATION:

stimulating market-creating breakthroughs and ecosystems conducive to innovation

### European Innovation Council

- Support to innovations with breakthrough and market creating potential

€ 10.5 billion, incl. up to € 500 million for ecosystems

### European innovation ecosystems

- Connecting with regional and national innovation actors

### European Institute of Innovation and Technology (EIT)

- Bringing key actors (research, education and business) together around a common goal for nurturing innovation

€ 3 billion

# Strengthening the European Research Area: optimising strengths & potential for a more innovative Europe

## Sharing Excellence

- Teaming  
(institution building)
- Twinning  
(institutional networking)
- ERA Chairs
- COST

€ 1.7 billion

## Reforming and enhancing the European R&I system

- Scientific evidence & foresight
- Open Science
- Policy Support Facility
- Attractive researcher careers
- Citizen science
- Responsible Research & Innovation; gender equality

€ 0.4 billion

Budget doubled



What's new?



# Evolution of the EIC...

Support to innovations with breakthrough and disruptive nature and scale up potential that are too risky for private investors.

European  
Innovation Council

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)

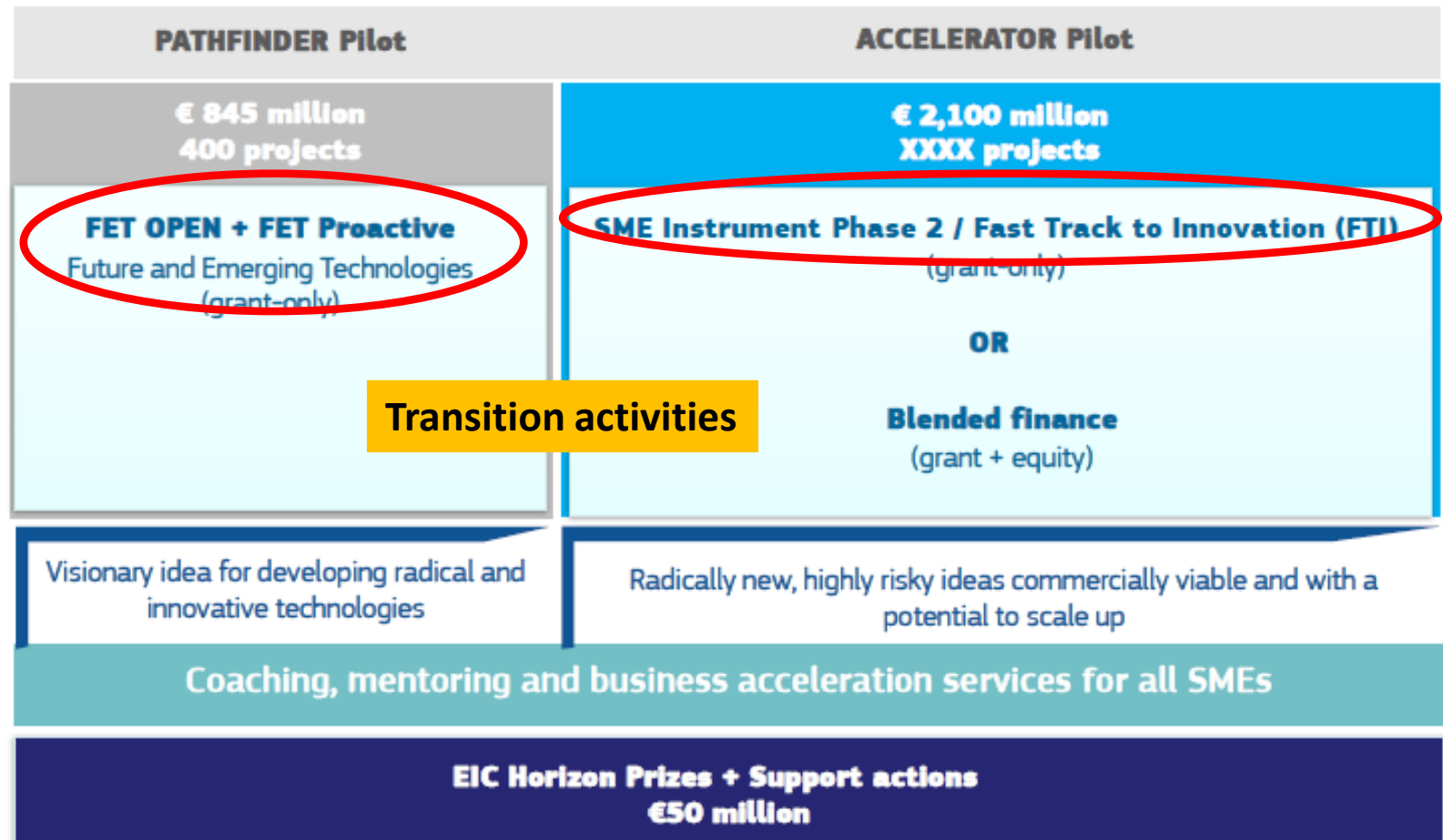
**Accelerator:**  
grants & blended finance  
(from pre-commercial  
to market & scale-up)

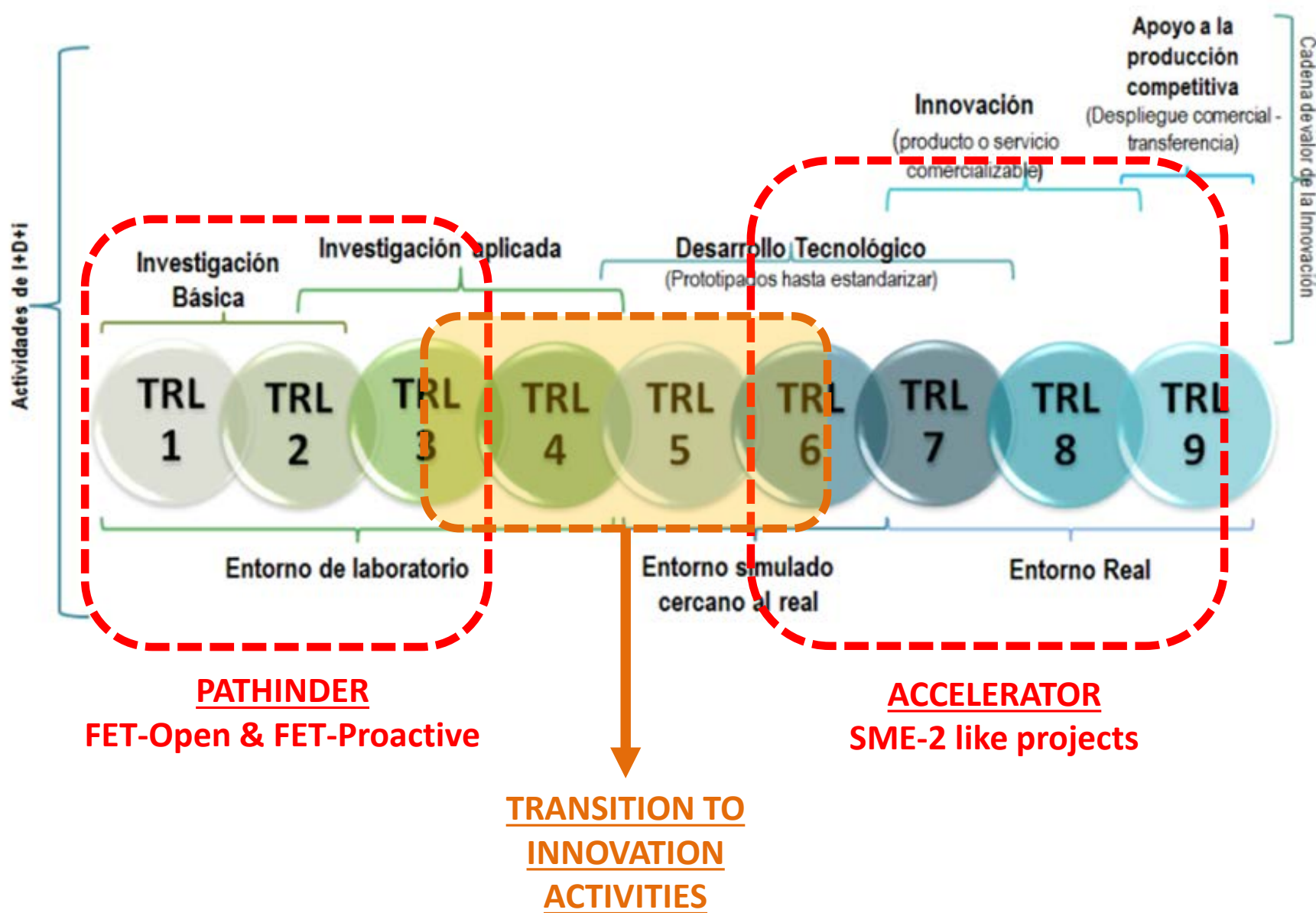
**Empresas y emprendedores que quieran desarrollar rápido un producto para el mercado!**



# Evolution of the EIC...

**€3 billion-pilot package to support bottom-up ideas**

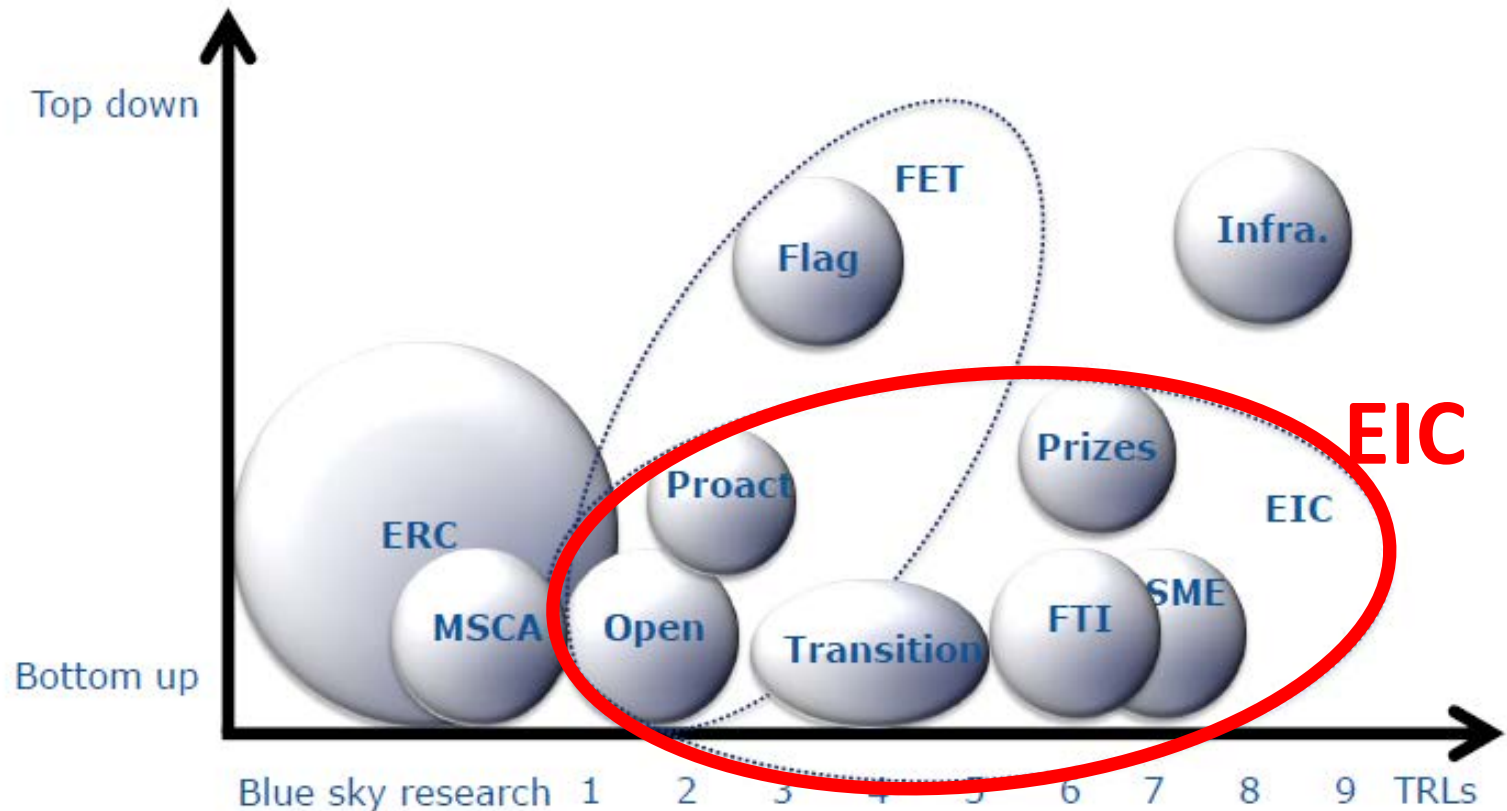






# Evolution of the EIC...

## EIC covering the whole innovation chain







# Evolution of the EIC...

## The European Innovation Council

**One stop shop** for breakthrough & disruptive innovators

**Open** to all innovators, in any field, at any time

**Highest potential** innovators selected on basis of ideas and team

**Agile funding** from idea to investment

**Pathfinder grants** for advanced research on emerging technologies

**Accelerator funding** for innovative start-ups (<€2.5 million grant, <€15 million equity)

**Crowding in private investment** (VC, Invest EU)

**Building ecosystems** and communities

**Access** to mentoring and advisory services and to knowledge partners (e.g EIT)

**Expert Programme Managers** to engage with projects and communities

**Prizes** for breakthrough technologies



**EN RENOVACIÓN...**

# Evolution of the EIC...

**Designed together with leading innovators**  
*Accelerating breakthrough innovation report, January 2018*



Nicklas Bergman



Martin Bruncko



Paddy Cosgrave



Gráinne Dwyer



Hermann Hauser



Marjolein Helder



Taavet Hinrikus



Ingmar Hoerr



Bindi Karia



Jana Kolar



Carlos Oliveira



Jim Hagemann Snabe



Kinga Stanislawska



Constantijn  
van Oranje



Roxanne Varza



**EN RENOVACIÓN...**

# Evolution of the EIC...

## Calling Europe's top innovation experts

The call for expressions of interest for members of the Enhanced EIC pilot advisory board opens today. These high-level experts will assist the European Commission in the implementation of the programme, and shape EU support for innovation within Horizon Europe.

The advisory board will consist of 15 to 20 high-level experts, from various domains of Europe's innovation ecosystem, who will be appointed in a personal capacity, acting independently and in the public interest.

Applications are open as of 18 March 2019. The deadline for application is 10 May.

[More details on how to apply.](#)

[https://ec.europa.eu/info/news/calling-europes-top-innovation-experts-2019-mar-18\\_en](https://ec.europa.eu/info/news/calling-europes-top-innovation-experts-2019-mar-18_en)



# Evolution of the EIC...

"Innovative Enterprise Week Bucharest 2019"  
19, 20 & 21 June 2019 Bucharest, Romania

This high level event will focus on three overarching topics for the next EU Research and Innovation Programme (2021-2027) – Horizon Europe:

- Pathfinder
- Accelerator
- Financial Instruments

Day one (19 June 2019) is dedicated to the EIC Pathfinder: "From breakthrough technologies to disruptive innovations: Imagine the technologies of the future"

Targeted audience: Policy- and decision-makers, scientists, researchers, innovators, early stage investors and opinion-shaping actors are welcome to join this high-level conference.



[www.innoenterprisebucharest2019.eu](http://www.innoenterprisebucharest2019.eu)





# R&I Missions

## R&I Missions

**Connecting to citizens:** Missions will relate EU's research and innovation to society and citizens' needs, with strong visibility and impact

A mission will consist of a portfolio of actions intended to achieve **a bold and inspirational as well as measurable goal** within a set timeframe, with impact for science and technology, society and citizens that goes beyond individual actions.

Horizon Europe proposal defines mission characteristics and criteria

Specific missions will be **co-designed with Member States, stakeholders and citizens** and programmed within the Global Challenges and Industrial Competitiveness pillar (drawing on inputs from other pillars)



Prof. Mariana Mazzucato presented her report on “Mission”s on 22-Feb-2018.

The report describes key criteria to select missions and important factors for implementation.

<https://publications.europa.eu/s/fDzP>



# Why “missions” in Horizon Europe...

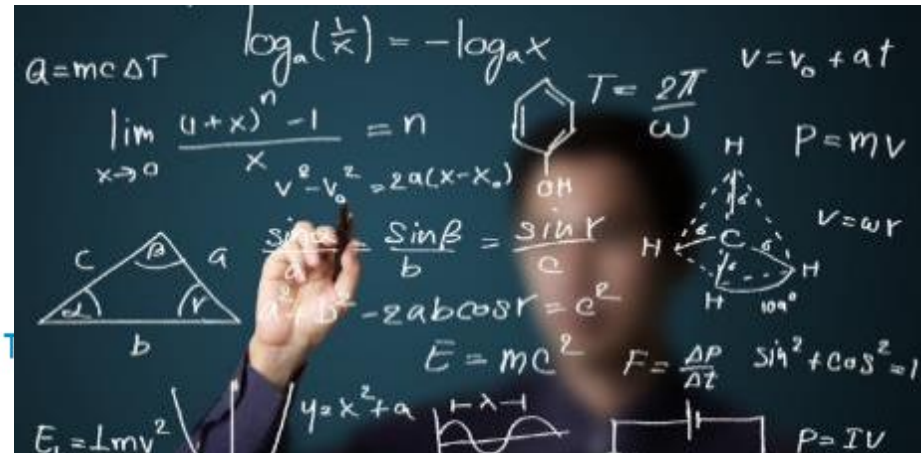
- ❑ Need of concentrate Innovation and economic growth towards clear and indentifiable targets and *directions*.
- ❑ Solving complex societal challenges through openness, collaboration & competitiveness, using dynamic co-investment along the entire innovation chain.
- ❑ Change begins at home → New way of connecting research, science and innovation funded under H2020. → in “Horizon Europe” there will be a link among missions and the European Research Council and European Innovation Council.

I.e, The Apollo 'Man on the Moon'  
mission



## Boundary conditions for “missions” in Horizon Europe...

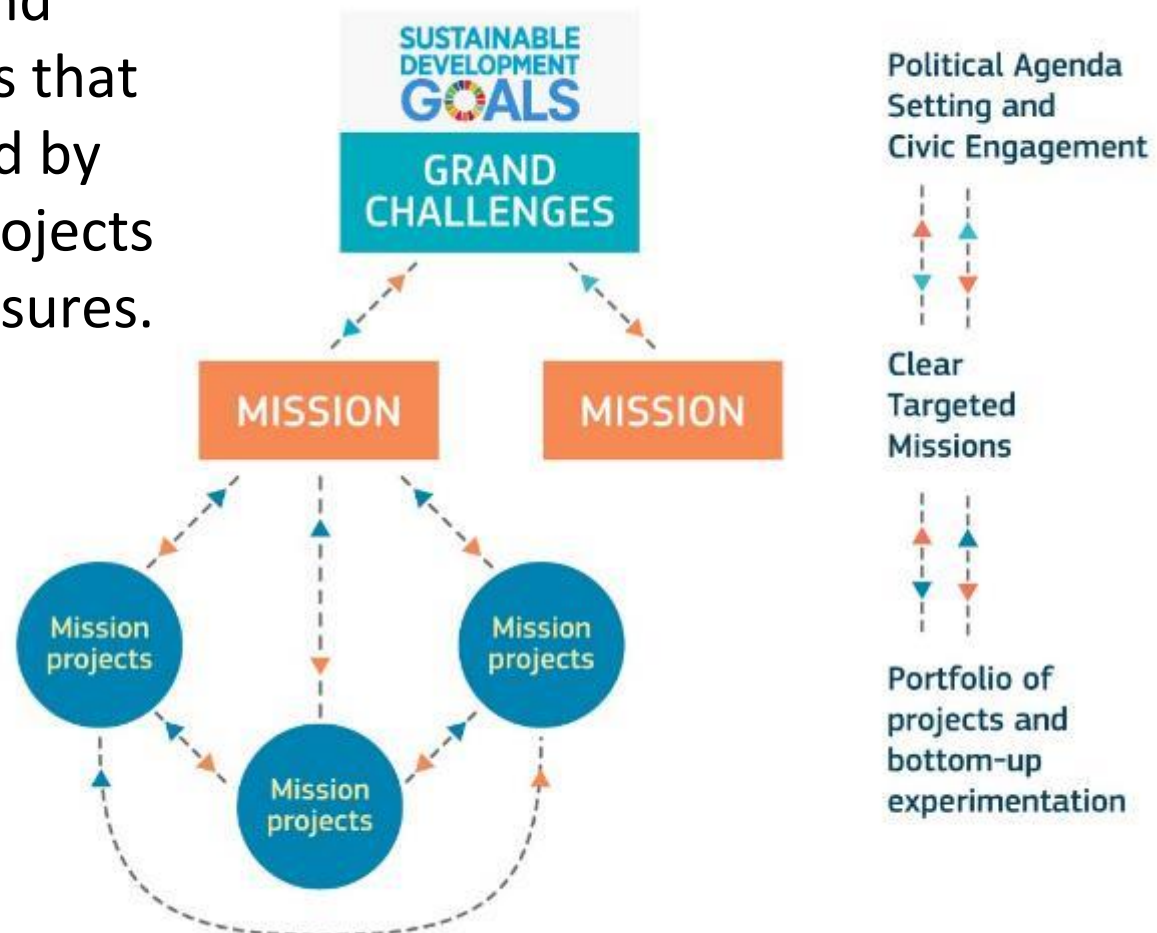
- ❑ **Societal Relevance** → EU added value - Improve society's welfare.
- ❑ No 'One Size Fits All' → **Flexibility** is needed in how a mission is defined.
- ❑ **Granularity** → Between the mission, a project and a “Global challenge”.
- ❑ Fostering **Experimentation** → Mission success depends on bottom-up processes that nurture innovation.
- ❑ New conversations between **fundamental and applied research**.



## Boundary conditions for “missions” in Horizon Europe...

About the “granularity”... → The 'granularity' of European research and innovation missions sits between broad challenges and concrete projects.

Missions set clear and ambitious objectives that can only be achieved by a portfolio of R&I projects and supportive measures.



# Examples of potential “mission” in Horizon Europe...

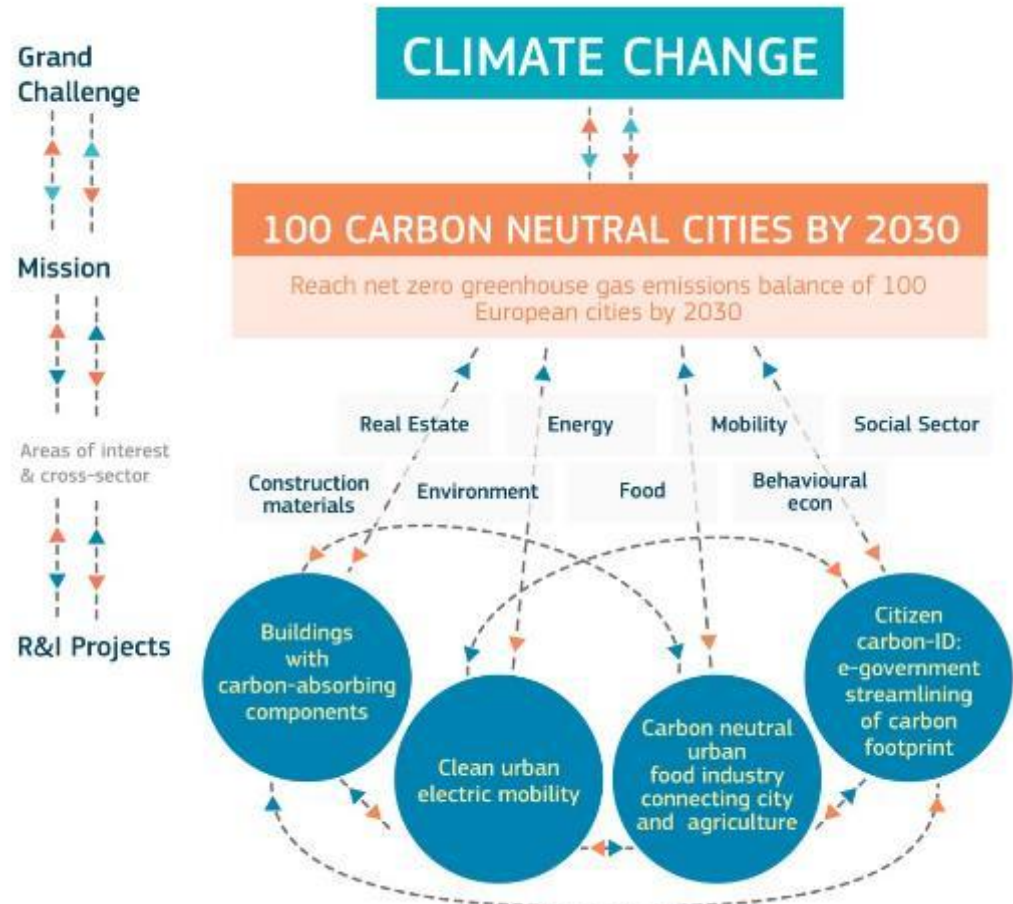
## 100 Carbon Neutral Cities by 2030

- ❑ Impact 40% of European citizens
- ❑ 100 cities by 2030
- ❑ R&I in Construction materials – mobility – citizen carbon-ID
- ❑ Urban planning-energy efficiency – mobility-behavioural economics
- ❑ Simultaneous Projects running to achieve the goals!



@EsHorizonte2020

CDTI Centro para el

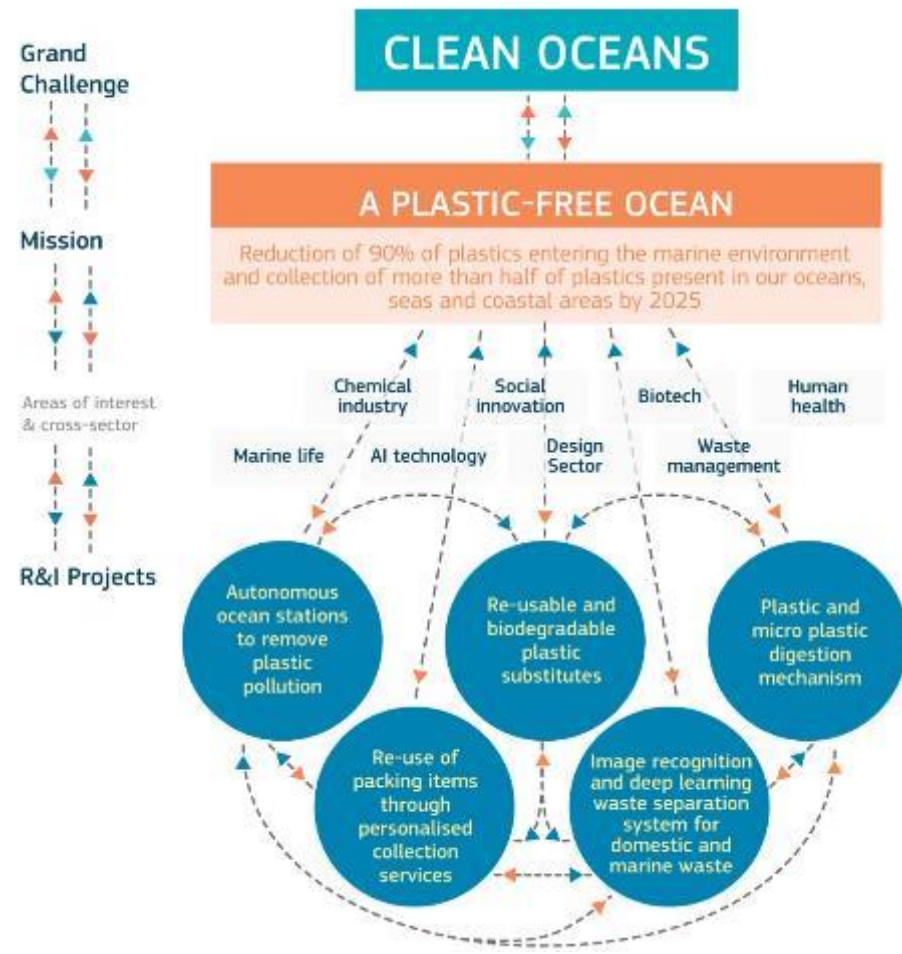




# Examples of potential “mission” in Horizon Europe...

## A Plastic-free Ocean

- ❑ Solve 25 mil tons of European plastic waste
  - ❑ Stop 7.2 mil tons and collect 2 mil tons of plastic by 2025
  - ❑ R&I in plastic chemistry-packaging – collection stations
  - ❑ Chemical – biotech – marine life – waste
  - ❑ Simultaneous
- Projects running to achieve the goals!





## Areas for Missions starting in 2021...

**Area 1:** Adaptation to Climate Change, including Societal Transformation Mission

**Area 2:** Cancer Mission

**Area 3:** Healthy Oceans, Seas, Coastal and Inland Waters Mission

**Area 4:** Climate-Neutral and Smart Cities Mission

**Area 5:** Soil Health and Food

**A partir de finales Jun-2019** se empiezan a definir mejor las misiones, sus contenidos y gobernanza...





# 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 by partners; commitment of partners for financial and in-kind contributions & financial contribution by Horizon Europe

### 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



## Areas for EU Partnerships onwards 2021...

**Partnership Area 1:** Faster development and safer use of health innovations for European patients, and global health.

**Partnership Area 2:** Advancing key digital and enabling technologies and their use, including but not limited to novel technologies such as Artificial Intelligence, photonics and quantum technologies.

**Partnership Area 3:** European leadership in Metrology including an integrated Metrology system.

**Partnership Area 4:** Accelerate competitiveness, safety and environmental performance of EU air traffic, aviation and rail.

**Partnership Area 5:** Sustainable, inclusive and circular bio-based solutions.

**Partnership Area 6:** Hydrogen and sustainable energy storage technologies with lower environmental footprint and less energy-intensive production.

**Partnership Area 7:** Clean, connected, cooperative, autonomous and automated solutions for future mobility demands of people and goods.

**Partnership Area 8:** Innovative and R&D intensive small and medium-sized enterprises.



# Reading material...



<https://europamediatrainings.com/eu-funding-made-simple>



# Timing... expected!

**Estamos aquí...**

Q4-2018 → → Q1-2019 Q2-2019 → → Q4-2019 Q1-2020...

**Draft  
WPs-2020**

**Formal Approval & Adoption  
WPs- 2020**

**Opening calls  
WP- 2020**

**Approval of HE proposal  
by EP & Council**

**Strategic  
programming  
HE parts**

**Draft 1st  
calls HE  
(WPs drafts)**

# European Research and Innovation Days 2019

## 24, 25 and 26 September 2019, Brussels

 **Jean-Eric Paquet**   
@JEPaquetEU 

Mark your calendar for the European Research and Innovation Days 

**#RiDaysEU** will gather researchers, scientists, innovators & policymakers to shape the future of EU **#research** & **#innovation**.

 Brussels 24, 25, 26 September 2019  
[ec.europa.eu/research-innov...](https://ec.europa.eu/research-innov...)



The poster for European Research and Innovation Days 2019 features a vibrant, colorful grid of icons representing various scientific and technological fields. The text on the poster includes:

- EUROPEAN RESEARCH & INNOVATION DAYS**
- 24 → 26 SEPTEMBER 2019**
- KANAL • CENTRE POMPIDOU  
Brussels, BELGIUM
- #RiDaysEU**  
**@EUScienceInnov**

© European Union, 2019

 European Commission

**Moitas gazas...**  
**Many thanks for your attention...**

**Dr. Marina Martínez-Garcia**

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