



#HorizonEU

THE EU
RESEARCH & INNOVATION
PROGRAMME

2021 – 2027

Horizon Europe Cluster 4 - Digital, Industry
and Space

16 November 2022

Overview 'Digital'

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Research and
Innovation

Cluster 4 'Digital, Industry and Space' – Political Priorities



[European Data Strategy | European Commission \(europa.eu\)](#)

[European Data Governance Act | Shaping Europe's digital future \(europa.eu\)](#)

[Data Act | Shaping Europe's digital future \(europa.eu\)](#)

[A European approach to artificial intelligence | Shaping Europe's digital future \(europa.eu\)](#)

[European Chips Act | European Commission \(europa.eu\)](#)

[Europe's Digital Decade: digital targets for 2030 | European Commission \(europa.eu\)](#)

[Action Plan on critical raw materials, Chemical Strategy for Sustainability, Circular Economy Action Plan – For a cleaner and more competitive Europe, European Space Strategy](#)

Overall Vision: 2030 Digital Decade

Digital Decade Communication

2030 Vision & Targets, Approach to delivery, Digital Principles

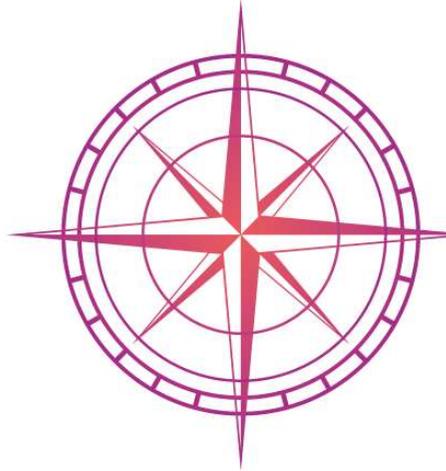
Empowering businesses and people in a human-centred,
sustainable and more prosperous digital future

Overall Vision: 2030 Digital Decade

Skills

ICT Specialists: 20 million + Gender convergence

Basic Digital Skills: min 80% of population



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Infrastructures

Connectivity: Gigabit for everyone, 5G everywhere

Cutting edge Semiconductors: double
EU share in global production

Data – Edge & Cloud: 10,000 climate
neutral highly secure edge nodes

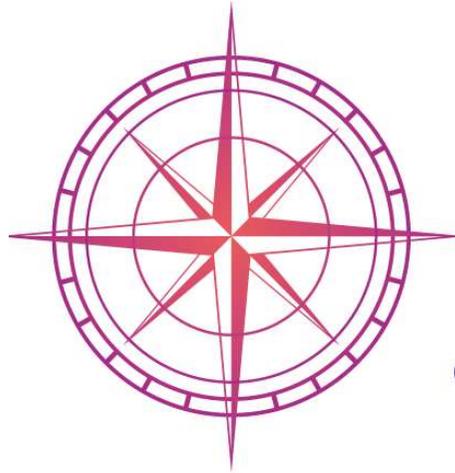
Computing: first computer with quantum acceleration

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Business

Tech up-take: 75% of EU companies using Cloud/AI/Big Data

Innovators: grow scale ups & finance to double EU Unicorns

Late adopters: more than 90% of European SMEs reach
at least a basic level of digital intensity

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Public Services

Key Public Services: 100% online
e-Health: 100% availability medical records
Digital Identity: 80% citizens using digital ID

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Policy Programme: a Path to the Digital Decade

Multi-Country Projects

- ✓ **Multi-country projects** are large scale projects for:
 - ✓ the achievement of the targets for the digital transformation of the Union;
 - ✓ and industrial recovery.
- ✓ They will **pool EU, national, and private resources** to achieve progress that no Member State could do on its own.

Multi-country projects will facilitate investments in areas like:



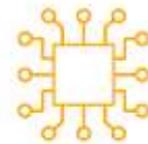
High-performance computing



Common data infrastructure and services



Blockchain



Low-power processors



Pan-European deployment of 5G corridors



High-tech partnerships for digital skills



Secure quantum infrastructure and network of cybersecurity centres



Digital public administration



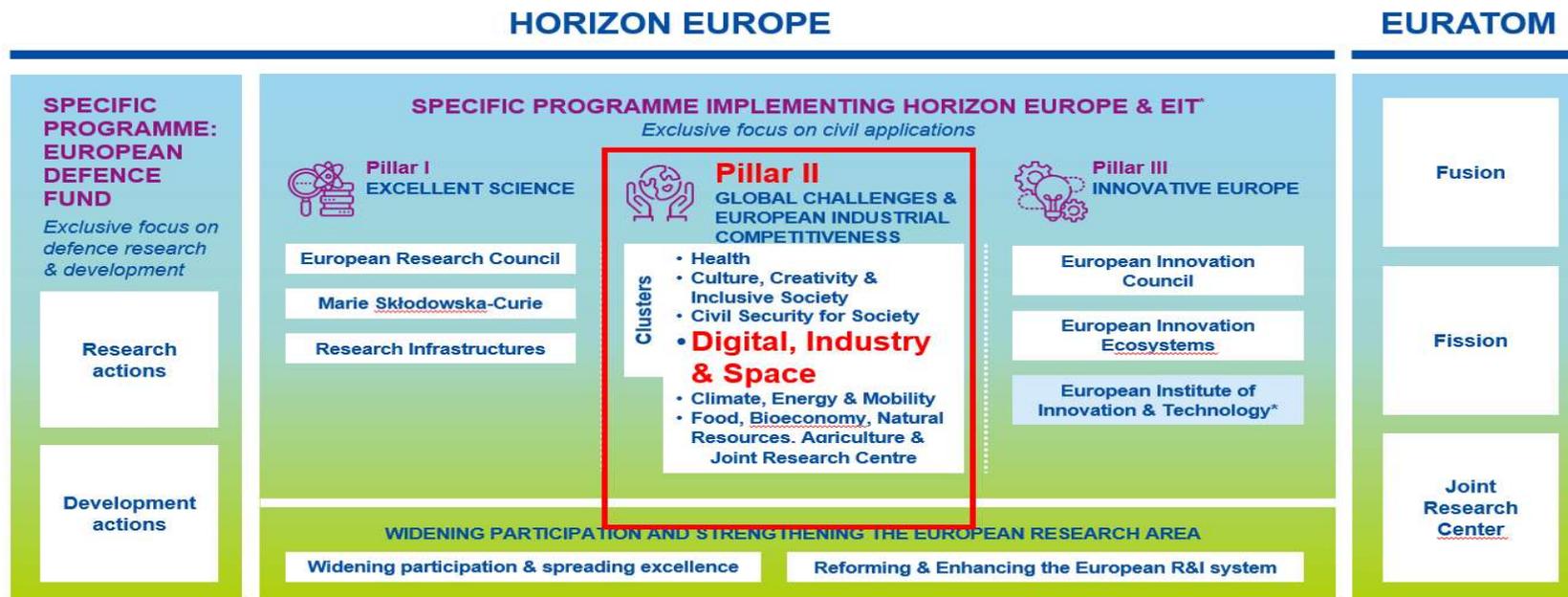
Digital innovation hubs

Overall Vision: 2030 Digital Decade

- **Ultimate goal = 2030 digital decade targets** for people, planet, prosperity

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- **Digital in Horizon Cluster 4 = sector agnostic technology** with as much as possible by-design compliance (privacy, ethical, trustworthy, planet friendly...) + **Partnerships**



Cluster 4 – Strategic Priorities

From EU priorities to Work Programme Destinations



Cluster 4 directly supports the three Key Strategic Orientations outlined in the Strategic Plan 2021-2024

Cluster 4 – Intended Impact & Destinations

Strategic Plan (2021-2024) and Orientations

Making Europe the first digitally enabled, circular, climate-neutral and sustainable economy

Promoting an open strategic autonomy by leading the development of key digital, and enabling and emerging technologies, sectors and value chains

Creating a more resilient, inclusive and democratic European society

Cluster 4 – Intended Impact & Destinations

Strategic Plan (2021-2024) and Orientations



Destinations

<p>Making Europe the first digitally enabled, circular, climate-neutral and sustainable economy</p>	<p>1. Climate neutral, circular and digitised production TWIN-TRANSITION</p>
<p>Promoting an open strategic autonomy by leading the development of key digital, and enabling and emerging technologies, sectors and value chains</p>	<p>2. A digitised, resource efficient, and resilient industry - RESILIENCE 3. World-leading data and computing technologies - DATA 4. Digital and emerging technologies for competitiveness and fit for the green deal - DIGITAL-EMERGING 5. Open Strategic Autonomy in developing, deploying and using global space-based infrastructures, services, applications and data - SPACE</p>
<p>Creating a more resilient, inclusive and democratic European society</p>	<p>6. A human-centred and ethical development of digital and industrial technologies - HUMAN</p>

Cluster 4 – Intended Impact & Destinations

Strategic Plan (2021-2024) and Orientations



Destinations

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Indicative Budget of Cluster 4

2021-27 budget = 15.348 bn€ (including NGEU)

For the WP 2023-2024, the **programmable budget is ~2.7 bn€**, distributed *approximately* as below:

DESTINATION	BUDGET 2023-24
<i>Destination 'Climate neutral, circular and digitised production'</i>	634.3 M€
Destination 'Increased autonomy in key strategic value chains for resilient industry'	559.2 M€
<i>Destination 'World leading data and computing technologies'</i>	161.0 M€
<i>Destination 'Digital and emerging technologies for competitiveness and fit for the green deal'</i>	461.5 M€
Destination 'Open Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data' (incl. Other Actions)	183.8 M€
<i>Destination 'A Human-centred and ethical development of digital and industrial technologies'</i>	317.5 M€
Other Actions	369.5 M€

Partnerships in Cluster 4

- Processes4Planet – Transforming the European Process Industry for a sustainable society (1,300M€)
- Clean Steel - Low Carbon Steelmaking (700M€)
- Made in Europe (900M€)
- EuroHPC, High-Performance Computing (JU 900M€)
- KDT, Key Digital Technologies (JU 1800M€) - to be renamed CHIPS with extended scope and budget
- SNS, Smart Networks and Services (JU 900M€)
- Artificial Intelligence, Data and Robotics (1300 M€)
- Photonics (340M€)
- Globally competitive Space Systems (proposed)
- Metrology (300 M€)

World leading Data and Computing Technologies 2023-2024

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (M€)
Data sharing in the common European data spaces	3 (incl. 1 CSA)	84
From Cloud to Edge to IoT for European Data	4 (incl. 2 CSAs)	77
<i>TOTAL estimated</i>	7	161

Digital and emerging technologies for competitiveness and fit for the green deal 2023-2024

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (M€)
AI, Data and Robotics (incl. efficient, robust, safe, adaptive and trusted robots)	4	150
European Leadership in Emerging and Enabling Technologies	2	57
European Innovation Leadership in Photonics	6 (incl. 1 CSA)	93
Graphene and 2D materials: Europe in the lead	4 (incl. 1 CSA)	54
Flagship on Quantum Technologies: a Paradigm Shift	7 (1 SGAs)	97
Open Source for Cloud/Edge and Software Engineering Fundamentals to support Digital Autonomy	3 (incl. 1 CSA)	35,5
<i>TOTAL estimated</i>	26	486,5

Article 22(5) – Application 2023 topics

High TRL Quantum Technologies

Participation is limited to legal entities established in [Member States, Iceland, Norway, Israel](#)

- **HORIZON-CL4-2023-DIGITAL-EMERGING-01-40: Quantum Photonic Integrated Circuit technologies (RIA)**
- **HORIZON-CL4-2023-DIGITAL-EMERGING-01-41: Investing in alternative quantum computation and simulation platform technologies (RIA)**
- **HORIZON-CL4-2023-DIGITAL-EMERGING-01-43: Framework Partnership Agreement for developing large-scale quantum Computing platform technologies (FPA)**
- **02- SGA- Developing large-scale quantum Computing platform technologies (SGA)**

Low TRL Quantum Technologies

Participation is limited to legal entities established in [Member States, associated countries, OECD and Mercosur countries](#)

- **HORIZON-CL4-2023-DIGITAL-EMERGING-01-50: Next generation quantum sensing and metrology technologies (RIA)**

A human-centred and ethical development and industrial technologies 2023-2024

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (M€)
European standards for industrial competitiveness	6 (all CSAs)	23
International cooperation	3 (all CSAs)	6,5
Leadership in AI based on trust	7 (incl. 1 CSA)	143
An Internet of Trust	4 (incl. 1 CSAs)	47
eXtended Reality (XR)	3 (incl. 1 CSA)	53
Digital Humanism and human compatible technologies	2 (all CSAs)	4,5
Systemic approaches for accelerating uptake of technology and innovation incl. <u>NCP Network(s) for Cluster 4 (Digital, Industry, Space)</u>	4 (all CSAs)	14
Research and Innovation for Industry 5.0	4 (incl. 1 CSA)	26,5
<i>TOTAL estimated</i>	33	317,5

Climate neutral, circular, and digitised production 2023-2024

SECTIONS (MOST DIGITAL RELATED)	NUMBER OF TOPICS	ESTIMATED BUDGET (M€)
Manufacturing industry	6	189.6



Info Days for Cluster 4 Horizon Europe

12 December 2022 - 14 December 2022

Register: <https://research-innovation-community.ec.europa.eu/events/>





Thank you!

HorizonEU

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



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