



# EUROPE

Dual use in Horizon Europe



LUXINNOVATION

#MakingInnovationHappen

# Agenda

- 1 Guidelines for Dual Use Technologies in Horizon Europe
- 2 Horizon Europe: R&D for a more innovative and competitive, sustainable and just Europe
- 3 Relevant Horizon Europe Partnerships & priorities

# A new push for synergies

## Between civil security and defence R&I

- A New Industrial Strategy for Europe (COM(2020)102)
- Action Plan on Synergies between civil, defence and space industries (COM(2021)70)
  - Enhancing complementarities between EU programmes and instruments: **synergies**
  - Promoting that EU R&D (including defence and space) has economic and technological impact for EU citizens: **spin-offs**
  - Facilitating the use of civil industry research results and civil-driven innovation in European defence cooperation projects: **spin-ins**

# Dual use in Horizon Europe

## How to determine eligibility?

- **Bottom line:** Only R&I activities focusing on civil applications are eligible for funding under Horizon Europe (HE).
- Any research intended to be used for a **defence/military application** or aiming to serve defence/military purposes cannot be funded under HE.
- Projects involving the defence industry or military organisations can be funded under HE in case their research activities are exclusively focused on civil applications.
- R&I activities focusing on developing or improving “dual use goods or technologies” may still qualify for funding if the goods or technologies are intended for civilian applications.

# Dual use in Horizon Europe

## Example

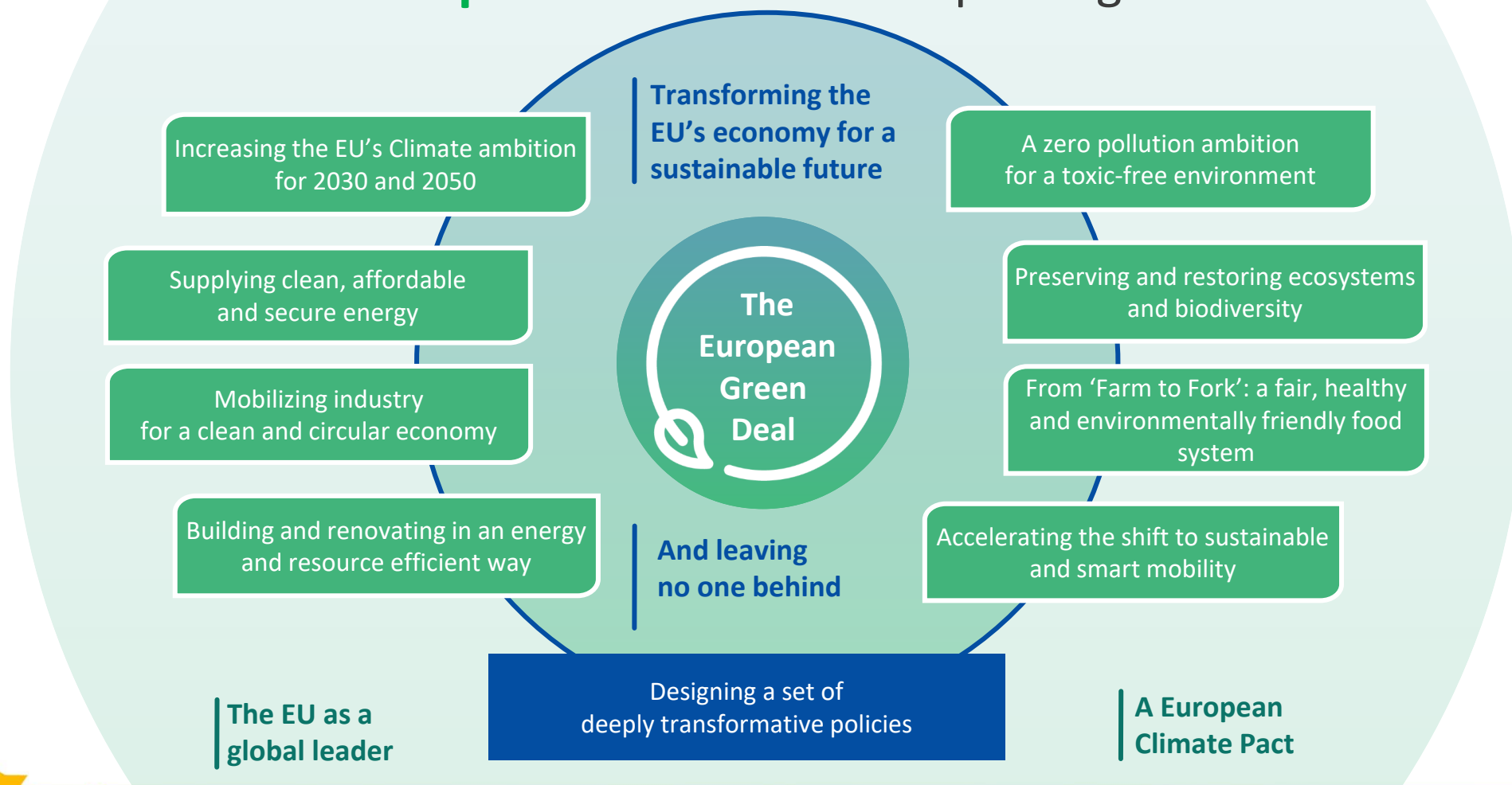
A spin off (e.g. RISARX <https://www.risarx.com/>) that participates in a project focusing on developing virtual AR glasses to identify invisible hazards (dual use technology) for safe rescue of civilians (civilian application). ✓

# Dual use in Horizon Europe

## How to address this in a HE proposal?

- Confirm that the research activities proposed have an exclusive focus on civil applications.
- In case the proposed research activities involve dual-use items, confirm that you will comply with the related legal obligations (e.g. export/import licences etc.) prior to use, import/export of these items.

# The **European Green Deal** - a paradigm shift





# Green Deal: a paradigm shift

From Jobs & Growth agenda to Climate agenda

- **Main aim:** To become the first climate-neutral continent by 2050
- **Principle:** Economic growth decoupled from resource use
- **Intermediate plan:** Reducing net greenhouse gas emissions by at least 55% by 2030 (compared to 1990 level)



# Green Deal: a paradigm shift

Core elements leveraged by dedicated policies & funding instruments

## Climate action

European Climate Law

## Clean energy

Clean Energy Policy  
EU Hydrogen Strategy  
Renewable Energy Directive  
REPowerEU

## Sustainable industry

Circular Economy Action Plan  
EU Industrial Strategy  
Green Deal Industrial Plan

## Buildings & renovations

Renovation Wave Strategy  
Construction Products Reg

## Sustainable mobility

Strategy for Sustainable and  
Smart Mobility  
Strategic Action Plan on  
Batteries

## Eliminating pollution

Zero Pollution Action Plan

## Farm to fork

Farm to Fork Strategy  
Strategy to reduce methane  
emissions

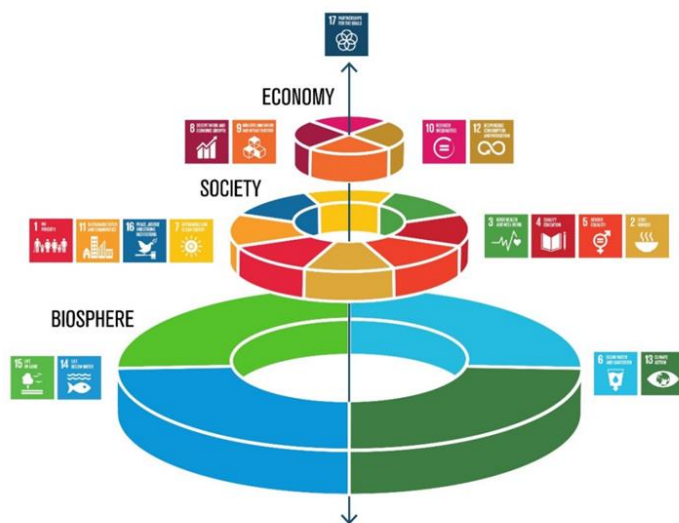
## Preserving biodiversity

EU Biodiversity Strategy  
Renewed Sustainable Finance  
Strategy

# Horizon Europe

EU R&I funding programme 2021-2027: €95.5 B€ for 7 years, of which 35% for funding climate change related projects

International impact



European **twin transition**



+ Just transition/ leave no one behind concept

# Horizon Europe

## General budget allocation



# Horizon Europe Partnerships

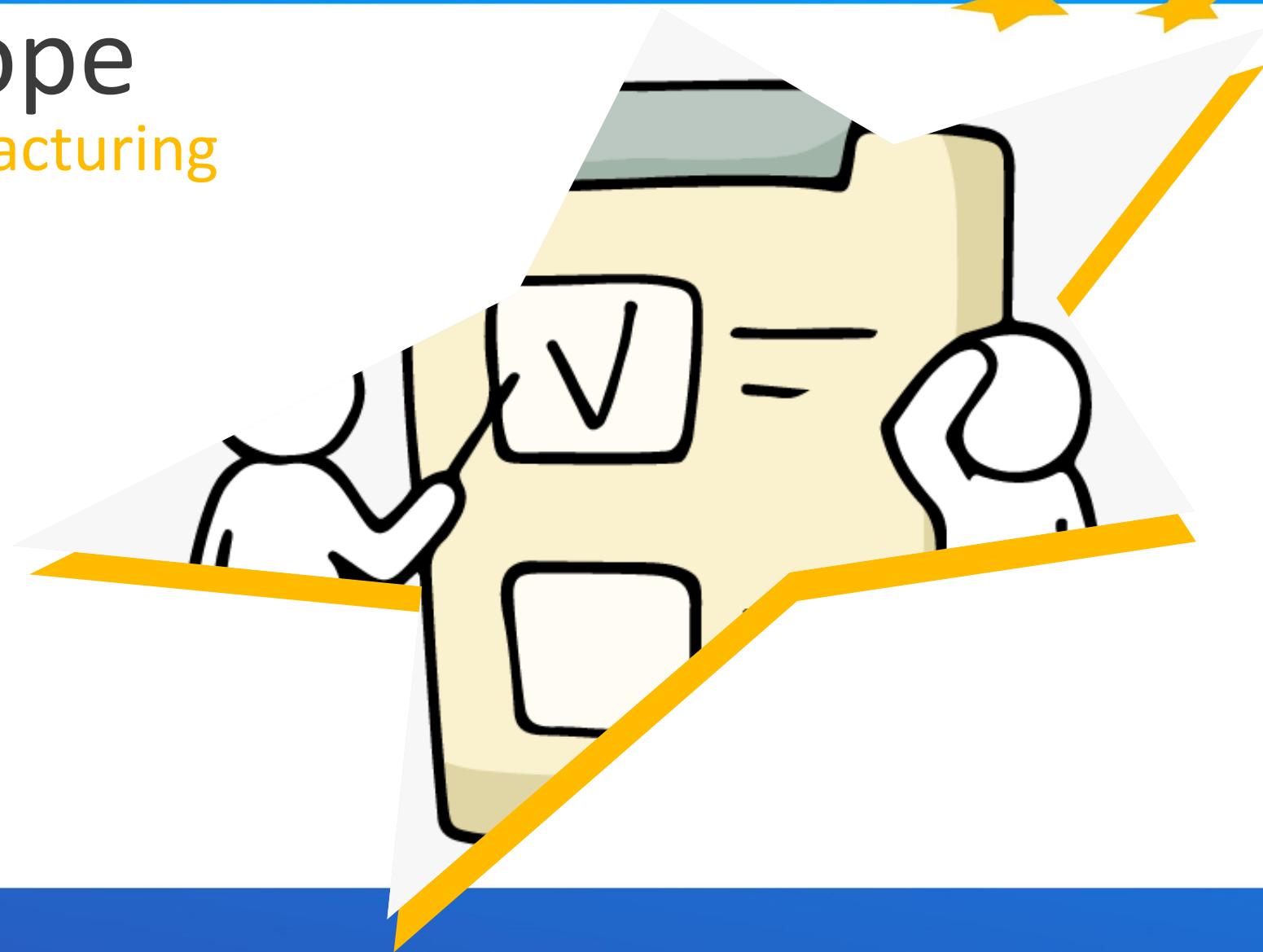
European Partnerships with EU and associated countries, the private sector, foundations and other stakeholders play an essential role in:

- Defining R&D priorities in strategic areas of interest to the EU
- Delivering on global challenges and modernise industry.

Understanding the landscape of partnerships allows organisations a **better positioning**, potentially leading to **increase their participation to EU R&I public funded projects** that will help develop future innovative products and services in key sectors

# Horizon Europe

## Materials and manufacturing



# Horizon Europe

## Examples of CL4 relevant partnerships

Made in Europe

Processes 4 Planet

Key Digital  
Technologies



# Industry relevant partnerships

## Made in Europe Partnership

- **What is:** Horizon Europe co-programmed public-private partnership running from 2021 to 2027 with a budget of €1.8 billion in total
- **Aim:** to reinforce the global position Europe's manufacturing industry in terms of competitiveness, productivity and technology leadership
- **What it does:** Brings together public and private stakeholders in a jointly shaping the strategic research and innovation agenda, and indicating funding allocation preferences
- **How is it implemented:** Via Horizon Europe Cluster 4 Work Programme





# Industry relevant partnerships

## Processes 4 Planet



- **What is:** Horizon Europe co-programmed public-private partnership running from 2021 to 2027 with a budget of €2.6 billion in total
- **Aim:** to make European energy intensive process industries circular and climate neutral by 2050 and enhance their global competitiveness, in alignment with the EU Green Deal goals
- **Sectors:** cement, steel, ceramics, chemicals, engineering, minerals and ores, non-ferrous metals, water, refineries, and pulp or paper
- **What it does:** Brings together public and private stakeholders in a jointly shaping the strategic research and innovation agenda, and indicating funding allocation preferences
- **How is it implemented:** Via Horizon Europe Cluster 4 Work Programme

# Industry relevant partnerships

## Key Digital Technologies (KDT)

- **What is:** Horizon Europe institutionalised public-private partnership running from 2021 to 2027 with a total budget of around €6 billion (to be upward revised upon Chips Act adoption)
- **Aim:** to fund research, development and innovation in Electronic Components and Systems, supporting the digital transformation of all sectors of the European economy and society
- **How is it implemented:** Via dedicated annual Work Programmes



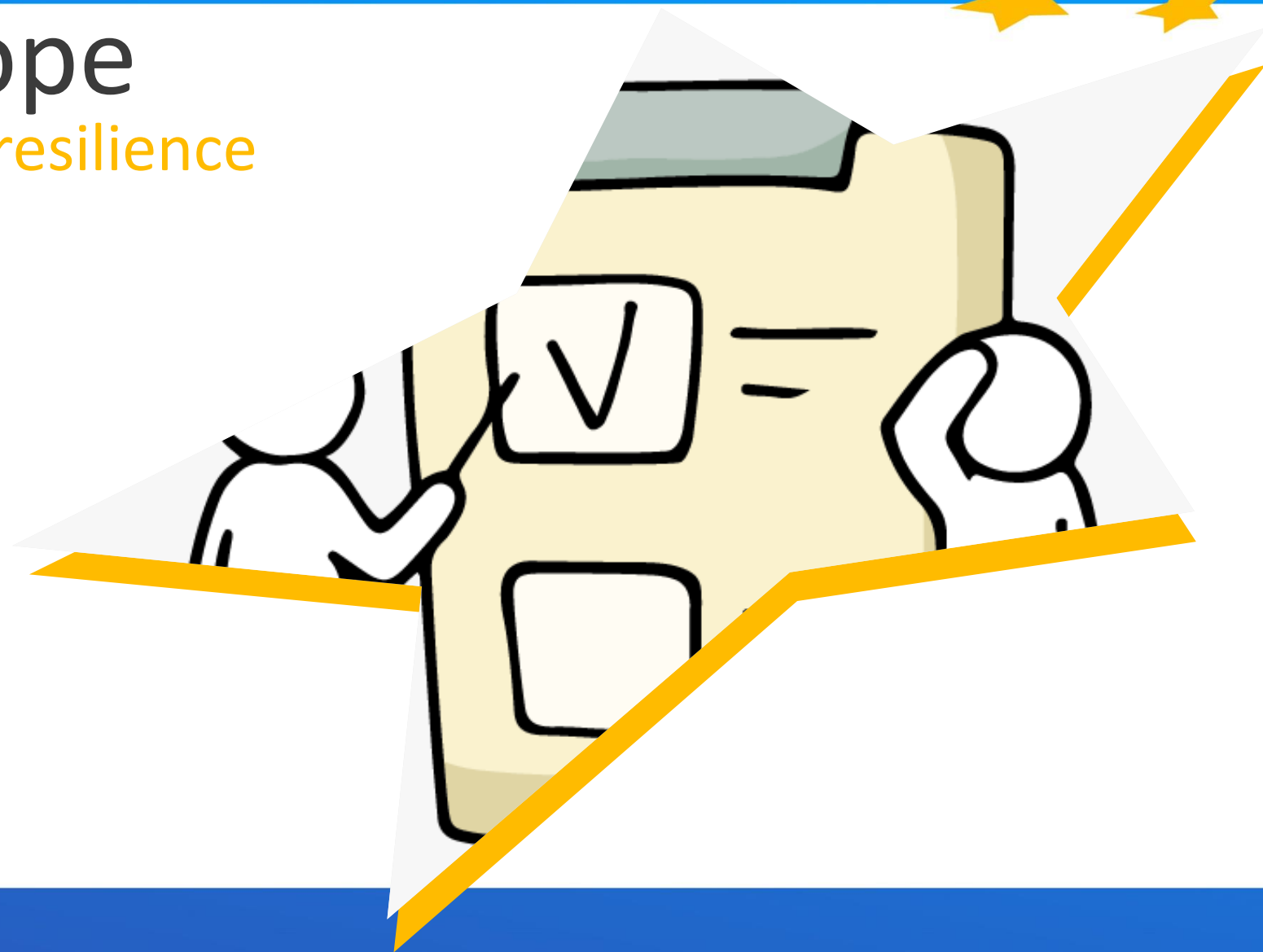
# CL4 WP 2023-2024

## Relevant topics for dual use technologies in Industry

- Construction:** HORIZON-CL4-2023-TWIN-TRANSITION-01-11: Intelligent data acquisition and analysis of materials and products in existing built works (Construction)
- Hydrogen:** HORIZON-CL4-2024-TWIN-TRANSITION-01-34: Renewable hydrogen used as feedstock in innovative production routes
- Manufacturing:** HORIZON-CL4-2024-TWIN-TRANSITION-01-01: Bio-intelligent manufacturing industries
- Engineering:** HORIZON-CL4-2024-TWIN-TRANSITION-01-12: Enhanced assessment, intervention and repair of civil engineering infrastructure
- Electronics:** HORIZON-CL4-2023-RESILIENCE-01-33: Smart sensors for the Electronic Appliances market
- Earth observation:** HORIZON-CL4-2023-RESILIENCE-01-06: Earth Observation platform, products and services for raw materials
- Lightweight materials:** HORIZON-CL4-2024-RESILIENCE-01-36: Advanced biomaterials for the Health Care

# Horizon Europe

## Security and climate resilience



# Civil security for society

## Cluster 3

■ **What:** Horizon Europe collaborative call for proposals on identified issues

■ **Aim:**

- To support the implementation of EU policy priorities on security, including cybersecurity, and disaster risk reduction and resilience
- To strengthen prevention, mitigation, preparedness and capacity building for crises (including health crises) and to improve cross-sectoral aspects of such crises

■ **How:**

- Involvement of practitioner end-users (relevant national authorities) alongside researchers and industry
- Ensuring ethical outcomes that are supported by society, through strong involvement of civil society
- Contribution to a wider needs-driven capability development cycle that triggers research, steers its implementation and capitalises on its outcomes
- Development of a strategy for ensuring the uptake of the outcomes

# Civil Security for Society

## RI topics with potential synergies for Green Defence

### ■ Resilient infrastructure

- Ensured resilience of large-scale interconnected systems infrastructures and the entities that operate them in case of complex attacks, pandemics, natural and human-made disasters, or the impacts of climate change

### ■ Increased Cybersecurity

- Expected impact: “Increased cybersecurity and a more secure online environment by developing and using effectively EU and Member States’ capabilities in digital technologies supporting protection of data and networks aspiring to technological sovereignty in this field, while respecting privacy and other fundamental rights; this should contribute to secure services, processes and products, as well as to robust digital infrastructures capable to resist and counter cyber-attacks and hybrid threats.”

### ■ A Disaster-Resilient Society for Europe

- Expected Impact: “Losses from natural, accidental and human-made disasters are reduced through enhanced disaster risk reduction based on preventive actions, better societal preparedness, and resilience and improved disaster risk management in a systemic way.”

# Innovation fields

with the strongest synergies with defence topics

- improved encryption solutions
- protection of critical infrastructures
- screening devices for the detection of traces of potential threats (including chemical, biological, radiological, nuclear and high-yield explosive, or CBRN-E)
- data mining for early detection of threats
- individuals and events recognition solutions
- biometric access control systems
- mobile equipment for CBRN-E detection.



# Earth Observation

For fundamental research and applied solutions

## ■ Climate science and modelling

- understanding the Earth system and climate change, ability to predict and project its changes under different natural and socio-economic drivers
- better understanding of society's response and behavioural changes, allowing a better estimation of the impacts of climate change and the design and evaluation of solutions and pathways for climate change mitigation and adaptation and related social transformation

## ■ R&I on the implementation of climate change mitigation and adaptation solutions in the areas covered by Cluster 6

- biodiversity and nature-based solutions (NBS), seas, oceans and inland waters, agriculture, environmental health...)

# Bridging the digital divide

## The COMMECT project - scope

Bringing digital services to rural communities

Integrate non-terrestrial networks provided by satellites and drones with terrestrial cellular XG networks and low-cost internet of things (IoT) solutions

Identify the most efficient and cost-effective solutions for **providing digital connectivity to rural**

**5 living labs:** viticulture (Luxembourg), forestry (Norway), livestock transportation (Denmark), olive farming (Turkey) and sustainable agriculture in protected areas (Serbia)

# Bridging the digital divide

## The COMMECT project – main data

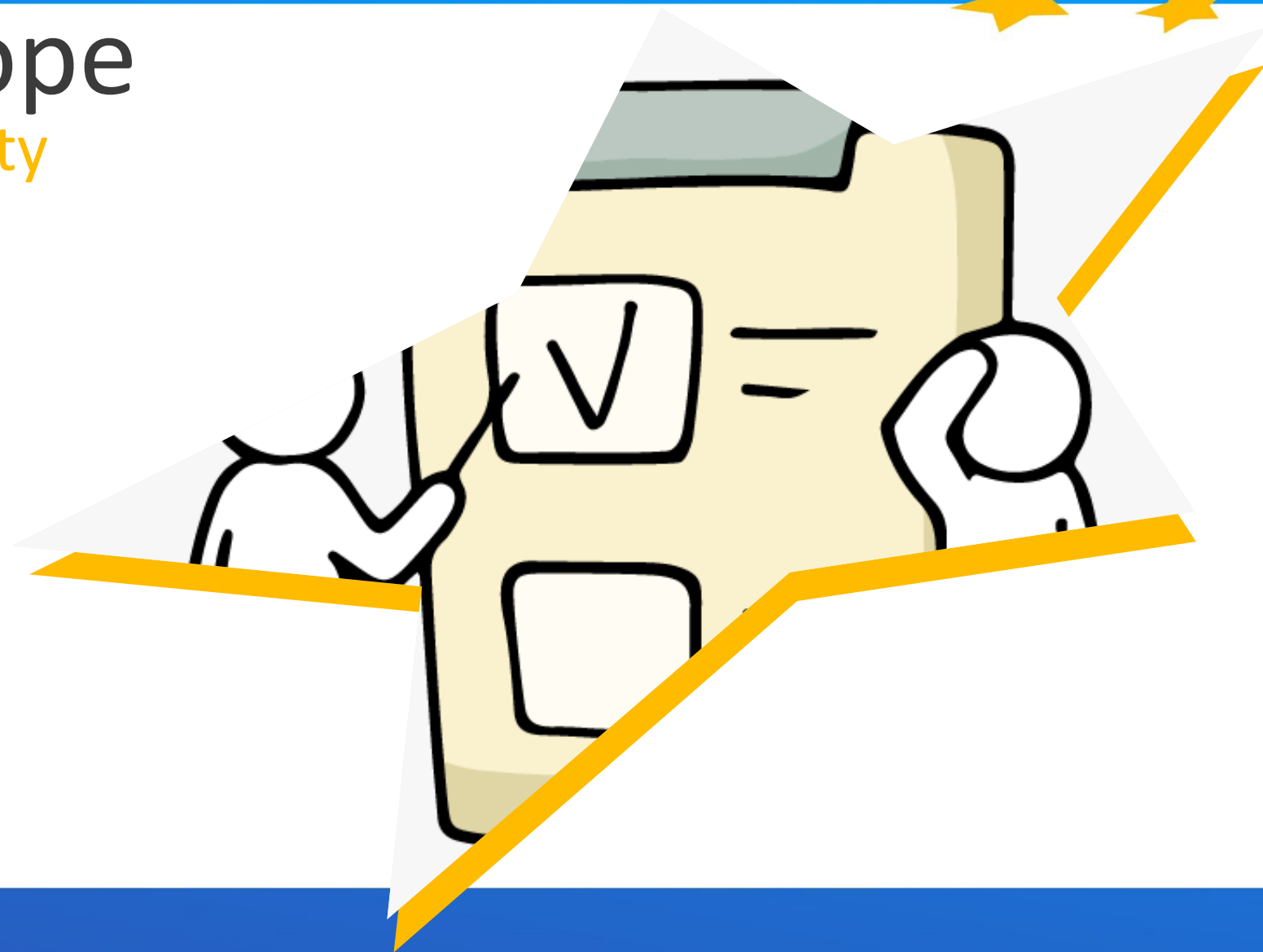
- Coordinated by the LIST
- 19 Partners from 9 Countries: Denmark, Norway, Netherlands, Finland, Luxembourg, Turkey, Serbia, Ireland, France, Germany
- Other Luxembourg participants: SES, LuxSense Geodata, IBLA
- Total EU Contribution €4 999 558,75  
(LUX €1 372 945)

“ Our collaboration with Luxinnovation on COMMECT worked very well, so I will for sure continue in the same way in the future.

Maria Rita Palattella, COMMECT Coordinator

# Horizon Europe

## Hydrogen and Mobility



# Clean Hydrogen

Supporting H2 research and innovation activities in Europe.

The Clean Hydrogen Partnership aims to scale up the development and deployment of the European value chain for safe and sustainable clean hydrogen technologies. This enables innovative competitive clean solutions to be quickly put on the market.

The end goal is to contribute to:

- a sustainable, decarbonised and fully-integrated EU energy system
- the EU's hydrogen strategy, playing an important role in implementing its roadmap towards climate neutrality.

# Clean Hydrogen

## Who benefits?

**The public** – it will help achieve the 2030 energy and climate targets and most importantly make climate neutrality possible by 2050.

**The economy** – it will help people acquire industry-related skills and secure a European labour force able to develop the cutting-edge technology needed to remain leaders in the market.

**Small & medium-sized businesses** – by scaling up clean hydrogen technologies and expanding their applications, it will strengthen the EU's competitiveness and support SMEs by enabling innovative competitive clean solutions to be quickly put on the market.

**The scientific community & academia** – it will strengthen and integrate the EU's scientific and technological capacities to help create and diffuse new high-quality knowledge.

# Clean Hydrogen

2023 call

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7 topics – 49M€ funding- Renewable Hydrogen Production

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5 topics – 36M€ funding Hydrogen Storage and Distribution

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3 topics – 25.5M€ funding- Transport

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4 topics – 19M€ funding- Heat and Power

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3 topics – 7.5M€ funding Cross-cutting

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2 topics – 38M€ funding Hydrogen Valleys

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2 topics – 20M€ funding Strategic Research challenge

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# Hydrogen Valley

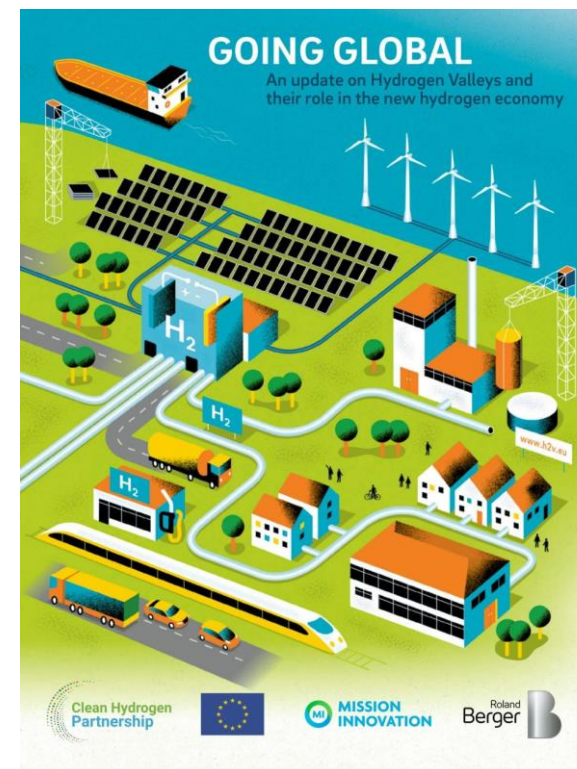
LuxHyVal

The Luxembourg Hydrogen Valley  
Coordinated by the University of  
Luxembourg

- 11 Lux partners
- 5 EU Partners
- 1 partner from Australia

Total costs: €39.2m

Total funding €8m, €6,66m to  
Luxembourg

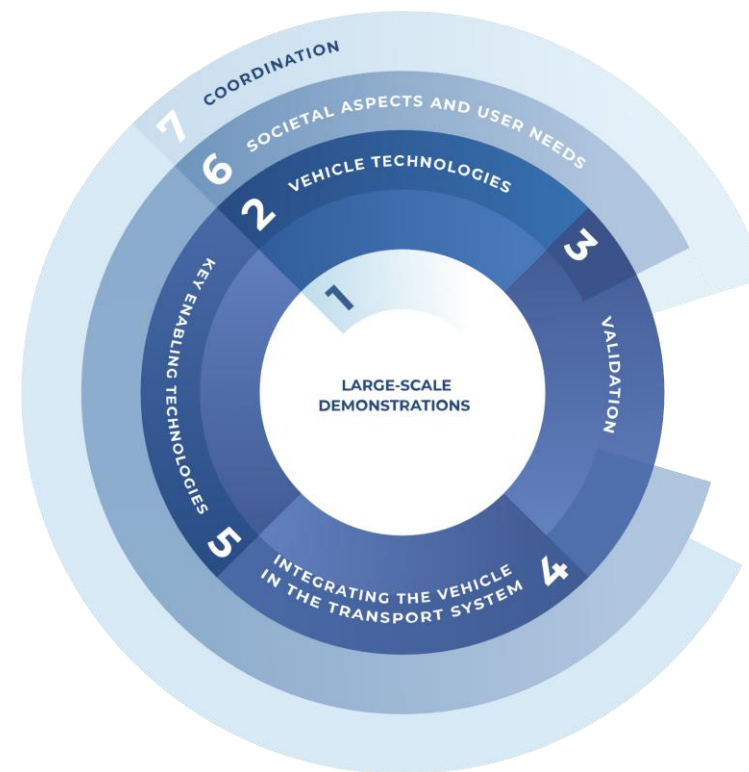


# CCAM Partnership

## Connected, Cooperative and Autonomous Mobility

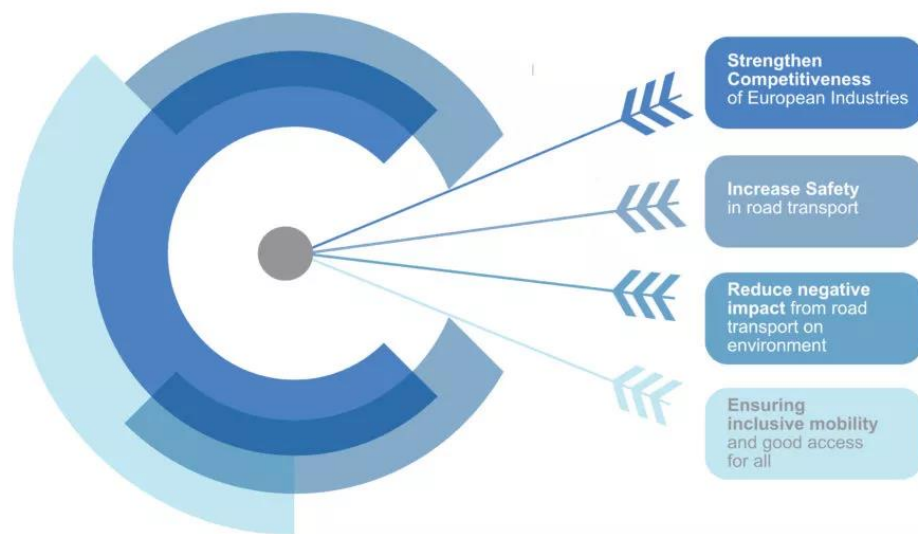
Assess impacts and understand user and societal effects to harmonise European R&I efforts to accelerate awareness and implementation of innovative CCAM technologies and services.

Exploit the full systemic benefits of new mobility solutions enabled by CCAM: increased safety, reduced environmental impacts, and inclusiveness.



# CCAM Partnership

## Role and ambition



To create a more user-centered and inclusive mobility system, increasing road safety while reducing congestion and environmental footprint.

More collaborative research, testing and demonstration projects in order to accelerate the innovation pace and implementation of automated mobility.

Working together at European level to help remove barriers and contribute to the acceptance and efficient rollout of automation technologies and services.

One more thing...



# EIC Transition

## Fast track for EDF funded innovations

The EIC Transition is a scheme to further develop innovative solutions from TRL3-4 and reach TRL6 (POC)

It is funded to small consortia and individual actors with up to 2.5m€

It is restricted to applicants who have successful previous grants:

- EIC Pathfinder
- ERC POC
- European Defence Fund (EDF), including the Preparatory Action on Defence Research, research projects, but only for proposals which are exclusively focused on civil applications (including dual use)

# Thank you!



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