



# Horizon Europe The EU Research & Innovation Programme 2021 - 2027

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Health and Digital Executive Agency (HaDEA)

**4<sup>th</sup> June 2021**  
“Towards Zero Pollution in the Production of  
Green Fuels and Chemicals”

**#EUGreenWeek**  
**2021 PARTNER EVENT**



# Our Vision

The EU's key funding programme for research and innovation:

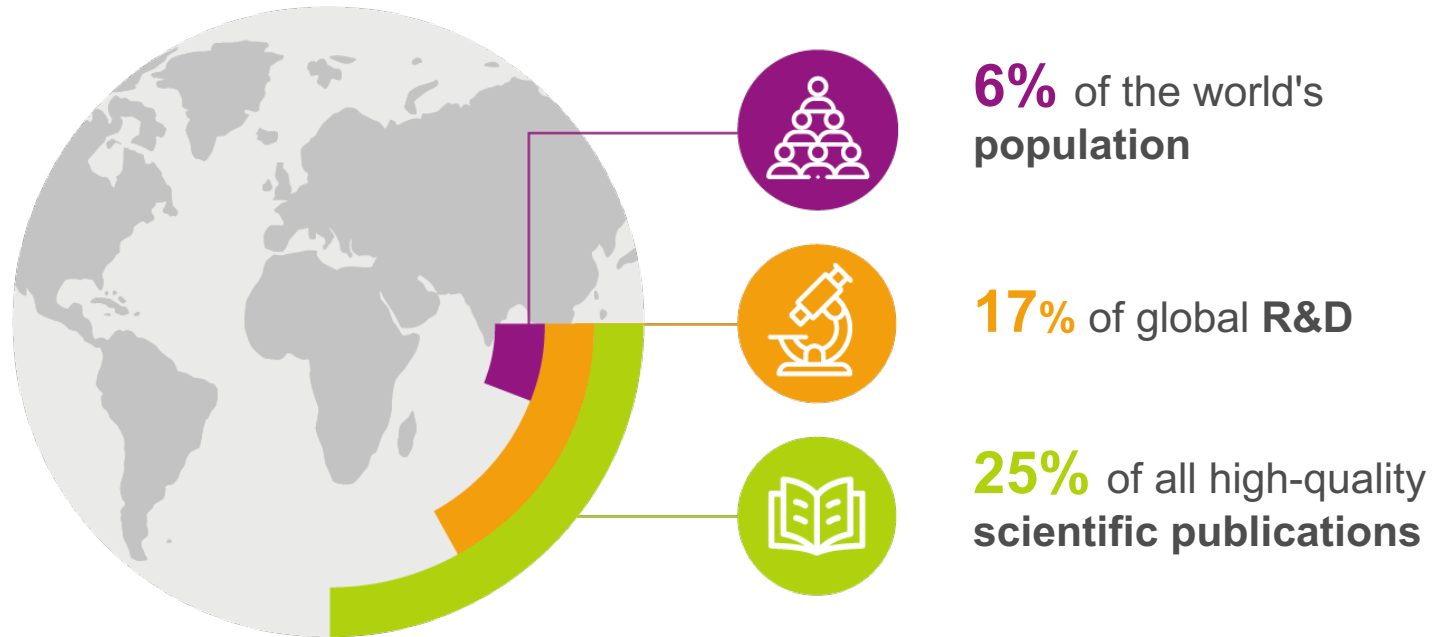
- Tackles climate change
- Helps to achieve the UN's Sustainable Development Goals
- Boosts the EU's competitiveness and growth
- Facilitates collaboration and strengthens the impact of research and innovation in developing, supporting and implementing EU policies while tackling global challenges
- Supports the creation and better diffusion of excellent knowledge and technologies
- Creates jobs, fully engages the EU's talent pool, boosts economic growth, promotes industrial competitiveness and optimises investment impact within a strengthened European Research Area.



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

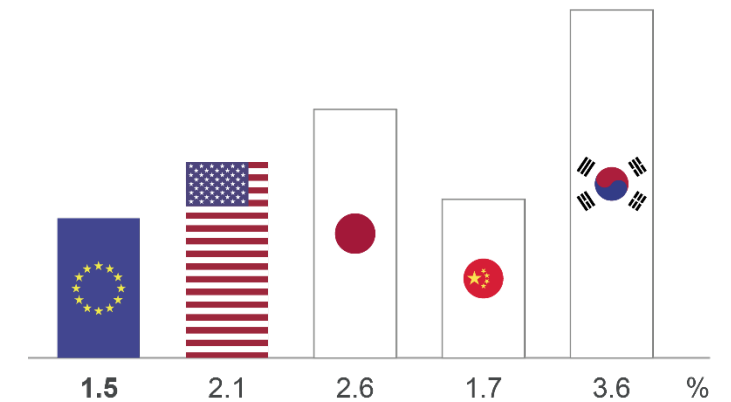
Disclaimer: The topics appearing in this presentation have not yet been officially adopted by the European Commission and can be subject to changes.

# While benefiting from world-class research and strong industries... Our knowledge and skills are our main resources



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

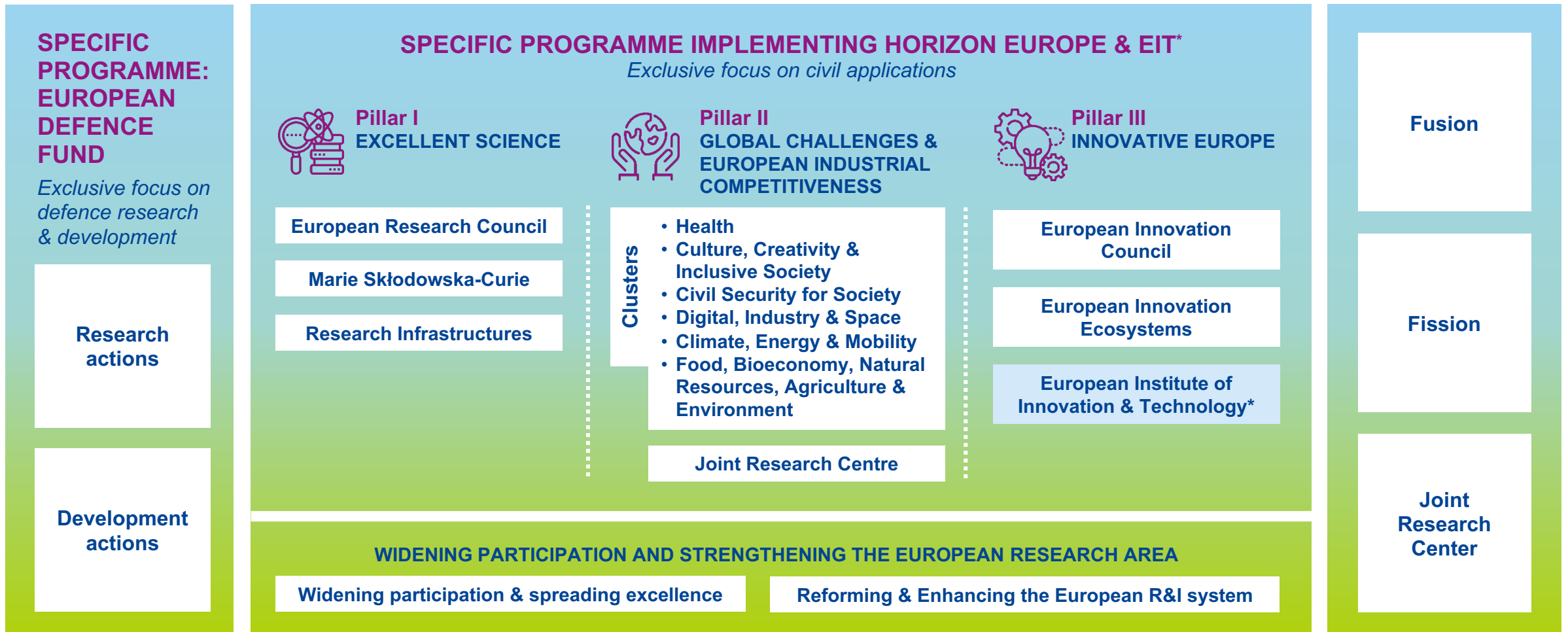
## 1.5% EU business R&D investment



*EU figure is for 2019  
Figures for USA, Japan, China and South Korea are for 2018. Figures represent R&D as % of GDP*

# HORIZON EUROPE

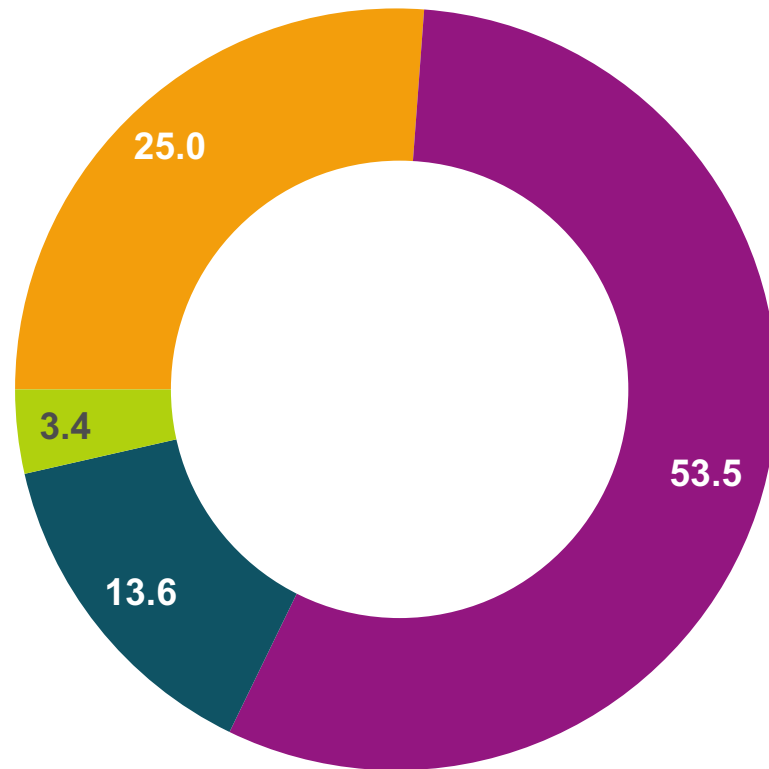
# EURATOM



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

# Horizon Europe Budget: €95.5 billion (2021-2027)

(including €5.4 billion from NGEU – Next Generation Europe – programme of EU for Recovery from COVID-19 crisis)



## Political agreement December 2020

*€ billion in current prices*

- Excellent Science
- Global challenges and European ind. comp.
- Innovative Europe
- Widening Part and ERA

## PILLAR II



# GLOBAL CHALLENGES & EUROPEAN INDUSTRIAL COMPETITIVENESS

## CLUSTERS

Cluster 1 - **Health**

Cluster 2 - **Culture, Creativity & Inclusive Society**

Cluster 3 - **Civil Security for Society**

Cluster 4 - **Digital, Industry & Space**

Cluster 5 - **Climate, Energy & Mobility**

Cluster 6 - **Food, Bioeconomy, Natural Resources, Agriculture & Environment**



Cluster 4

# DIGITAL, INDUSTRY & SPACE



**Destination – Climate neutral, circular and digitised production**

**Destination – Increased autonomy in key strategic value chains for resilient industry**

**Destination – World leading data and computing technologies**

**Destination – Digital and emerging technologies for competitiveness and fit for the green deal**

**Destination – Open strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data**

**Destination – A human-centred and ethical development of digital and industrial technologies**

# Cluster 4 - Vision

*Competitive technologies respecting the boundaries of our planet,  
and reflecting human needs*

## Green and digital 'twin' transitions

### Industrial and digital transformation

- mastering technologies
- deploying technologies and technology infrastructures
- securing autonomy in strategic value chains



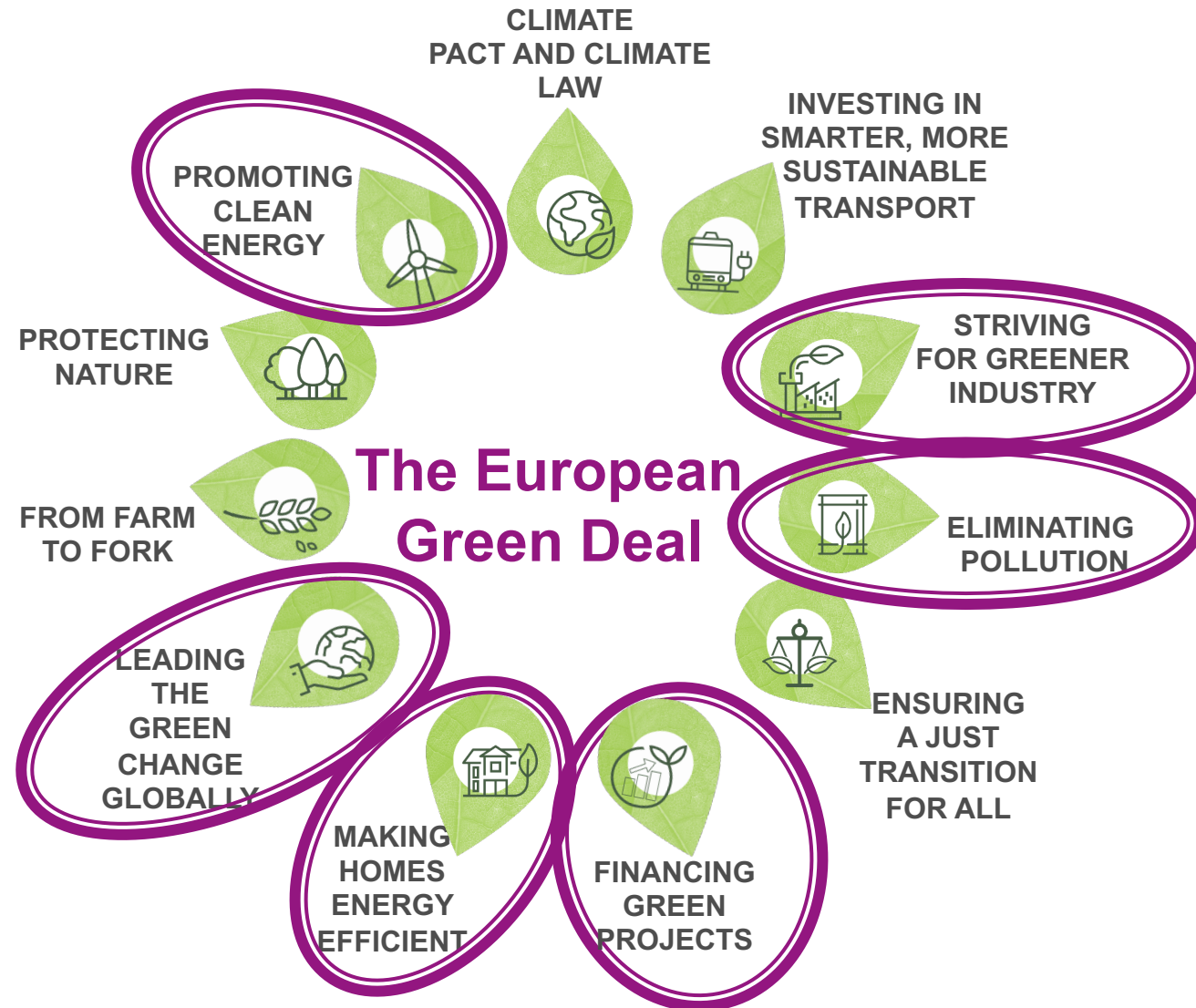
Climate-neutral, circular and clean industry

### Major contribution to inclusiveness and resilience

- human-centred and ethical developments
- engagement with users, workers, citizens
- social innovation



# Boosting resilience of EU industries and value chains



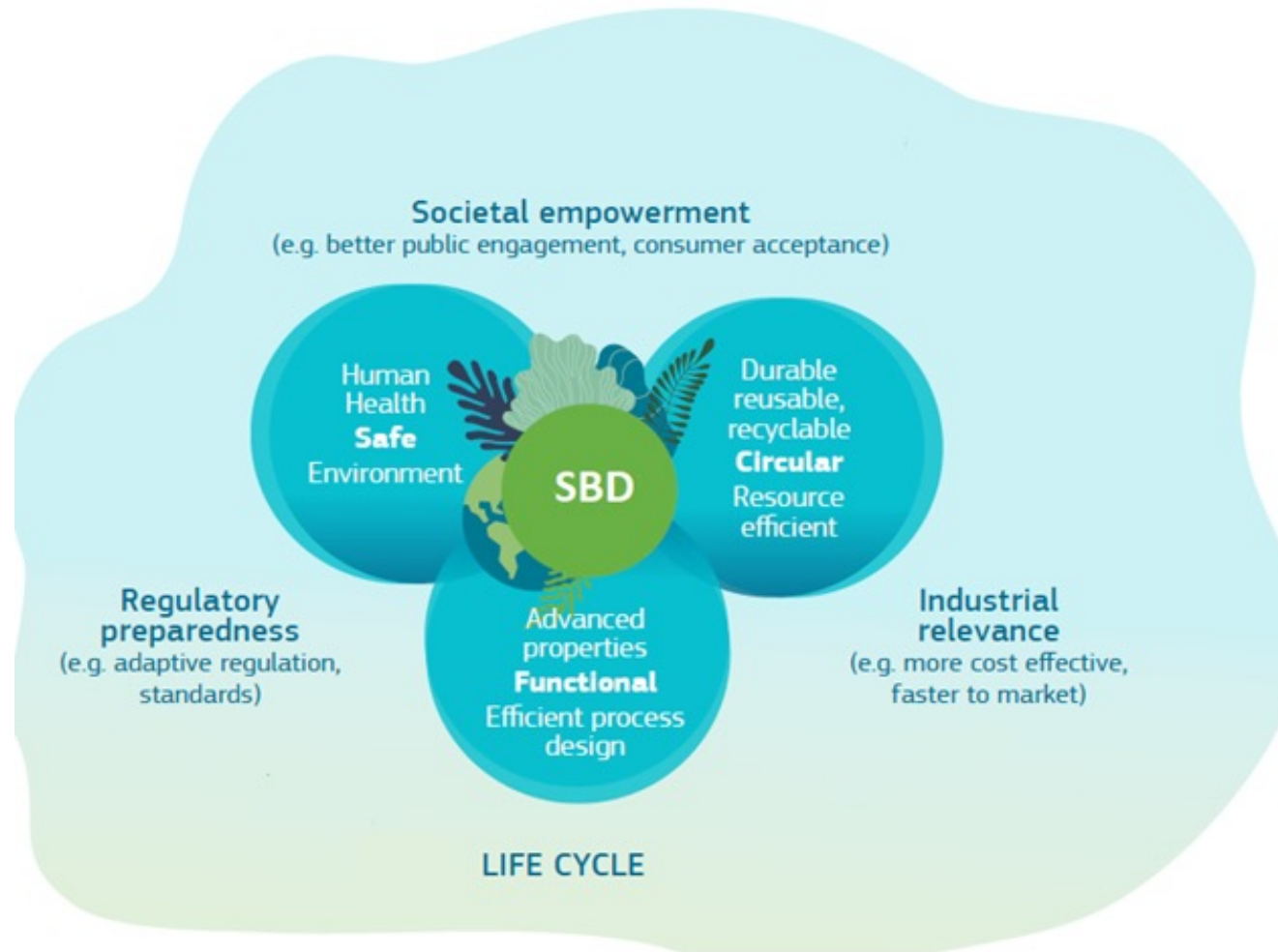
# Horizon Europe

*with focus on Safe-and-Sustainable-by-Design*

- ✓ Support to European policy goals and priorities
- ✓ Systems approach with sustainability criteria governed by societal empowerment, industrial relevance and regulatory preparedness
- ✓ Comprehensive concept of sustainability driven by safety, circularity and functionality of materials and products through their lifecycle
- ✓ Aligning actors across value chain on sustainability criteria

# The concept

An approach to the design, development and use of substances, materials and/or products that focuses on providing a function (or service), while reducing harmful impacts to human health and the environment



# Destination - Climate neutral, circular and digitised production

- Section ‘Hubs for circularity, a stepping stone towards climate neutrality and circularity in industry’
- Section ‘Enabling circularity of resources in the process industries, including waste and CO<sub>2</sub>/CO’
- Section ‘Integration of renewables and electrification in process industry’

Topics	Type of Action	Budget (EUR million)	Expected EU contribution per projects (EUR million)	Number of projects expected to be funded	TRL (from – to)
HORIZON-CL4-2021-TWIN-TRANSITION-01-14 Deploying industrial-urban symbiosis solutions for the utilization of energy, water, industrial waste and by-products at regional scale	RIA	28.00	8.00 to 12.00	3	4 - 7
HORIZON-CL4-2021-TWIN-TRANSITION-01-22 Adjustment of Steel process production to prepare for the transition towards climate neutrality	IA	14.00	4.00 to 5.00	3	6 - 8
HORIZON-CL4-2022-TWIN-TRANSITION-01-11 Valorisation of CO/CO <sub>2</sub> streams into added-value products of market interest	IA	42.50	12.00 to 18.00	3	5 - 7
HORIZON-CL4-2022-TWIN-TRANSITION-01-15: New electrochemical conversion routes for the production of chemicals and materials in process industries	RIA	30.00	8.00 to 12.00	3	3-4 - 5-6

# Destination - Increased autonomy in key strategic value chains for resilient industry

- Section ‘Green and sustainable materials’
- Section ‘Materials for the benefit of society and the environment and materials for climate-neutral Industry’

Topics	Type of Action	Budget (EUR million)	Expected EU contribution per projects (EUR million)	Number of projects expected to be funded	TRL (from - to)
HORIZON-CL4-2021-RESILIENCE-01-11 Safe- and sustainable-by-design polymeric materials	RIA	19.00	4.00 to 5.00	5	5 - 7
HORIZON-CL4-2021-RESILIENCE-01-14 Development of more energy efficient electrically heated catalytic reactors	IA	33.00	7.00 to 10.00	8	4-5 - 6
HORIZON-CL4-2021-RESILIENCE-01-16 Creation of an innovation community for solar fuels and chemicals	CSA	4.00	3.00 to 4.00	1	-
HORIZON-CL4-2021-RESILIENCE-01-17 Advanced materials for hydrogen storage	RIA	21.00	4.00 to 6.00	4	3 - 5
HORIZON-CL4-2022-RESILIENCE-01-14 Membranes for gas separations - membrane distillation	IA	21.00	6.00 to 8.00	6	4 - 7

# Follow us and keep up to date via:

**Horizon Europe website:** <http://ec.europa.eu/horizon-europe>

**Horizon Magazine:** @HorizonMagEU

**DG Research and Innovation:** @EUScienceInnov @EU\_H2020 <https://www.facebook.com/EUScienceInnov/>

**European Innovation Council:** <http://ec.europa.eu/research/eic>

**European Research Council:** <https://erc.europa.eu/>

**Health and Digital Executive Agency (HaDEA):** <https://myintracomm.ec.europa.eu/dg/hadea/Pages/default.aspx>





# Thank you!

## #HorizonEU

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



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