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# Welcome



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# Cluster 4: Digital and Industry

**Craig Sharp**

UK NCP for Cluster 4: Digital

**Anshuman Krishnan Ayyangar MIET**

UK NCP for Cluster 4: Industry



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# Agenda

## 1 Introduction

UKRI, NCPs, today's speakers from Innovate UK, Horizon Europe, the UK's association and more

## 2 Digital

Overview – UK NCP for Cluster 4: Digital

Case Study 1 – NETAI

Case Study 2 – Edinburgh and Glasgow Universities

## 3 Industry

Overview – UK NCP for Cluster 4: Industry

Case Study 1 – Design LED Products Ltd

Case Study 2 – Heriot-Watt University

## 4 Q&A



# UK Research and Innovation

We work with the government to invest over £7 billion a year in research and innovation by partnering with academia and industry to make the impossible, possible. Through the UK's nine leading academic and industrial funding councils, we create **knowledge with impact.**



**UK Research  
and Innovation**

# UK National Contact Points (NCPs)

Team of national advisors, appointed by the Government to support UK organisations to successfully participate in Horizon Europe by:

- Raising Awareness of the programme
- Helping you find the right Topic
- Identifying the best ways to find partners
- Navigating the EU funding & tender opportunities portal
- Developing the proposal
- Answering any other Horizon Europe related questions



Subscribe to NCP newsletters: <https://eufunding.ukri.org/subscribe>

# Craig Sharp

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# FP9: Horizon Europe

€95.5bn funding agreed for 2021-2027

€53.8bn

€24.9bn



Pillar 1  
EXCELLENT SCIENCE

European Research Council

Marie Skłodowska-Curie Actions

Research Infrastructures



Pillar 2  
GLOBAL CHALLENGES &  
EUROPEAN INDUSTRIAL  
COMPETITIVENESS

Clusters

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

Joint Research Centre



Pillar 3  
INNOVATIVE EUROPE

European Innovation Council

European innovation ecosystems

European Institute  
of Innovation and Technology

€13.4bn

WIDENING PARTICIPATION AND STRENGTHENING THE EUROPEAN RESEARCH AREA

Widening participation and spreading excellence

Reforming and Enhancing the European R&I system

*N.B.: Budget figures exclude UK and other Associate Country contributions*



# Update on the Association Agreement

- On 7th September 2023, the Prime Minister announced a new UK-EU agreement on the UK's association to Horizon Europe and Copernicus.
- As of 1st January 2024, the United Kingdom has become an **associated country** to Horizon Europe.
- UK applicants are eligible to apply to Horizon Europe calls, now and in the future. The government strongly encourages researchers/innovators to do so.
- All calls within the Horizon Europe work programme 2024 and beyond will be covered by the UK's association to Horizon Europe with European Commission funds.
- The UK government Horizon Europe guarantee has been extended to cover all remaining Horizon Europe grant calls that are funded under work programme 2023 irrespective of the call closing or grant signature date.

# Funding rates and main types of Action

## Research and Innovation Action (RIA)

- Typically, low(ish) Technology Readiness Level – usually TRL 2-4/5
- Consortium of at least three different legal entities from three different eligible countries (all UK legal entities are classed as eligible). At least one consortium member must be from a Member State (MS).
- All participants can receive (up to) 100% of eligible direct costs plus 25% for indirect costs.

## Innovation Action (IA)

- Typically, high(er) Technology Readiness Level (usually TRL 4-8)
- Consortium of at least three different legal entities from three different eligible countries. At least one must be from a MS.
- All not-for-profit participants receive 100% of eligible direct costs plus 25% for indirect costs.
- All for-profit participants receive 70% (60% if co-programmed partnerships) of eligible direct costs plus 25% for indirect costs.

## Coordination and Support Action (CSA)

- As name suggests, for coordinating and supporting activities such as working groups, networking, regulation review, communications, organising EU conferences, etc.
- Formally do not need a collaborative approach but often do to meet the scope. Must have at least one partner from a MS (always check topic eligibility requirements).
- All participants receive 100% of eligible direct costs plus 25% for indirect costs.

# Partnership types in Digital and Industry

The aim of European Partnerships with EU and associated countries, the private sector, foundations and other stakeholders is to deliver on global challenges and modernise industry. There are 3 types.

## Institutionalised

- These are partnerships in the field of research and innovation between the Union, EU member states and/or industry. They are implemented by dedicated structures created for that purpose.

## Co-Funded

- These are partnerships involving EU countries, with research funders and other public authorities at the core of the consortium.

## Co-Programmed

- These are partnerships between the Commission and mostly private (and sometimes public) partners.
- Generally they have a membership, develop (& refresh) roadmaps for the (7-year) life of the Programme and can provide a useful option for networking
- More on specific partnerships in the Digital and Industry sections...



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# Digital

- Overview – UK NCP for Cluster 4: Digital
- Case Study 1 – NETAI
- Case Study 2 – Glasgow & Edinburgh Universities



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# Cluster 4 Digital – what it covers

## DIGITAL TOPIC AREAS:

- AI, Data & Computing
  - Robotics
  - Photonics & Electronics
  - Smart Networks & Connectivity
  - Quantum
  - Graphene/2D materials
  - Digital Economy, standards, NGI, XR, Human factors, Industry 5.0
- \*plus separate calls on:
- 6G Smart Networks and Services
  - Chips JU – electronic systems, components, semiconductors

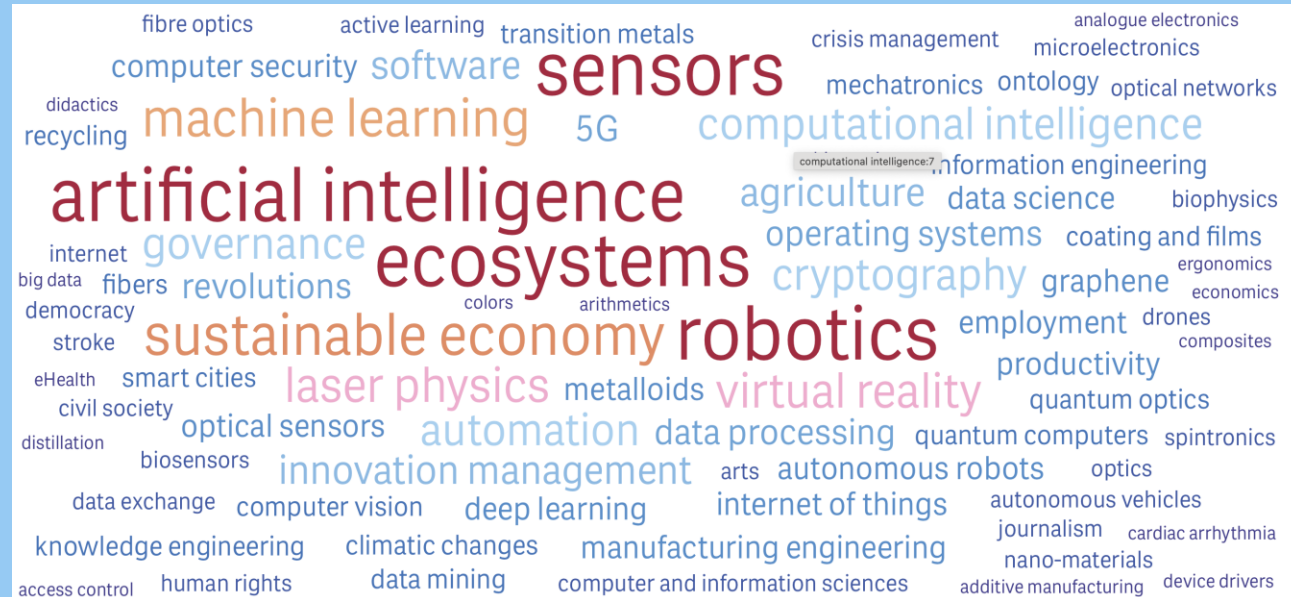
## Horizon Europe - multiple work programmes

- Digital opportunities are also available across other (Pillar 2) Cluster work programmes
- Mobility, Health, Energy, Climate, Security, etc. - often embedded in project activities, not just Digital, Industry and Space
- Each work programme has its own National Contact Point for support



# UK Digital topic participation: 2021-2023

- 182 UK participations (97 unique) across 129 projects to date
- Manchester University was represented the most (10 participations)
- 52 company participations (48 unique), 33 SMEs (26 unique)
- UK Association - renewed interest in UK participation – from EU co-ordinated proposals and UK participants



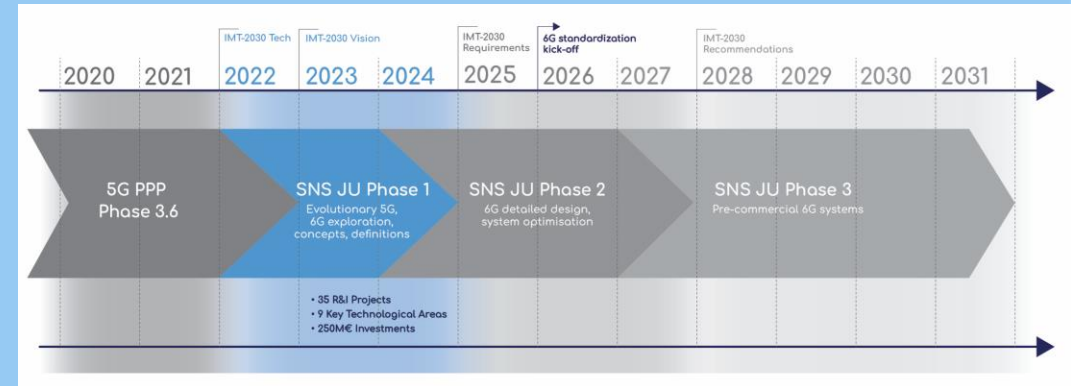
*Source: Horizon Europe Dashboard*

# 2024 Digital topics – 18/9/24 deadline

Topic	Title	TRL range	Project funding (€m)	Estimated projects
<a href="#">HORIZON-CL4-2024-HUMAN-03-01</a>	<b>Advancing Large AI Models: Integration of New Data Modalities and Expansion of Capabilities</b> (AI, Data and Robotics Partnership) (RIA)	-	25	2
<a href="#">HORIZON-CL4-2024-HUMAN-03-02</a>	<b>Explainable and Robust AI (RIA)</b> (AI Data and Robotics Partnership)	2/3->4/5	7.5	2
<a href="#">HORIZON-CL4-2024-HUMAN-03-03</a>	<b>Digital Humanism - Putting people at the centre of the digital transformation</b> (CSA)	--		
<a href="#">HORIZON-CL4-2024-HUMAN-03-04</a>	<b>Facilitate the engagement in global ICT standardisation development</b> (CSA) FSTP	-	6	1

See AI, Data & Robotics [brokerage event](https://ai-data-robotics-2024.b2match.io/home) recording (5:04 hrs) for Human 03-01 and -02 (<https://ai-data-robotics-2024.b2match.io/home>)

# 6G Smart Networks and ServicesJU



- Advanced 5G/6G development
- €900m programme budget, annual calls
- More info/funded projects: <https://smart-networks.europa.eu>
- 2024 calls (open) - <https://smart-networks.europa.eu/current-call-for-proposals/>
- 6G Industry Association - <https://6g-ia.eu>

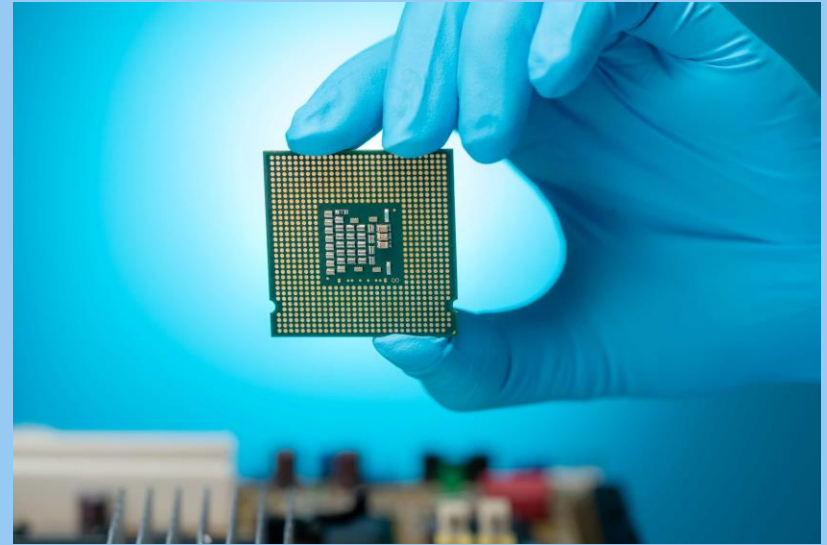
UK organisations are eligible for 6GIA membership





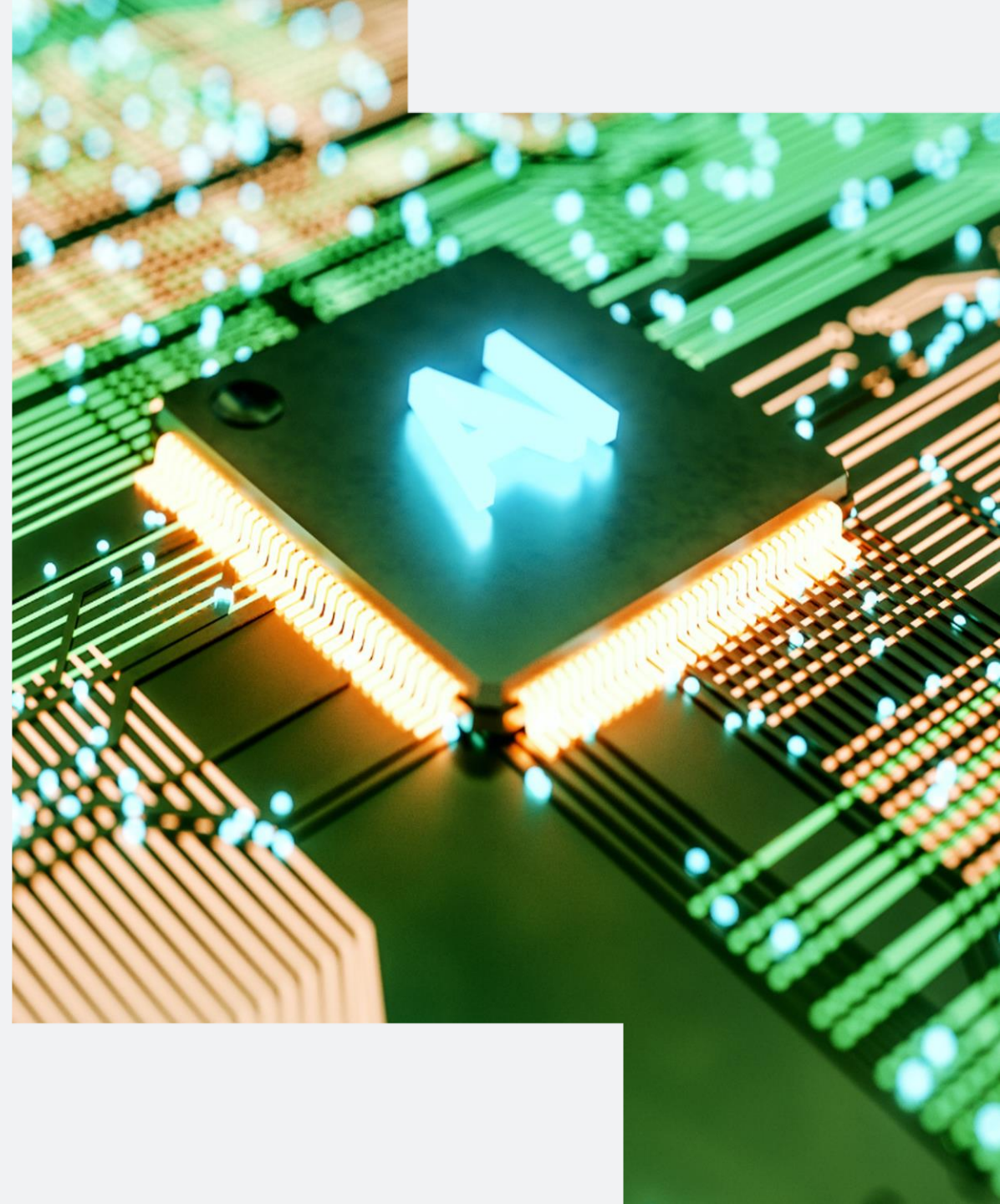
# Chips Joint Undertaking (JU)

- Electronic systems and components
- €1.3Bn programme budget (“non-initiative”)
- More info/funded projects: <https://www.chips-ju.europa.eu/Projects/>
- Calls (non-initiative) - <https://www.chips-ju.europa.eu/noninitiative/>
- Co-funded annual calls (UK co-funding [announced March 2024](#))
- See 2024 UK [Info session](#) for overview



# Future direction..

- *AI/GenAI*
- *3C Networks (Connected Collaborative Computing).*
- *Ground-Breaking Technological Foundations in AI, Data, Robotics and in software Engineering*
- *Next generation smart embodied Robotic systems*
- *AI in Science*
- *Photonics*
- *Advanced/Graphene-2D materials:*
- *Quantum*
- *AI, Next Generation Internet (NGI) and Virtual Worlds (VW)*
- *International cooperation*
- *Standards*
- *Valorisation of Knowledge*
- *Facilitated cooperation on AI in Science*
- *Industry 5.0*



# Partnerships types in Digital and Industry topics

The aim of European Partnerships with EU and associated countries, the private sector, foundations and other stakeholders is to deliver on global challenges and modernise industry.

The following are key partnerships in the area of Digital:

1. Artificial Intelligence, Data and Robotics – <https://adr-association.eu>
2. Photonics - <https://www.photonics21.org>
3. (6G) Smart Networks and Services JU - <https://6g-ia.eu>
4. Chips JU (formerly Key Digital Technologies) – <https://www.chips-ju.europa.eu>
5. Virtual Worlds (new)

[Digital, industry and space \(europa.eu partnership details\)](#)

# Case Study – NETAI Ltd.

## ETHER – sElf-evolving terrestrial/non-Terrestrial Hybrid nEtwoRks (6G SNS JU project)

- **Grant Agreement ID:** 101096526
  - 13-member consortium, led by a Luxembourg RTO, with 1 UK partner (also in another 6G SNS JU project)
  - EU funding of €4.6M. and UK guarantee grant worth £370k.
- **DOI:** [10.3030/101096526](https://doi.org/10.3030/101096526)
- **Aim:** Energy-efficient, integrated terrestrial-non-terrestrial networks
  
- **Project in a Nutshell:**
  - Integrating terrestrial and non-terrestrial networks can connect the unconnected and increase the user experience for the already connected.
  - Provide a comprehensive approach for integrated terrestrial-non-terrestrial networks targeting 100 % network coverage, 99.99999 % service continuity and 99.99999 % reliability, with three times higher energy efficiency and 95 % total cost of ownership reduction compared to existing terrestrial deployments.

# Case Study – Edinburgh and Glasgow Universities

## dAIEDGE European Network of AI Excellence Centres: Expanding the European AI lighthouse

### Grant Agreement ID: 101120726

- 36-member consortium, led by a German RTO, with 2 UK partners (Edinburgh and Glasgow Universities)
- EU funding of €10.7M and UK guarantee grant worth £637k.
- **DOI:** [10.3030/101120726](https://doi.org/10.3030/101120726)
- **Aim:** Seamlessly connect various research facilities, laboratories, digital innovation hubs, industrial stakeholders, and ongoing AI projects
- **Project in a Nutshell:**
  - Unite leading European research centres, universities, and industrial partners into a network of excellence (NoE) for distributed and scalable AI at the edge.
  - The dAIEDGE NoE is positioned as a catalyst, playing a pivotal role in the establishment of a robust virtual edge AI community across Europe..

# WP 2025: What lies ahead for 'Digital'?

- The next set of Digital calls/topics is expected ~ Q1 2025.
- The indicative budget for Destinations 3, 4 and 6 are ~€500m.
- Separate Joint Undertaking (JU) calls for 6G Smart Networks and Services and Chips JU expected to publish Q4 2024, deadline ~Spring 2025
- Candidate partnerships of relevance:
  - Virtual Worlds



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# Industry

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# WP 2025 Destinations

## Destination 1: Achieving global leadership in climate-neutral, circular and digitised industrial and digital value chains

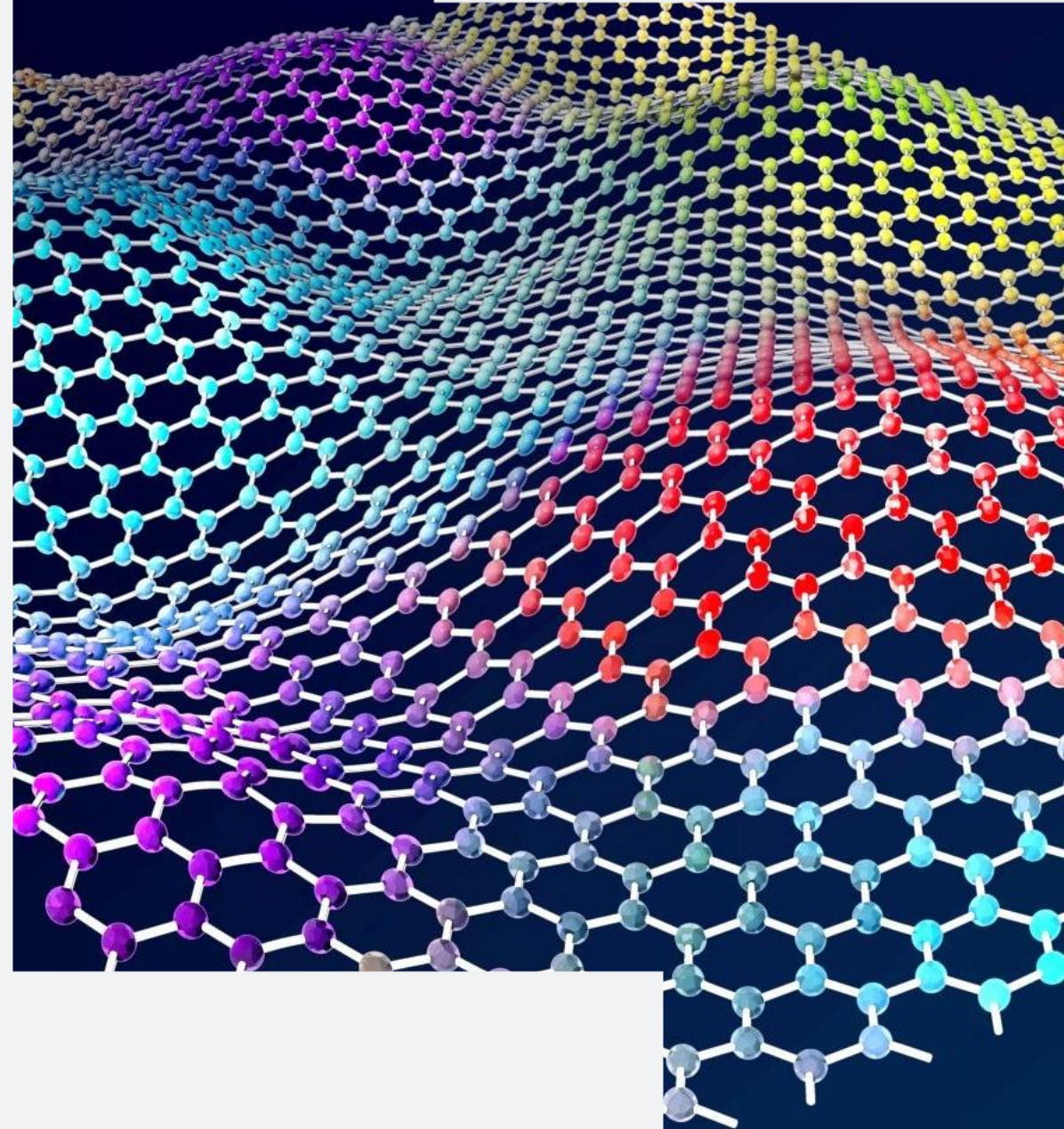
- Re-manufacturing and De-manufacturing
- Automating the road to flexible and resource-efficient value chains
- Human-machine interactions
- Electrification of production
- Green and resilient production processes
- Integration of renewable energy carriers
- Upcycling technologies
- Pollution abatement
- Accelerating innovation in steelmaking
- Deploying low-carbon technologies
- Construction
- Digitally enabled textile production



# WP 2025 Destinations

Destination 2: Achieving technological leadership for Europe's open strategic autonomy in raw materials, chemicals and innovative materials

- Alternatives to PFAS
- Advanced life-cycle assessment (LCA)
- Advanced materials
- Raw materials



# UK Participation: 2021-2023

**174 UK entities** applied into TWIN TRANSITION and RESILIENCE destinations, of which **114 were unique**.

Birmingham was represented the most with **18 participants**.

**182 proposals** were submitted overall, of which **103 were eligible**.

**97 grant agreements** were signed in all.

**64 SMEs** and **52 unique SMEs** have participated, leading to **58 SME applications** with a cumulative proposed funding requirement of **€20.65 million**.

Among all 18 associated countries, the UK has been ranked:

- **1st** for participation
- **2nd** for contribution per inhabitant
- **9th** for budget share

*Source: Horizon Europe Dashboard*

# UK Participation: 2024

## Single-stage calls/topics

- Destination 1: TWIN-TRANSITION
  - 210 participations, 29 successful
  - Share of award budget = 15.20%
  - Rank among ACs = 1
- Destination 2: RESILIENCE
  - 46 participations, 5 successful
  - Share of award budget = 15.48%
  - Rank among ACs = 1

***N.B.:*** Final results a/o 12 June 2024.

## First stage of two-stage calls/topics

- Destination 1: TWIN-TRANSITION
  - 64 participations, 15 successful
  - Rank among ACs = 1
- Destination 2: RESILIENCE
  - 83 participations, 21 successful
  - Rank among ACs = 1

***N.B.:*** First stage outcomes only, i.e., invitations to submit full proposal after concept note was positively evaluated. Final results will be available in Q4 2024.

# WP 2021-Present for 'Industry'

- The indicative budgets for Destination 1 and Destination 2 were €1350m+ and €1300m+ respectively.
- Existing partnerships of relevance:
  - Made in Europe
  - Clean Steel
  - Processes4Planet
- Synergies with multiple Clusters within Pillar II (e.g., Mobility, Energy, Bioeconomy) and parts of Pillar III (e.g., EIT, EIC).

# WP 2025: What lies ahead for 'Industry'?

- The next set of calls/topics is expected in Q1 2025.
- The indicative budgets for Destination 1 and Destination 2 are €300m+ and €160m+ respectively.
- Candidate partnerships of relevance:
  - Innovative Advanced Materials for EU (IAM4EU),
  - Raw Materials for the Green and Digital Transition, and,
  - Textiles of the Future.
- Possibility of a joint topic on advanced materials with EIC Accelerator to foster SMEs in the ecosystem.

# Recent EC development(s)

New initiatives boosting European industrial leadership in advanced materials

Strategic area	Advanced materials R&I priorities
Energy	Materials needed for conversion and generation of renewable and low carbon energy, energy storage and increased energy efficiency
Mobility	Materials for energy storage and use, robust, lightweight materials for transport means and assets, protection and durability, circularity and environmental performance, ability to perform in harsh environments
Construction	Materials for more energy efficient buildings, more robust building structures and structural integrity monitoring, enhanced wellbeing in buildings, materials increasing circularity and improved environmental performance
Electronics	Materials for improved performance and new functionalities of electronic components, sensors, novel computing concepts, chips production, greater efficiency in the next generation of communication technologies and ability to perform in harsh environments

*Source: European Commission*

# Case Study 1 – Design LED Products Ltd.

**OPeraTIC: Boosting the adoption of Ultrashort Pulsed Laser large scale structuring with an agile, dexterous and efficient manufacturing platform (2022-2026)**

- **Grant Agreement ID:** 101058409
  - 17-member consortium, led by a Spanish RTO, with two UK partners (the other being University of Warwick).
  - EU funding worth €6.11mn. and UK guarantee grant worth £173k.
- **DOI:** [10.3030/101058409](https://doi.org/10.3030/101058409)
- **Aim:** More sustainable and large-scale laser structuring.
- **Project in a Nutshell:**
  - This project aspires to use high-power ultra-short pulsed lasers (USPLs) to make surface micromachining of large 3D parts more efficient and sustainable.
  - Using advanced optics, precision robotic arms, and artificial-intelligence planning, researchers aim to make USPL manufacturing more reliable and replicable.
  - The advancements will then be demonstrated on four industrial case settings in the automotive, aeronautic, lighting and white goods sectors, using lasers to provide the products with advanced surface functionalities under realistic production conditions.



# Case Study 2 – Heriot-Watt University

## SIMPLI-DEMO: Demonstration of Sonication and Microwave Processing of Essential Chemicals (2022-2026)

- **Grant Agreement ID:** 101058279
  - 13-member consortium, led by a Belgian University, with one UK partner.
  - EU funding worth €11.54mn. and UK guarantee grant worth £685k.
- **DOI:** [10.3030/101058279](https://doi.org/10.3030/101058279)
- **Aim:** Enhanced continuous processing technologies to strengthen the European chemical process industry.
  
- **Project in a Nutshell:**
  - Continuous versus conventional batch production methods enable 24/7 manufacturing, minimising the labour, days and processing steps required to deliver large quantities, as well as start-up and shut-down costs.
  - Further, quality control can be enhanced with inline monitoring. Overall, it is more time-efficient and productive while reducing energy needs and waste.
  - This project will advance its process intensification approaches and modular flow technology, enabling continuous and modular production of specialty polymers and particles for numerous specialty chemicals and pharmaceuticals, enhancing the competitiveness of the European chemical industry.



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