HORIZON EUROPE

Horizon Europe Cluster 4 & 5

Industry & Mobility Programmes

2027 Opportunities

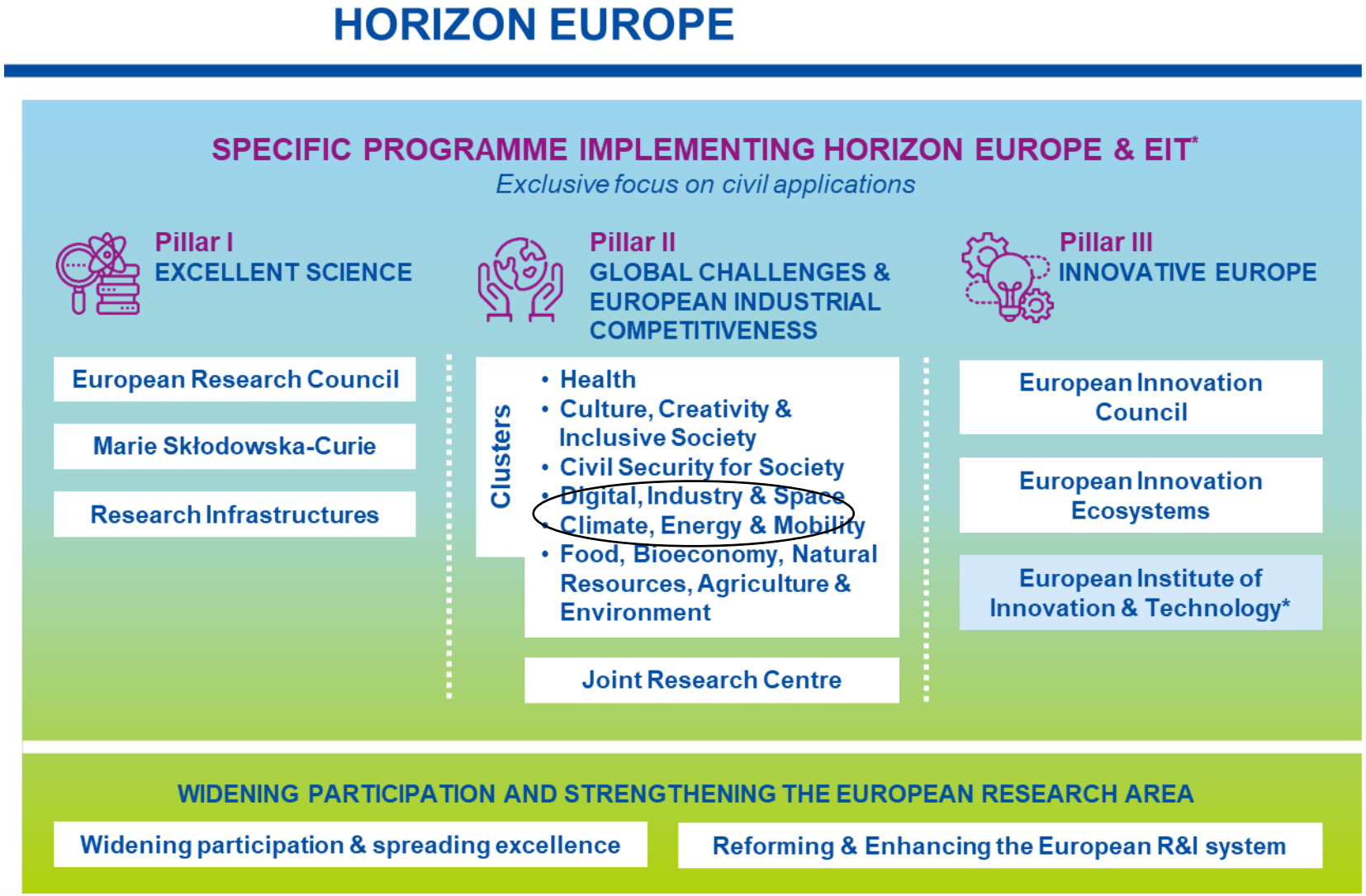
National and Regional Contact Points: -

- Sergio Ceballos (IRL) and Anshumaan Krishnan Ayyangar, Ashlene Vennard (UK) – ‘Industry’
- Bob Flynn (IRL) and Louise Mothersole (UK) – ‘Mobility’
- Claire Griffin (UK) – ‘European Innovation Council (EIC)’



European Commission
Enterprise Ireland
An Roinn Breisoideachais agus Ardoideachais, Taighde, Nuálaíochta agus Eolaíochta
Department of Further and Higher Education, Research, Innovation and Science
An Roinn Fiontar, Trádála agus Fostaíochta
Department of Enterprise, Trade and Employment
An Roinn Talmhaíochta, Bia agus Mara
Department of Agriculture, Food and the Marine
epa Environmental Protection Agency
iua IRISH UNIVERSITIES ASSOCIATION
HRB An Bord Taighde Sláinte Health Research Board
seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND
Marine Institute Foras na Mara
Taighde Éireann Research Ireland
enterprise europe network

Horizon Europe Structure



Latest figures from Horizon Dashboard (21/8/2026)

Example: Ireland's performance in Cluster 4:

- Ireland Net EU Contribution is **€1.25B** in Horizon Europe.

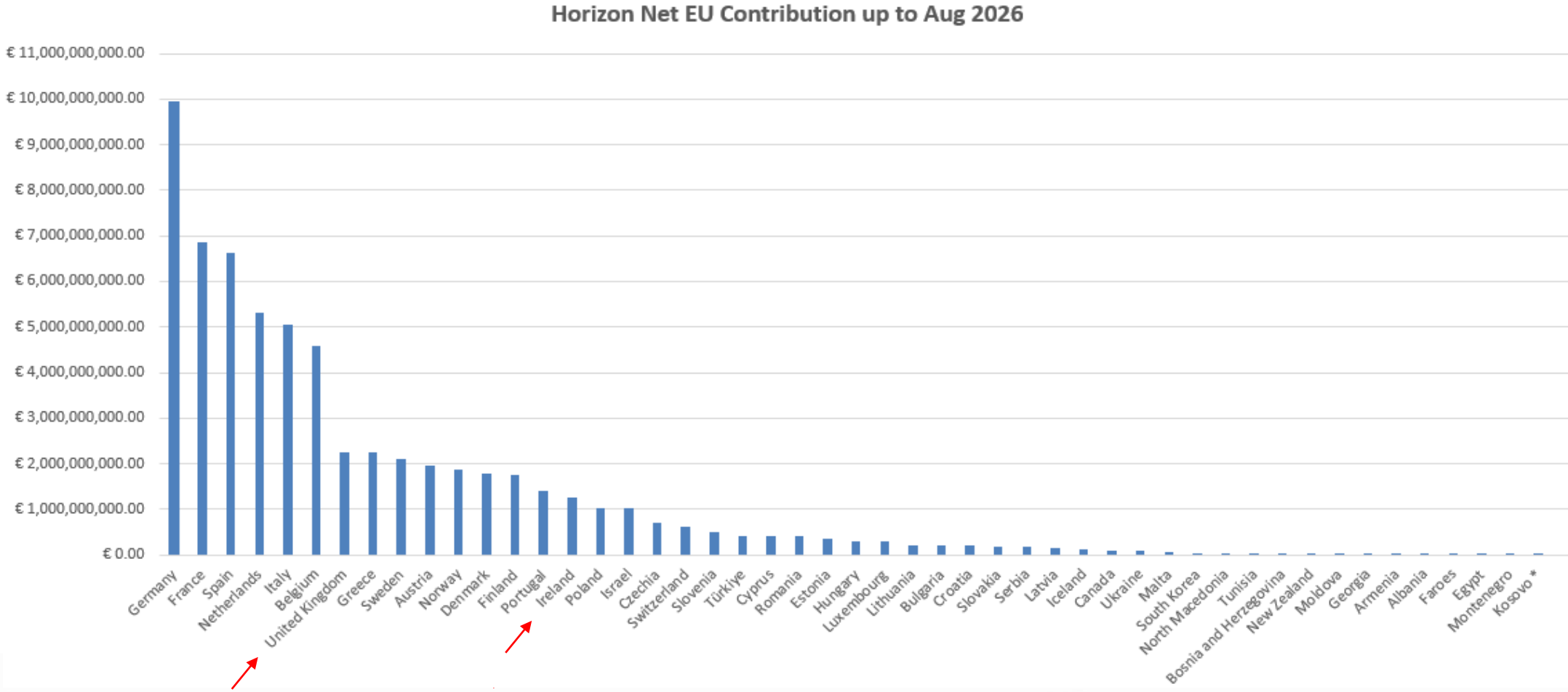
- Cluster 4: **€198M**. €75M going to Irish Industry (€55M going to SMEs).
- Cluster 5: **€140M**. €67M going to Irish Industry (€49M going to SMEs).

- Cluster 4 and 5 take just below 30% of the overall budget coming to Ireland.

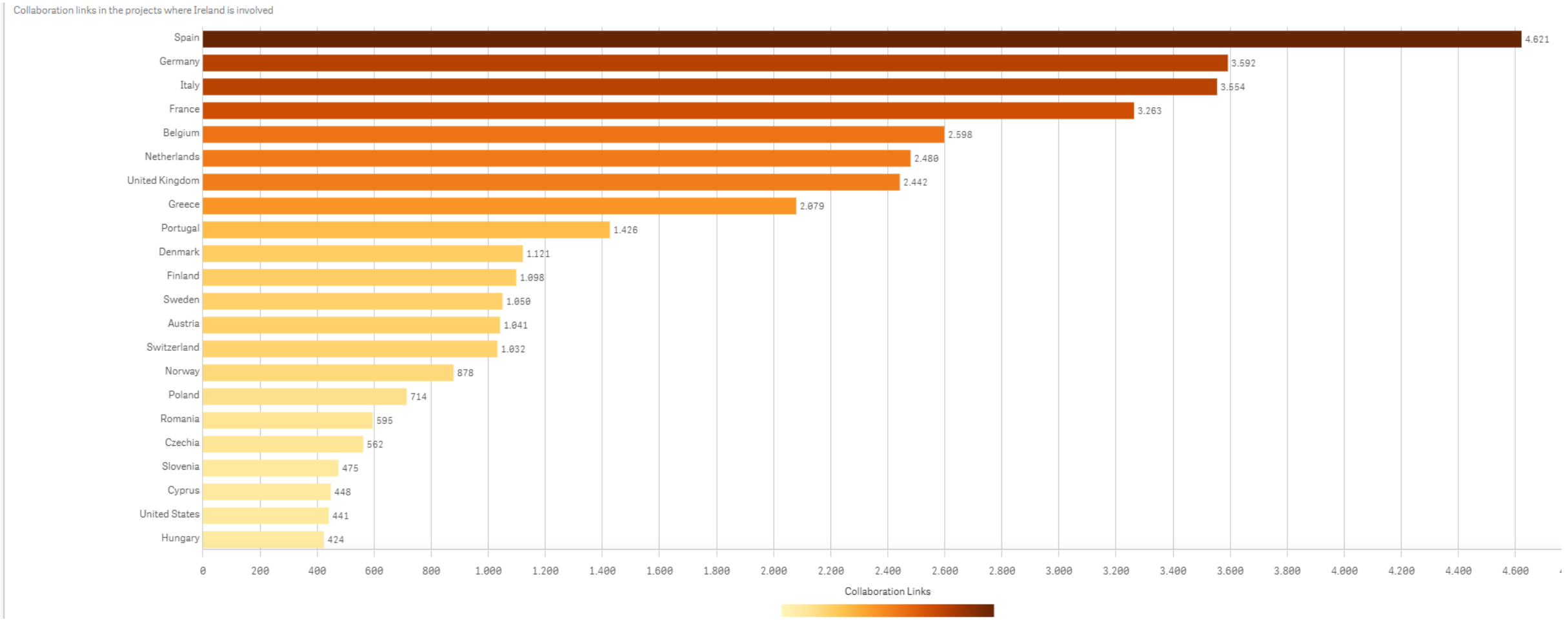
  - **119 Irish organisations** are involved in Cluster 4 projects with a total of **375** participations.
  - **133 Irish organisations** are involved in Cluster 4 projects with a total of **344** participations.

EU Member States – Budget share & participation

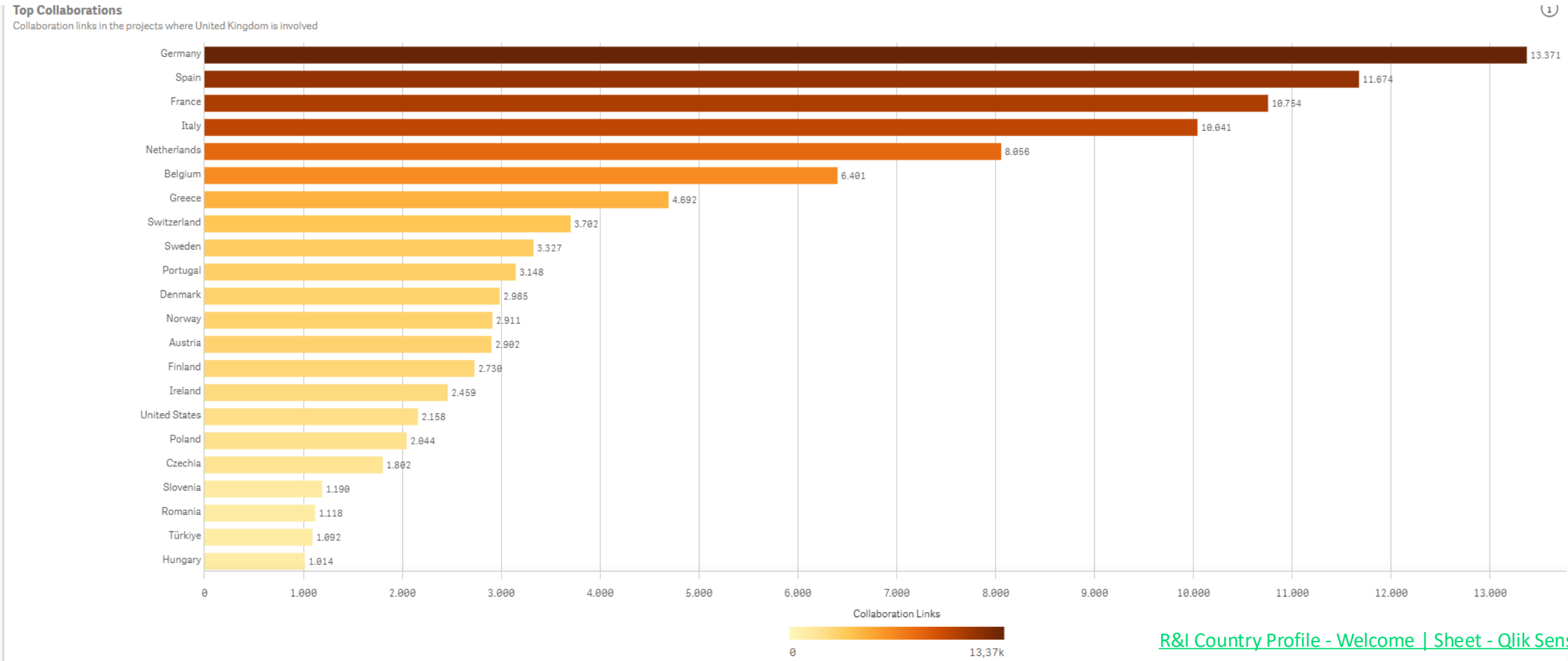
- Ireland (still) ranks 13th for both budget share and participation in Horizon Europe
- Top 5 (in order): Germany, France, Spain, Netherlands and Italy (no change)



Top collaborators for Irish entities in Horizon Europe



Top collaborators for UK entities in Horizon Europe



R&I Country Profile - Welcome | Sheet - Qlik Sense

HE Strategic Plan 2025-2027

an interface between the overarching EU policy priorities and the Horizon Europe R&I activities



TABLE OF CONTENTS

INTRODUCTION ... 3
Executive Summary ... 4
How was the second strategic plan developed? ... 9
What is new in the second strategic plan? ... 10
Key strategic orientations for research and innovation ... 12
How will the pillars of Horizon Europe help deliver on the key strategic orientations? ... 17
Pillar II - Global challenges and European industrial competitiveness ... 17
Pillar III – Innovative Europe ... 27
Widening participation and strengthening the European Research Area ... 29
European Partnerships ... 32
Missions ... 34
International Cooperation ... 35
Research Security ... 38
Specific Issues ... 39
Balance between research and innovation ... 39
The integration of social sciences and humanities ... 40
The role of key enabling technologies in science, innovation and strategic value chains ... 40
Gender equality and inclusiveness, including the integration of gender concerns into R&I ... 41
Ethics and integrity ... 41
Dissemination and exploitation of results ... 42
Social innovation ... 44
Synergies ... 46
Spending strategies for EU policy priorities ... 48
Clusters
1. Health ... 50
2. Culture, Creativity & Inclusive Society ... 62
3. Civil Security for Society ... 73
4. Digital, Industry & Space ... 89
5. Climate, Energy & Mobility ... 106
6. Food, Bioeconomy, Natural Resources, Agriculture & Environment ... 120

3 Strategic Orientations

- The green transition
- The digital transition
- A more resilient, competitive, inclusive and democratic Europe

[Strategic Planning 2025-27 Horizon Europe]

HE Strategic Plan 2025-2027

32 Expected Impacts

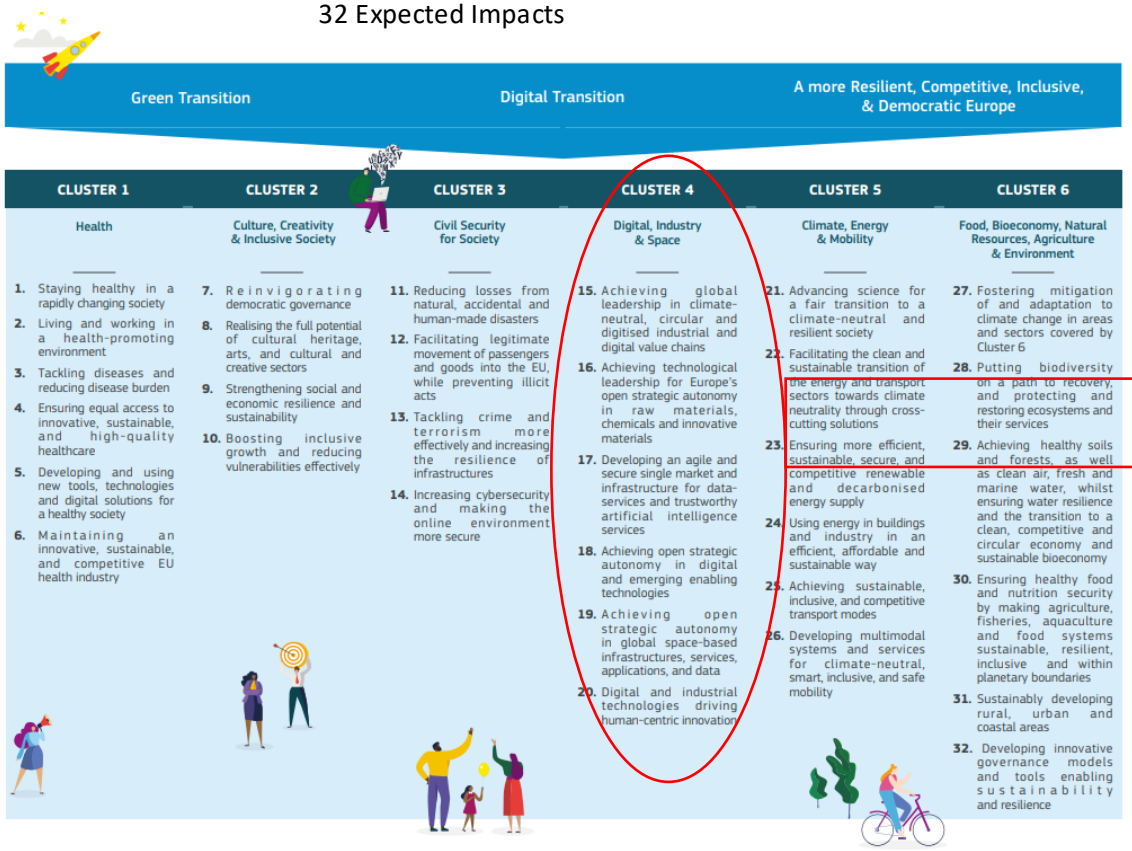


Figure 2 – Overview of Expected Impacts

CLUSTER 4

Digital, Industry & Space

15. Achieving global leadership in climate-neutral, circular and digitised industrial and digital value chains
16. Achieving technological leadership for Europe's open strategic autonomy in raw materials, chemicals and innovative materials
17. Developing an agile and secure single market and infrastructure for data-services and trustworthy artificial intelligence services
18. Achieving open strategic autonomy in digital and emerging enabling technologies
19. Achieving open strategic autonomy in global space-based infrastructures, services, applications, and data
20. Digital and industrial technologies driving human-centric innovation

Mapping Expected Impacts to Intervention Areas and Partnerships CL4

Expected Impact	Intervention Areas	Relevent Partnerships
15. .Achieving global leadership in climate-neutral, circular and digitised industrial and digital value chains	Manufacturing technologies Advanced Materials Circular Industries Net-zero and less polluting Industries	Made in Europe Process for Planet Clean Steel Textiles of the Future
16. Achieving technological leadership for Europe's open strategic autonomy in raw materials, chemicals and innovative materials	Artificial intelligence and robotics Advanced computing and big data Manufacturing technologies Circular Industries Net-zero and less polluting Industries	Raw Materials for the Green and Digital Transition Innovative Materials for EU
17. Developing an agile and secure single market and infrastructure for data services and trustworthy artificial intelligence services	Key digital technologies Emerging enabling technologies Artificial intelligence and robotics Next generation internet Advanced computing and big data	Photonics AI, Data and Robotics Made in Europe Agriculture of Data
18. Achieving open strategic autonomy in digital and emerging enabling technologies	Key digital technologies Emerging enabling technologies Artificial intelligence and robotics Next generation internet Advanced computing and data	AI, Data and Robotics Photonics Virtual Worlds
19. Achieving open strategic autonomy in global space-based infrastructures, services, applications and data	Space, including Earth observation and IRIS2	Globally Competitive Space Systems
20. Digital and industrial technologies driving human-centric innovation	Next generation internet Artificial intelligence and robotics Manufacturing technologies	AI, Data and Robotics Made in Europe Photonics Virtual Worlds

Cluster 4 Partnerships

Institutionalised partnerships

- Chips (formerly KDT)
- Smart Networks & Services
- High Performance Computing
- European Metrology (Art. 185)

Co-programmed partnerships

- AI-Data-Robotics
- Photonics
- Made in Europe
- Clean steel – low-carbon steelmaking
- Processes4Planet
- Global competitive space systems
- Innovative Materials for EU*
- Virtual Worlds*
- Textiles of the Future*

Co-funded partnership

- Raw Materials for the Green and Digital Transition*

PILLAR II - Global challenges & European industrial competitiveness

CLUSTER 1: Health

- Innovative Health Initiative
- Global Health Partnership
- Transformation of health systems
- Chemicals risk assessment
- ERA for Health
- Rare diseases
- One-Health Anti Microbial Resistance
- Personalised Medicine
- Pandemic Preparedness
- Brain Health*

CLUSTER 2: Culture, Creativity, Inclusive Societies

- Resilient Cultural Heritage*
- Social Transformations and Resilience*

CLUSTER 4: Digital, Industry & Space

- Chips (formerly KDT)
- Smart Networks & Services
- High Performance Computing
- European Metrology (Art. 185)
- AI-Data-Robotics
- Photonics
- Made in Europe
- Clean steel – low-carbon steelmaking
- Processes4Planet
- Global competitive space systems
- Innovative Materials for EU*
- Virtual Worlds*
- Textiles of the Future*
- Raw Materials for the Green and Digital Transition*

CLUSTER 5: Climate, Energy & Mobility

- Clean Hydrogen
- Clean Aviation
- Single European Sky ATM Research 3
- Europe's Rail
- Connected and Automated Mobility
- Batt4EU
- Zero-emission waterborne transport
- Zero-emission road transport
- Built4People
- Solar Photovoltaics*
- Clean Energy Transition
- Driving Urban Transitions

CLUSTER 6: Food, Bio-economy, Agriculture, Env…

- Circular Bio-based Europe
- R&I in the Mediterranean Area (Art. 185)
- Biodiversa+
- Climate Neutral, Sustainable & Productive Blue Economy
- Water4All
- Animal Health & Welfare
- Accelerating Farming Systems Transitions
- Agriculture of Data
- Safe and Sustainable Food System
- Forests and Forestry for sustainable Future*

PILLAR III - Innovative Europe

EUROPEAN INNOVATION ECOSYSTEMS

- Innovative SMEs

EIT

- InnoEnergy
- Climate
- Digital
- Food
- Health
- Raw Materials
- Manufacturing
- Urban Mobility
- Cultural and Creative Industries
- Water, Marine and Maritime Sectors and Ecosystem*

CROSS-PILLARS I AND II

- European Open Science Cloud

- Institutionalised partnerships (Art 185/7)
- EIT KICs
- Co-programmed
- Co-funded

* *Under preparation*

European Commission

Enterprise Ireland · An Roinn Breisoideachais agus Ardoideachais, Taighde, Nuálaíochta agus Eolaíochta Department of Further and Higher Education, Research, Innovation and Science · An Roinn Fiontar, Trádála agus Fostaíochta Department of Enterprise, Trade and Employment · An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine · epa Environmental Protection Agency · IRISH UNIVERSITIES ASSOCIATION · HRB An Bord Taighde Sláinte Health Research Board · seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND · Marine Institute Foras na Mara · Taighde Éireann Research Ireland · enterprise europe network

Work Programme 2026-2027

- You can download the final 2026-2027 work programmes for Cluster 4,5 at the Participant Portal.
- **Evaluation outcome for the 2026 are out for CL4. Some 2026 calls still open.**

HOWEVER

- The current work programme is undergoing an amendment. Adoption early October.
- This is the last work programme in Horizon Europe.
- More 2-STAGE calls. Blind Evaluation at STAGE 1. May include topics on 'Partial Randomisation'.
- Larger budget of topics, more projects to be funded per topic. Less topics per year.
- There is an increase number of proposals submitted with higher quality.

CL4 Work Programme 2026-2027

- Destination: Leadership in Materials and Production for Europe
- Destination: Developing an agile and secure single market and infrastructure for data-services and trustworthy artificial intelligence services
- Destination: Achieving open strategic autonomy in digital and emerging enabling technologies
- Destination: Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructure, Services, Applications and Data
- Destination: Digital and industrial technologies driving human-centric innovation














































CL4 Work Programme – 'Industry' 2026-2027

Destination – Leadership in Materials and Production for Europe

- Sustainable advanced materials and chemicals
- Fast Tracking circularity in manufacturing processes
- Disruptive technologies for Carbon capture and clean energy use
- Fast Track to Innovation
- EU Technology Infrastructures
- Proof of concept/market
- Raw Materials (Exploration, Extraction, monitoring, recycling
- AI in Factories of the Future

Deadlines:

- Single Stage Submission2026-2027 call: 15th September Clean Industry Deal topics. 2nd of Feb 2027 main Cluster 4 programme.
- 2 Stage Submission: STAGE 2 2026 call 13th Oct 2026. 2nd of Feb 2027 and 2nd of Sept 2027.

Relevant Partnerships

- Made in Europe
- Advanced Innovative Materials Initiative
- Process4Planet
- Clean Steel
- Textiles of the Future
- Raw Materials co-funded Partnership

CL5 Work Programme 2026-2027

Destination 1: Climate sciences and responses for the transformation towards climate neutrality

Destination 2:Cross-sectoral solutions for the climate transition

Destination 3: Sustainable, secure and competitive energy supply

Destination 4: Efficient, sustainable and inclusive energy use

Destination 5: Clean and competitive solutions for all transport modes

Destination 6: Safe, Resilient Transport and Smart Mobility services for passengers and goods

CLEAN AVIATION

Europe's Rail

sesar JOINT UNDERTAKING

Clean Hydrogen Partnership

Zero-Emission Waterborne Transport

2ZERO

BATT4EU Batteries European Partnership

Built4People

CCAM CONNECTED, COOPERATIVE & AUTOMATED MOBILITY

cet Partnership

DUT Driving Urban Transitions

EUPI-PV

European Commission

Enterprise Ireland

An Roinn Breisoideachais agus Ardoideachais, Taighde, Nuálaíochta agus Eolaíochta Department of Further and Higher Education, Research, Innovation and Science

An Roinn Fiontar, Trádála agus Fostaíochta Department of Enterprise, Trade and Employment

An Roinn Talmhaíochta, Bia agus Mara Department of Agriculture, Food and the Marine

epa Environmental Protection Agency

iua IRISH UNIVERSITIES ASSOCIATION

HRB An Bord Taighde Sláinte Health Research Board

seai SUSTAINABLE ENERGY AUTHORITY OF IRELAND

Marine Institute Foras na Mara

Taighde Éireann Research Ireland

enterprise europe network

CL5 Work Programme – 2026-2027

Batteries and Energy

Producing battery-grade materials through sustainable processing and refining of raw materials/bio-based materials
Development of direct recycling processes
Production/Product Development for Next-Gen Lithium-based Batteries for Mobility
Innovative technologies and solutions to improve wind energy systems
Production technologies for solar photovoltaics
On-site robotic and automated techniques for building renovation and new construction
And others…..

Mobility

Sustainable aircraft circular design and additive manufacturing, towards a climate neutral aviation (Single Stage)
Noise reduction breakthroughs for new ultraefficient aircraft (2 stage)

- Single Stage Submission 2026-2027 call: 14th Apr 2027
- 2 Stage Submission: 14th Apr 2027 (First Stage), 07th Oct 2027 (Second Stge)

Relevant Partnerships

Clean Aviation
Clean Hydrogen
2ZERO
Batt4EU
Built4People

Upcoming events

- 24th September – KETs Brokerage event. Online. More information: Home | KETs2026 reloaded.
- 22 – 24 September - The fourth Circular Textiles ECOSYSTEX Conference will take place as a physical event from 22 to 24 September 2026 in Antwerp, Belgium in partnership with the University of Antwerp.
- 14-15th October - Cluster 4 topics info days – online (Save the Date – more information to follow).
- 21 - 22 October, the A.SPIRE association will organise the A.SPIRE Industrial Innovation Days 2026 in Brussels, a curated event including the Climate Innovation Brokerage & Marketplace for the Process Industries. More information will follow shortly. Keep an eye on our communication channels for more.
- 17 – 18 November, the Manufacturing Partnership Days 2026 returns to Brussels bringing together the people and ideas shaping the future of European manufacturing. More information and registration here.
- 13-14 October, Porto . AI, Data & Robotics forum 2026,
- 14 October, Dublin, International AI Summit,
- 15 October, Dublin, AI in Science Summit
- 8–9 October 2026, Geneva, EUCAD Symposium 2026
- 19th November Horizon Europe info day—Cluster 5: Climate, Energy and Mobility, Brussels (save the date –information to follow
- 11-12th November, Stockholm Battery Innovation Days (6th edition)
- 23-24th February, Brussels, RTR 2027 Road Transport Research Days

Cluster 4 Digital, Industry & Space
Cluster 5 Climate, Energy and Mobility

UK and Ireland National Contact Points (NCP's) for Cluster 4

HORIZON EUROPE

UK Research and Innovation

Anshumaan Krishnan Ayyangar
Cluster 4 – Industry UKRI
Email: Anshumaan.Ayyangar@iuk.ukri.org

Louise Mothersole
Cluster 5 – Mobility UKRI
Email ncp-mobility@iuk.ukri.org

Ashlene Vennard
Engineering, Materials, Manufacturing & Transport
Email: ashlene.vennard@qub.ac.uk

Ann Dooley
European Enterprise Network- Ireland
Email: Ann.Dooley@enterprise-ireland.com

Bob Flynn
Cluster 5 – Mobility, EI
Email: Bob.Flynn@enterprise-Ireland.com

Sergio F Ceballos
Cluster 4 – Industry, EI
Email Sergio.Ceballos@enterprise-Ireland.com

NICP Northern Ireland Contact Point Horizon Europe

enterprise europe network

Enterprise Ireland

Find your NCP in Europe: EU Funding & Tenders Portal

Innovate UK

WP2026-27 CL4 Industry

6 x Topics in Scope

HORIZON-CL4-2027-01-MAT-PROD-06

Circular innovative advanced materials: facilitating the transition from design to markets (Innovative Advanced Materials for the EU and Made in Europe partnerships)

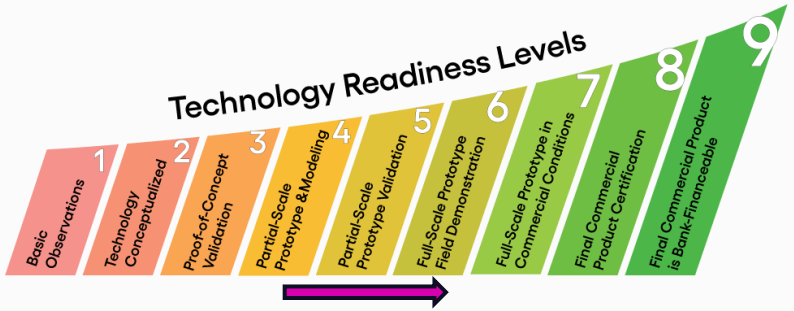
Scope

- Develop circular innovative advanced materials with sustainability embedded from the design stage.
- Integrate digital tools (e.g., material data, digital twins, lifecycle assessment) to accelerate industrial uptake.
- Validate manufacturing routes that enable reuse, repair, remanufacturing and recycling.
- Demonstrate scalable value chains linking material developers, manufacturers and end users.

Expected Outcomes

- Faster market deployment of circular advanced materials.
- Reduced environmental footprint and improved resource efficiency.
- Improved competitiveness of European manufacturing through sustainable material solutions.
- Strengthened industrial collaboration across material value chains.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
RIA	36.00	5.00 to 6.50	7



HORIZON-CL4-2027-01-MAT-PROD-02

Advanced manufacturing for key products (Made in Europe partnership)

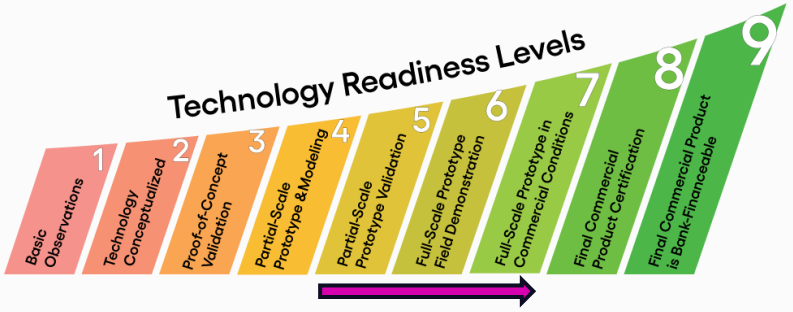
Scope

- Develop next-generation manufacturing technologies for strategic industrial products.
- Improve flexibility, productivity, precision and sustainability of production systems.
- Integrate AI, robotics, automation and digital manufacturing technologies.
- Demonstrate manufacturing solutions in industrial environments.

Expected Outcomes

- Increased productivity and manufacturing resilience.
- Reduced energy consumption, waste and production costs.
- Enhanced European competitiveness in high-value manufacturing.
- Faster industrial deployment of advanced manufacturing technologies.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
IA	36.00	6.00 to 8.00	6



HORIZON-CL4-2027-01-MAT-PROD-16

Technologies for innovative processing of raw materials

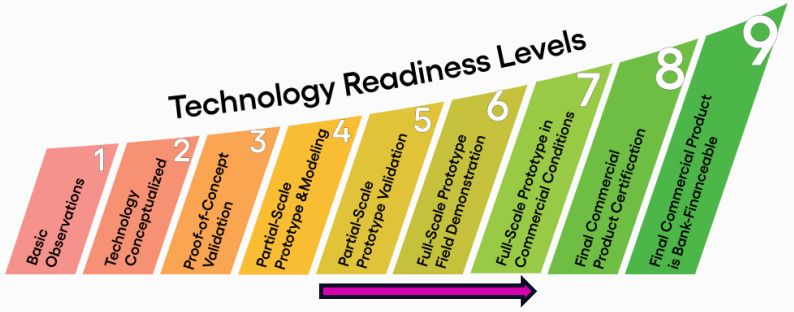
Scope

- Develop sustainable processing technologies for primary and secondary raw materials.
- Increase resource efficiency while reducing environmental impacts.
- Improve recovery of valuable materials from complex ores and waste streams.
- Demonstrate scalable processing technologies with industrial partners.

Expected Outcomes

- Higher recovery rates of strategic raw materials.
- Reduced energy, water and chemical consumption.
- Increased security and sustainability of European raw material supply.
- Lower environmental footprint of raw material processing.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
IA	49.00	10.00 to 12.50	4



HORIZON-CL4-2027-01-MAT-PROD-22

Innovative advanced materials and new production processes – reducing dependencies on Critical and Strategic Raw Materials (Innovative Advanced Materials for the EU and Processes4Planet partnerships)

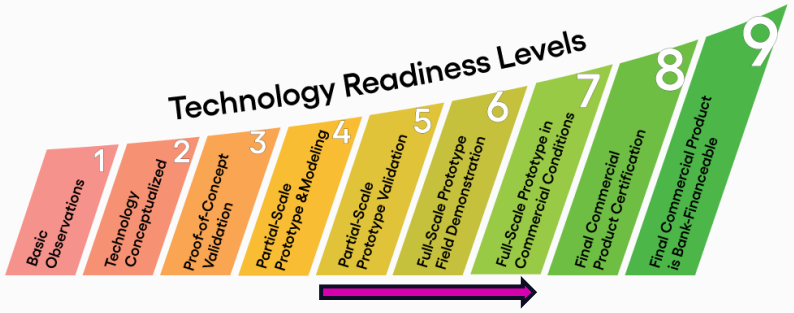
Scope

- Develop innovative materials that substitute or reduce the use of critical and strategic raw materials.
- Create manufacturing processes with improved material efficiency.
- Accelerate innovation across strategic industrial value chains.
- Demonstrate industrial feasibility and supply-chain integration.

Expected Outcomes

- Reduced dependence on imported critical raw materials.
- More resilient and secure European industrial supply chains.
- Increased competitiveness through material substitution and efficient production.
- Faster industrial adoption of sustainable material innovations.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
IA	36.00	6.00 to 7.50	6



HORIZON-CL4-2027-01-MAT-PROD-03

Factory processes and automation for de- and re-manufacturing (Made in Europe partnership)

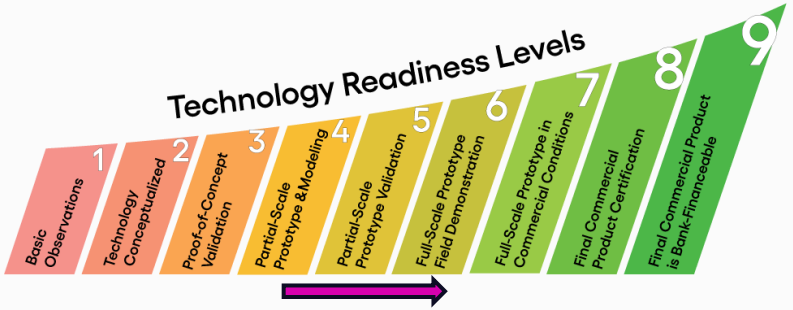
Scope

- Develop automated solutions for disassembly, refurbishment and remanufacturing.
- Integrate robotics, AI, sensing and digital manufacturing technologies.
- Enable efficient recovery and reuse of products and components.
- Demonstrate circular factory concepts in industrial environments.

Expected Outcomes

- Increased remanufacturing efficiency and automation.
- Higher recovery and reuse of valuable components.
- Reduced waste generation and raw material consumption.
- Greater circularity within European manufacturing industries.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
RIA	36.00	5.00 to 6.50	6



HORIZON-CL4-2027-01-MAT-PROD-61

Fast Track to Research and Innovation for breakthroughs in industrial technologies

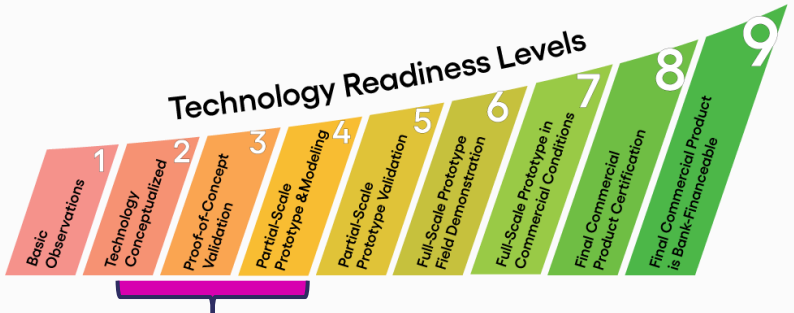
Scope

- Support rapid development of high-risk, high-impact industrial technology breakthroughs.
- Accelerate transition from laboratory results to industrial validation.
- Encourage agile, multidisciplinary innovation with strong industrial participation.
- Focus on disruptive technologies with high commercial potential.

Expected Outcomes

- Faster maturation of breakthrough industrial technologies.
- Reduced time-to-market for innovative solutions.
- Increased industrial competitiveness and innovation capacity.
- Stronger technology transfer from research to industry.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
RIA	20.00	0.00 to 2.50	8



Innovate UK

WP2026-27 CL5 Mobility

2 x Topics in Scope

HORIZON-CL5-2027-03-D5-08

Sustainable aircraft circular design and additive manufacturing, towards a climate neutral aviation

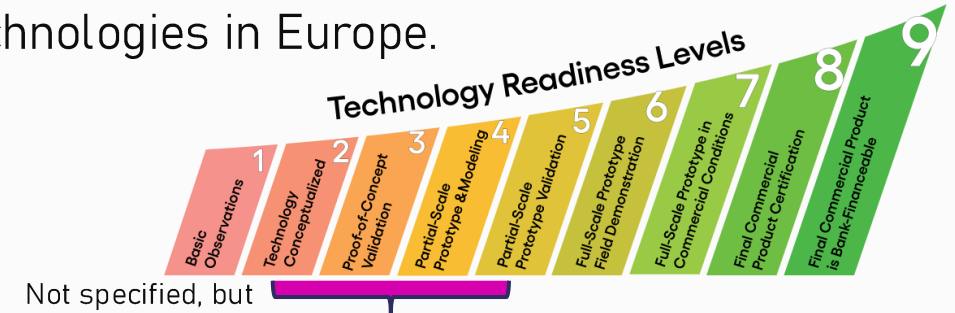
Scope

- Develop circular aircraft design methodologies using additive manufacturing.
- Advance manufacturing of lightweight metallic, composite and high-performance polymer components.
- Cover the full innovation chain including design, manufacturing, testing and certification.
- Demonstrate sustainable manufacturing approaches for high-value aircraft components.

Expected Outcomes

- Improved additive manufacturing technologies for aviation.
- Reduced material waste, weight and lifecycle environmental impacts.
- Increased circularity of aircraft components and manufacturing.
- Accelerated deployment of sustainable aircraft manufacturing technologies in Europe.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
RIA	5.00	Around 2.50	2



HORIZON-CL5-2027-04-Two-Stage-D5-09

Noise reduction breakthroughs for new ultraefficient aircraft

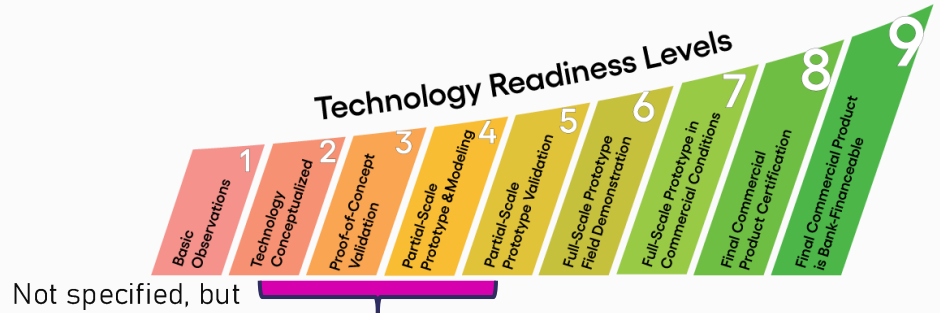
Scope

- Develop advanced aeroacoustic modelling and experimental validation methods.
- Address airframe, engine and cabin noise for future ultra-efficient aircraft (including open-fan concepts).
- Improve multidisciplinary aircraft design, optimization and noise mitigation technologies.
- Enhance understanding of noise perception and community impact.

Expected Outcomes

- Breakthrough noise prediction and reduction technologies.
- Lower external and cabin noise for next-generation aircraft.
- Improved methodologies for aircraft noise assessment and certification.
- Greater public acceptance and environmental sustainability of future aviation.

Type of Action	Topic Budget (€M)	EU Contribution per project (€M)	Indicative number of projects
RIA	5.00	Around 2.50	2



Further Support

B2Match Support

Read pitches and make connections to stakeholders interested in the target CL4 & CL5 Topics, inclusive of those absent from this event.

UKRI Horizon Europe Springboard Scheme

Funding support available for up to £5,000 for up to 20 applicants.

Additional support

Horizon Europe info days – European Commission webinars on Horizon Europe.

Innovate UK Horizon Europe Newsletter – To hear the latest activities & webinars on Horizon Europe activities and support.

National Contact Points – Available today to answer your questions on the Topics in scope, and online, for queries with your proposal development.

Innovate UK

b2match

UK Research and Innovation | Horizon Europe

Horizon Europe Springboard Scheme for Cluster 4 Industry Themes



Thank You!
Questions?