



# **The European Green Deal as challenge and opportunity for Europe's engineering community**

**39<sup>th</sup> Conference of Rectors and President's of  
European Universities of Technology**

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**Peter Dröll, Director Prosperity**

European Commission, DG Research & Innovation

# The European Green Deal

CLIMATE  
PACT AND CLIMATE  
LAW



PROMOTING  
CLEAN  
ENERGY



INVESTING IN  
SMARTER, MORE  
SUSTAINABLE  
TRANSPORT



STRIVING  
FOR GREENER  
INDUSTRY



ELIMINATING  
POLLUTION



ENSURING  
A JUST  
TRANSITION  
FOR ALL



FINANCING  
GREEN  
PROJECTS



MAKING  
HOMES ENERGY EFFICIENT



LEADING THE  
GREEN CHANGE  
GLOBALLY



FROM FARM  
TO FORK



PROTECTING NATURE



# GREEN DEAL AND RESEARCH & INNOVATION

- At least **35% of Horizon Europe funding** for climate solutions
- Horizon 2020 **Green Deal Call** of **€1 billion**
- Four '**Green Deal missions**' (climate adaptation, oceans, cities and soil)
- **European Partnerships** with industry and Member States
- **European Institute of Innovation and Technology** support to young researchers and innovators
- **European Innovation Council** focused on radically new, breakthrough products, services and processes
- **Data and digital infrastructure** in support of the ecological transition

# OPPORTUNITIES IN HORIZON EUROPE

## HORIZON EUROPE

## EURATOM

### SPECIFIC PROGRAMME: EUROPEAN DEFENCE FUND

*Exclusive focus  
on defence  
research  
& development*

Research  
actions

Development  
actions

### SPECIFIC PROGRAMME IMPLEMENTING HORIZON EUROPE & EIT\*

*Exclusive focus on civil applications*



**Pillar I**  
EXCELLENT SCIENCE

European Research Council

Marie Skłodowska-Curie

Research Infrastructures



**Pillar II**  
GLOBAL CHALLENGES &  
EUROPEAN INDUSTRIAL  
COMPETITIVENESS

Clusters

- Health
- Culture, Creativity & Inclusive Society
- Civil Security for Society
- Digital, Industry & Space
- Climate, Energy & Mobility
- Food, Bioeconomy, Natural Resources, Agriculture & Environment

Joint Research Centre



**Pillar III**  
INNOVATIVE EUROPE

European Innovation  
Council

European Innovation  
Ecosystems

European Institute of  
Innovation & Technology\*

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

Widening participation & spreading excellence

Reforming & Enhancing the European R&I system

Fusion

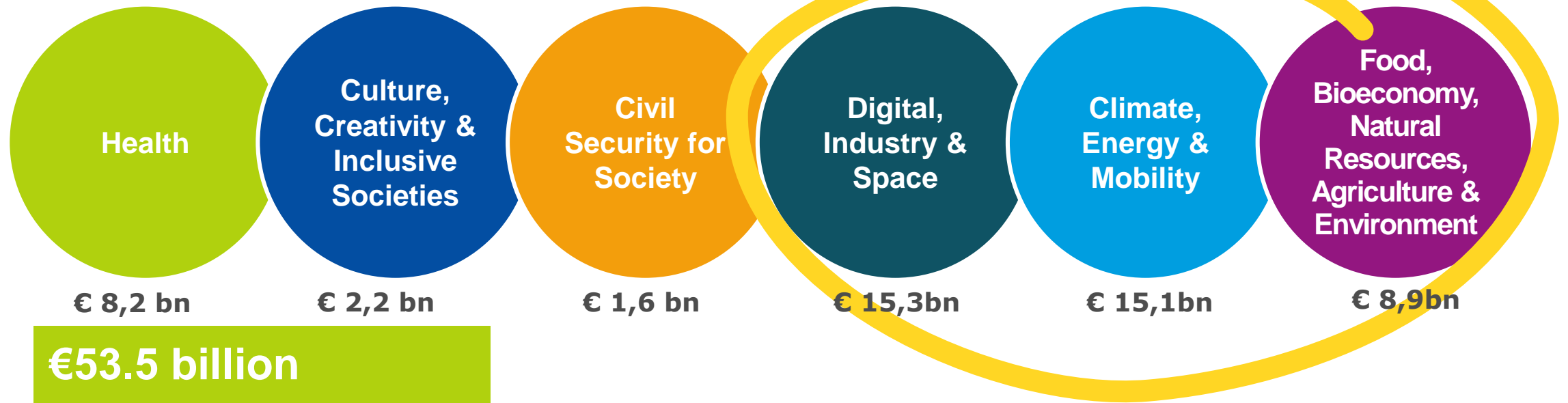
Fission

Joint  
Research  
Center

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

# MOST RELEVANT CLUSTERS

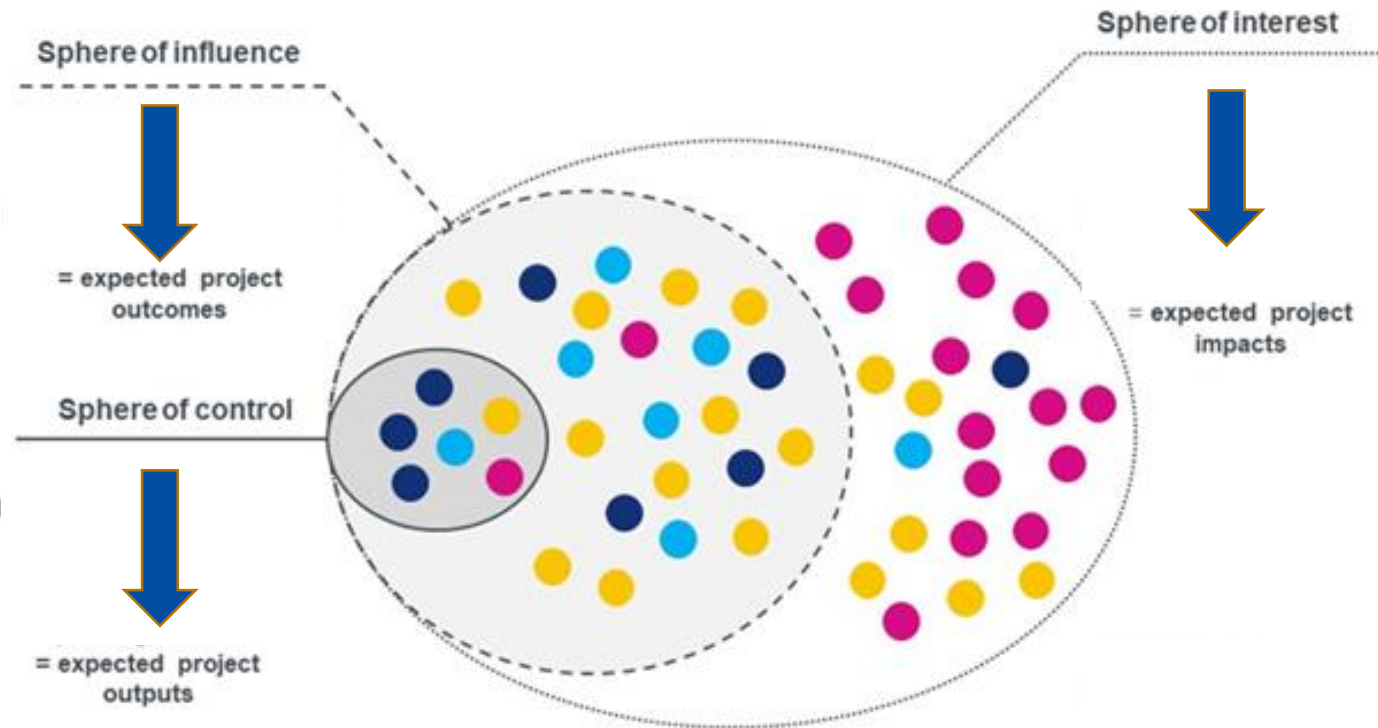
Boosting **key technologies** and solutions underpinning **EU policies & Sustainable Development Goals**



# HORIZON EUROPE IMPACT LOGIC

## GUIDANCE – How to identify project impact pathways

...by taking into account what is under the project sphere of control, influence or interest



# KEY STRATEGIC ORIENTATIONS 2021-2024

<b>A. Open strategic autonomy</b>	<b>C. Sustainable economy</b>
<b>B. Restoring ecosystems</b>	<b>D. Resilient, inclusive and democratic society</b>

# EXPECTED IMPACTS UNDER DIGITAL, INDUSTRY & SPACE

Global leadership in clean and climate-neutral industrial value chains, circular economy and climate-neutral digital systems and infrastructures (networks data centres)

Industrial leadership and increased autonomy in key strategic value chains with security of supply in raw materials

Globally attractive, secure and dynamic data-agile economy

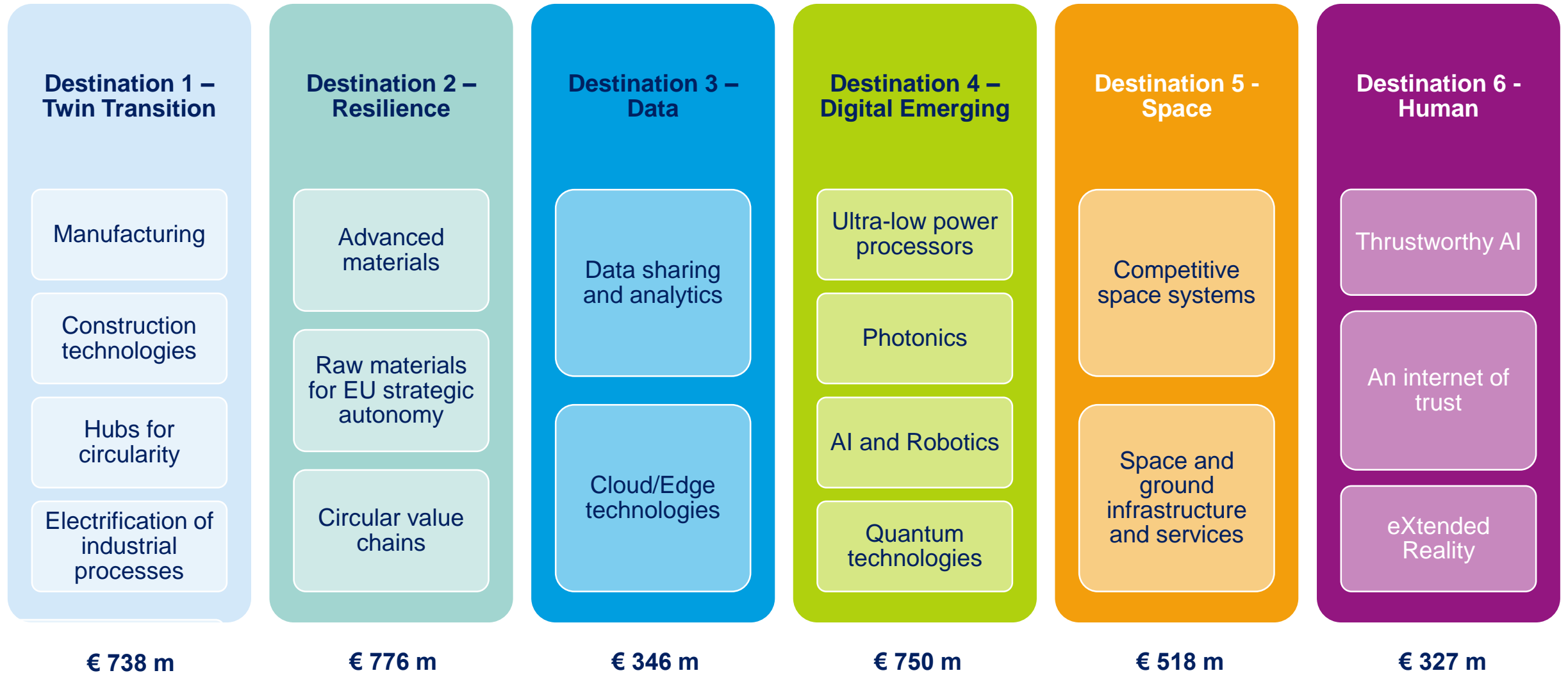
Sovereignty in digital technologies and in future emerging enabling technologies

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

A human-centred and ethical development of digital and industrial technologies



# PRIORITIES 2021-2024 OF DIGITAL, INDUSTRY & SPACE



# EXPECTED IMPACTS UNDER CLIMATE, ENERGY & MOBILITY

Transition to a climate-neutral and resilient society and economy enabled through advanced climate science, pathways and responses to climate change (mitigation and adaptation) and behavioural transformations

Clean and sustainable transition of the energy and transport sectors towards climate neutrality facilitated by innovative crosscutting solutions

More efficient, clean, sustainable, secure and competitive energy supply through new solutions for smart grids and energy systems based on more performant renewable energy solutions

Efficient and sustainable use of energy, accessible for all is ensured through a clean energy system and a just transition

Towards climate-neutral and environmental friendly mobility through clean solutions across all transport modes while increasing global competitiveness of the EU transport sector

Safe, seamless, smart, inclusive, resilient, climate neutral and sustainable mobility systems for people and goods thanks to user-centric technologies and services including digital technologies and advanced satellite navigation services

# PRIORITIES 2021-2024 UNDER CLIMATE, ENERGY & MOBILITY

**Destination 1 – Climate science**

Climate science

€ 274 m

**Destination 2 – Cross-cutting solutions**

Batteries

Cities

Breakthrough technologies

Citizen and stakeholder engagement

€ 388 m

**Destination 3 – Energy supply**

Renewable energy

Energy system, grids and storage

CCUS

Cross-cutting activities

€ 1226 m

**Destination 4 – Energy demand**

Buildings

Industry

€ 244 m

**Destination 5 - Clean and competitive solutions for all transport modes**

Zero-emission road transport

Aviation

Waterborne transport

Transport-related health and environmental issues

€ 511 m

**Destination 6 - Transport and Smart Mobility services**

Connected, Cooperative and Automated Mobility

Multimodal and sustainable transport systems for passengers and goods

Safety and resilience

€ 380 m

# EXPECTED IMPACTS UNDER FOOD, BIOECONOMY & ...

Climate neutrality and adaptation  
to climate change

Preservation and restoration  
of biodiversity and ecosystems

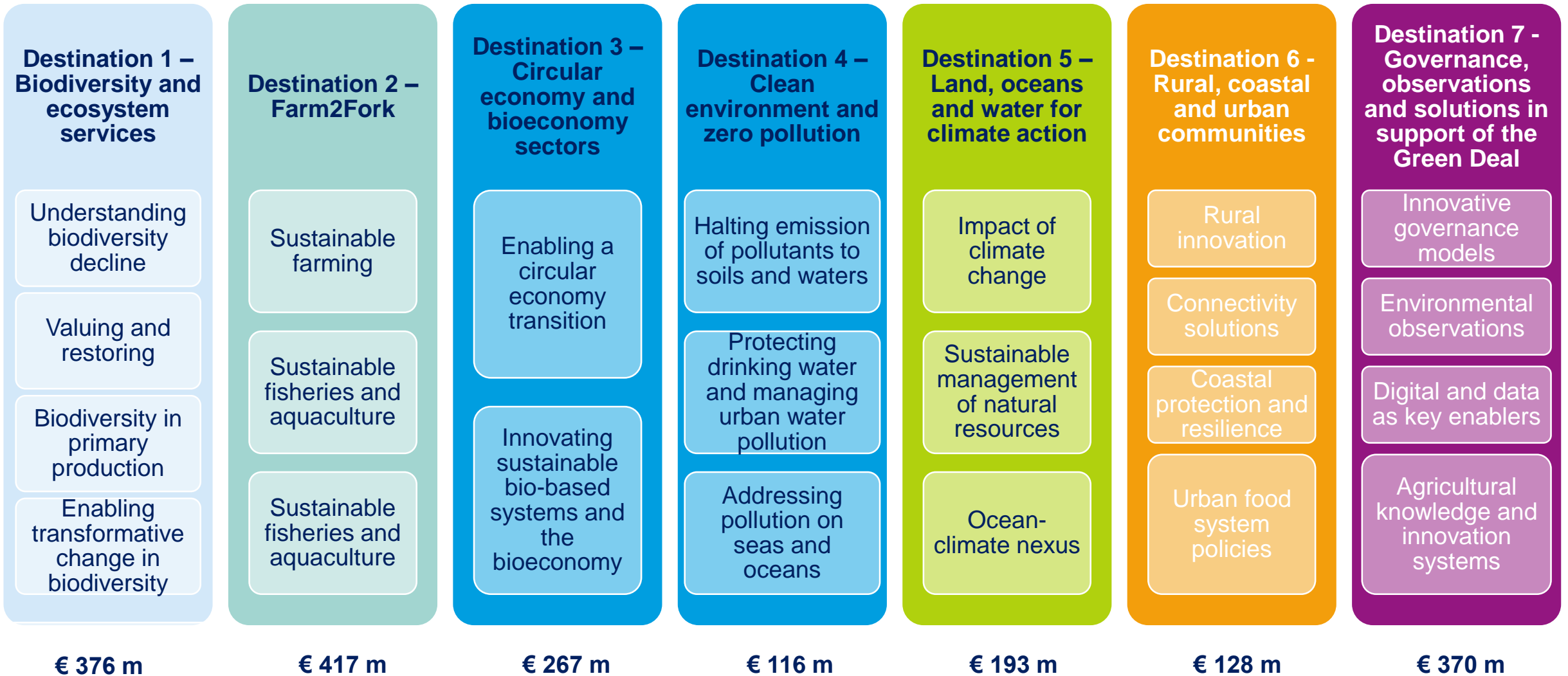
Sustainable and circular  
management of natural  
resources; tackling pollution;  
bioeconomy

Food and nutrition security for  
all from sustainable food  
systems from farm to fork

Balanced development  
of rural, coastal and urban areas

Innovative governance models  
enabling sustainability,  
environmental observation

# PRIORITIES 2021-2024 UNDER FOOD, BIOECONOMY & ...



# EXAMPLES OF GREEN DEAL TOPICS

CLUSTER 4	
HORIZON-CL4-2021-TWIN-TRANSITION-01-14	Deploying industrial-urban symbiosis demonstrators for the utilisation of energy, water, industrial waste and by-products at regional scale
HORIZON-CL4-2022-TWIN-TRANSITION-01-07	Digital tools to support the engineering of a Circular Economy
HORIZON-CL4-2022-TWIN-TRANSITION-01-11	Valorisation of CO/CO2 streams into added-value products of market interest
HORIZON-CL4-2021-RESILIENCE-01-17	Advanced materials for hydrogen storage
HORIZON-CL4-2022-RESILIENCE-01-11	Advanced lightweight materials for energy efficient structures
HORIZON-CL4-DIGITAL-EMERGING-2021-01-31	Functional electronics for green and circular economy
HORIZON-CL4-DIGITAL-EMERGING-2021-01-09	AI, data and Robotics for the Green Deal
HORIZON-CL4-2022-TWIN-TRANSITION-01-07	Digital tools to support the engineering of a Circular Economy
HORIZON-CL4-2022-TWIN-TRANSITION-01-11	Valorisation of CO/CO2 streams into added-value products of market interest

CLUSTER 5	
HORIZON-CL5-2021-D1-01	Modelling the role of the circular economy for climate change mitigation
HORIZON-CL5-2022-D1-01-two-stage	Carbon Dioxide Removal (CDR) approaches
HORIZON-CL5-2021-D2-01	Sustainable processing, refining and recycling of raw materials
HORIZON-CL5-2022-D2-01	Sustainable processing and refining of battery grade graphite
HORIZON-CL5-2022-D2-01	Next generation technologies for High-performance and safe-by-design battery systems for transport and mobile applications
HORIZON-CL5-2021-D2-01	Technologies for non- CO2 greenhouse gases removal
HORIZON-CL5-2022-D3-01	Thermal energy storage solutions
HORIZON-CL5-2022-D3-02	Innovative renewable energy carrier production for heating from renewable energies
HORIZON-CL5-2022-D4-01	Development of high temperature thermal storage for industrial applications
HORIZON-CL5-2022-D5-01	Towards a silent and ultra-low local air pollution aircraft
HORIZON-CL5-2022-D5-01	Transformation of the existing fleet towards greener operations through retrofitting

CLUSTER 6	
HORIZON-CL6-2022-BIODIV-01-05	Intercropping –understanding and using the benefits of complexity in farming and value chains
HORIZON-CL6-2022-FARM2FORK-01-09	Microbiomes in food production systems
HORIZON-CL6-2022-CIRCBIO-01-04	Maximising economic, environmental and social synergies in the provision of feedstock for bio-based sectors through diversification and increased sustainability of agricultural production systems
HORIZON-CL6-2022-COMMUNITIES-01-04	Social innovation in food sharing to strengthen urban communities' food resilience

# CONCLUDING REMARKS

