

HORIZON EUROPE WORK PROGRAMME 2021-2022

Cluster 4 *Digital, Industry, Space*

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Cluster 4 – Political Priorities



- [European Space Strategy](#)
- [Action Plan on critical raw materials](#)

Cluster 4 – Vision



*Competitive technologies respecting the boundaries of our planet,
and reflecting human needs*

Twin Green and Digital transitions

Climate-neutral, circular and clean industry

Industrial and digital transformation

- mastering technologies
- deploying technologies – technology infrastructures
- securing autonomy in strategic value chains



Major contribution to Inclusiveness and Resilience

- engagement with users, workers, citizens
- development of skills
- development of regions

KEY STRATEGIC ORIENTATION	EXPECTED IMPACT
Making Europe the first digitally enabled, circular, climate-neutral and sustainable economy (C)	Global leadership in clean and climate-neutral industrial value chains, circular economy and climate-neutral digital systems and infrastructures (networks, data centres) , through innovative production and manufacturing processes and their digitisation, new business models, sustainable-by-design advanced materials and technologies enabling the switch to decarbonisation in all major emitting industrial sectors, including green digital technologies.
Promoting an open strategic autonomy by leading the development of key digital, and enabling and emerging technologies, sectors and value chains (A)	Industrial leadership and increased autonomy in key strategic value chains with security of supply in raw materials , achieved through breakthrough technologies in areas of industrial alliances, dynamic industrial innovation ecosystems and advanced solutions for substitution, resource and energy efficiency, effective reuse and recycling and clean primary production of raw materials, including critical raw materials and leadership in circular economy.
	Globally attractive, secure and dynamic data-agile economy by developing and enabling the uptake of the next-generation computing and data technologies and infrastructures (including space infrastructure and data), enabling the European single market for data with the corresponding data spaces and a trustworthy artificial intelligence ecosystem.
	Open strategic autonomy in digital technologies and in future emerging enabling technologies by strengthening European capacities in key parts of digital and future supply chains, allowing agile responses to urgent needs, and by investing in early discovery and industrial uptake of new technologies.
	Open strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data , including by reinforcing the EU's independent capacity to access space, securing the autonomy of supply for critical technologies and equipment and fostering the EU's space sector competitiveness.
Creating a more resilient, inclusive and democratic European society (D)	A human-centred and ethical development of digital and industrial technologies , through a two-way engagement in the development of technologies, empowering end-users and workers, and supporting social innovation.

Cluster 4 Digital, Industry and Space – Destinations in WP 2021-22

KEY STRATEGIC ORIENTATION	DESTINATION
Making Europe the first digitally led circular, climate-neutral and sustainable economy	Climate neutral, Circular and Digitised Production – TWIN-TRANSITION
Promoting an open strategic autonomy by leading the development of key digital, and enabling and emerging technologies, sectors and value chains	A Digitised, Resource-efficient and Resilient Industry – RESILIENCE
	World-leading Data and Computing Technologies – DATA
	Digital and Emerging Technologies for competitiveness, fit for the Green Deal – DIGITAL-EMERGING
	Open Strategic Autonomy in developing, deploying and using global Space-based Infrastructures, Services, Applications and Data – SPACE
Creating a more resilient, inclusive and democratic European society	A Human-centred and Ethical development of Digital and Industrial technologies – HUMAN

Partnerships in Cluster 4



- Processes4Planet – Transforming the European Process Industry for a sustainable society
- Clean Steel - Low Carbon Steelmaking
- Made in Europe
- EuroHPC, High-Performance Computing (JU)
- KDT, Key Digital Technologies (JU)
- SNS, Smart Networks and Services (JU)
- Artificial Intelligence, Data and Robotics
- Photonics
- Globally competitive Space Systems (proposed)
- Metrology

Indicative Budget of Cluster 4

On 18 December, co-legislators agreed on a **budget of 15.348 B€ for Cluster 4** (including NGEU)

For the WP 2021-2022, the **programmable budget is ~3.4 B€**, distributed *approximately* as follows (all figures in this presentation are to the nearest 5M€):

DESTINATION	BUDGET 2021-2022
Destination 1 'Climate neutral, circular and digitised production'	735 M€
Destination 2 'Increased autonomy in key strategic value chains for resilient industry'	760 M€
Destination 3 'World leading data and computing technologies'	345 M€
Destination 4 'Digital and emerging technologies for competitiveness and fit for the green deal'	735 M€
Destination 5 'Open Strategic autonomy in developing, deploying and using global space-based infrastructures, services, applications and data'	505 M€
Destination 6 'A Human-centred and ethical development of digital and industrial technologies'	325 M€
Other Actions (other than Space Other Actions)	15 M€

Destination 1: Climate neutral, circular, and digitised production

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (EUR M)
Green, flexible and advanced manufacturing	8	190
Advanced digital technologies for manufacturing	4	100
A new way to build, accelerating disruptive change in construction	4	70
Hubs for circularity, a stepping stone towards climate neutrality and circularity in industry	3 (including 1 CSA)	70
Enabling circularity of resources in the process industries, including waste, water and CO ₂ /CO	6	170
Integration of Renewables and Electrification in process industry	5	135
TOTAL estimated budget WP 2021-2022	30	735

Destination 2: A digitised, resource-efficient and resilient industry

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (EUR M)
Novel paradigms to establish resilient and circular value chains	2	50
Raw materials for EU strategic autonomy and successful transition to a climate-neutral and circular economy	12 (including 2 CSAs)	255
Green and Sustainable Materials	8 (including 1 CSA)	150
Materials for the benefit of society and the environment and materials for decarbonising Industry	9 (including 1 CSA)	185
Materials and data cross-cutting actions	5 (including 1 CSA)	80
Improving the resilience and preparedness of EU businesses, especially SMEs and Startups	7 (including 4 CSAs)	40
TOTAL estimated budget WP 2021-2022	43	760

Destination 3: World leading data and computing technologies

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (EUR M)
Data sharing in the common European data spaces	3	140
Strengthening Europe's data analytics capacity	2	65
From Cloud to Edge to IoT for European Data	5 (incl. 2 CSAs)	140
TOTAL estimated budget WP 2021-2022	10	345

EuroHPC JU: 243 MEUR

Destination 4: Digital and emerging technologies for competitiveness and fit for the green deal

	NUMBER OF TOPICS	ESTIMATED BUDGET (EUR M)
Ultra-low power processors	3 (incl. 1 CSA)	50
European Innovation Leadership in Electronics	1	35
European Innovation Leadership in Photonics	3	115
6G and foundational connectivity technologies	1 (CSA)	2.5
Innovation in AI, Data and Robotics	3	70
Tomorrow's deployable Robots: efficient, robust, safe, adaptive and trusted	4	135
European leadership in Emerging Enabling Technologies	4 (incl. 1 CSA)	60
Flagship on Quantum Technologies: a Paradigm Shift	19 (incl. 3 CSAs)	225 (+9 in Dest 5)
Graphene: Europe in the lead	5 (incl. 1 CSA)	45
TOTAL estimated budget WP 2021-2022	43	735

KDT JU: 460 MEUR, SNS JU: 243 MEUR ¹³



Destination 5: Open strategic autonomy in developing, deploying and using global space based infrastructures, services, applications and data

SECTIONS	NUMBER OF TOPICS	ESTIMATED BUDGET (EUR M)
EGNSS upstream	3 Topics – Other Actions (OA)	95
Copernicus services evolution	7 Topics	55
EGNSS and Copernicus applications	8 Topics	75
SSA / GOVSATCOM Quantum	3 Topics, 8 OA	95
Cassini	1 CSA, 1 Prize, 2 OA	20
Competitiveness	5 Topics	55
Access to space	4 Topics	45
Targeted and Strategic Actions (incl. Space science and IOD/IOV)	4 Topics, 1 OA	65
TOTAL estimated budget WP 2021-2022	47	505

Destination 6: A human-centred and ethical development and industrial technologies

	NUMBER OF TOPICS	ESTIMATED BUDGET (EUR M)
Leadership in AI based on trust	7 (incl. 1 CSA)	130
An Internet of Trust	8 (incl. 3 CSAs)	65
eXtended Reality (XR)	7 (incl. 1 CSA)	105
Systemic approaches to make the most of the technologies within society and industry incl. <u>NCP Network for Cluster 4</u>	7 (incl. 4 CSAs)	25
TOTAL estimated budget WP 2021-2022	29	325

Thank you



https://ec.europa.eu/info/research-and-innovation/research-area/industrial-research-and-innovation_en



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