



MINISTÈRE
DE L'ENSEIGNEMENT
SUPÉRIEUR,
DE LA RECHERCHE
ET DE L'INNOVATION

*Liberté
Égalité
Fraternité*



Horizon Europe

Pilier 2 – Cluster 4 - **DESTINATION 3, 4 et 6**

Journée nationale d'information sur les appels à propositions 2022 dans les destinations du numérique

le 03 Février 2022





Quelques Rappels

HORIZON EUROPE

PROGRAMME SPÉCIFIQUE D'EXÉCUTION D'«HORIZON EUROPE» ET EIT*

axé exclusivement sur les applications civiles



Pilier I
EXCELLENCE
SCIENTIFIQUE

Conseil européen de
la recherche

Marie Skłodowska-Curie

Infrastructures de recherche

Budget 25 Md€



Pilier II
PROBLÉMATIQUES
MONDIALES ET COMPÉTITIVITÉ
INDUSTRIELLE EUROPÉENNE

Pôles

- Santé
- Culture, créativité et société inclusive
- Sécurité civile pour la société
- Numérique, industrie et espace
- Climat, énergie et mobilité
- Alimentation, bioéconomie, ressources naturelles, agriculture et environnement

Centre commun
de recherche (JRC)

Budget 53,52 Md€



Pilier III
EUROPE INNOVANTE

Conseil européen de
l'innovation

Écosystèmes européens
d'innovation

Institut européen d'innovation
et de technologie*

Budget 13,6 Md€

ÉLARGIR LA PARTICIPATION ET RENFORCER L'ESPACE EUROPÉEN DE LA RECHERCHE

Élargir la participation et propager l'excellence

Budget 2,96 Md€

Réformer et consolider le système européen de R&I

Budget 0,44 Md€

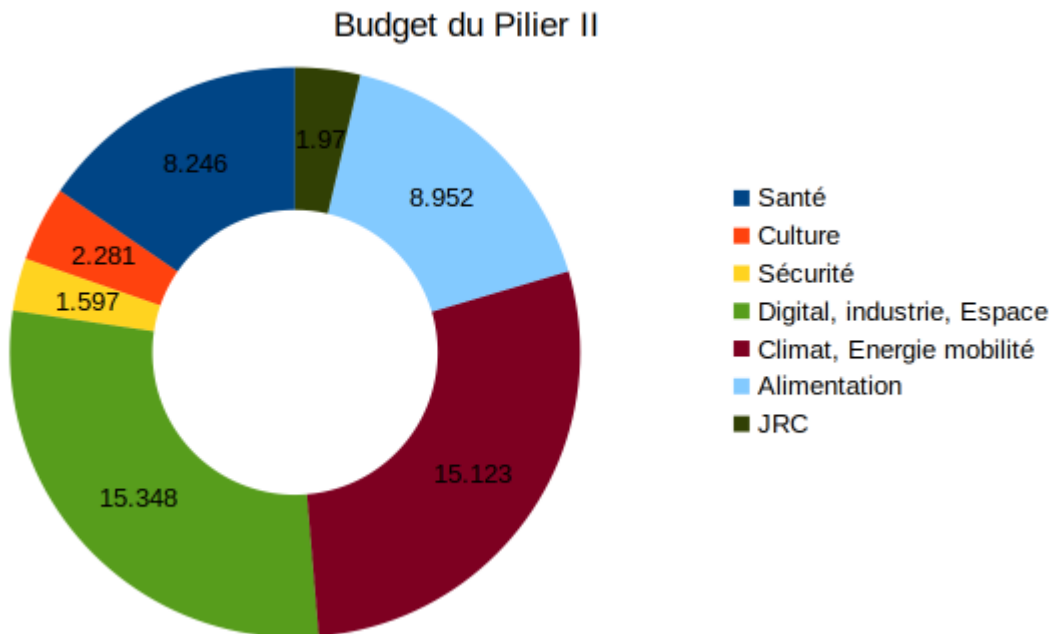
* L'Institut européen d'innovation et de technologie (EIT) ne fait pas partie du programme spécifique



Commission
européenne

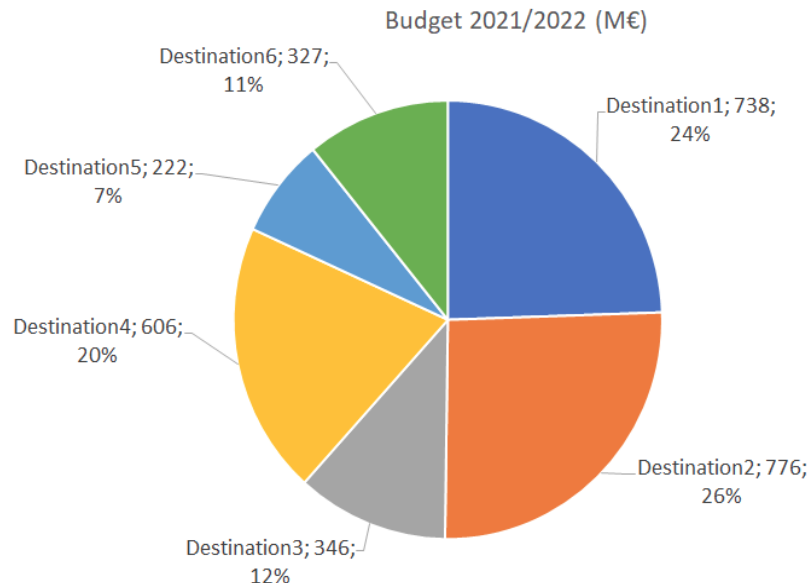
Budget du pilier 2

Horizon Europe : 95,5 milliards €
56% pour le pilier 2



Budget WP 2021/2022, Cluster 4

Destination 1	CLIMATE NEUTRAL, CIRCULAR AND DIGITISED PRODUCTION
Destination 2	INCREASED AUTONOMY IN KEY STRATEGIC VALUE CHAINS FOR RESILIENT INDUSTRY
Destination 3	WORLD LEADING DATA AND COMPUTING TECHNOLOGIES
Destination 4	DIGITAL AND EMERGING TECHNOLOGIES FOR COMPETITIVENESS AND FIT FOR THE GREEN DEAL
Destination 5	OPEN STRATEGIC AUTONOMY IN DEVELOPING, DEPLOYING AND USING GLOBAL SPACE-BASED INFRASTRUCTURES, SERVICES, APPLICATIONS AND DATA
Destination 6	A HUMAN-CENTRED AND ETHICAL DEVELOPMENT OF DIGITAL AND INDUSTRIAL TECHNOLOGIES



Activités éligibles à un financement

Action	Taux de financement (*)	TRL	
RIA Research & Innovation Action	100% + 25%	4 – 6	R&D, développement, intégration, essais et validation de prototypes à petite échelle, faisabilité technique
IA Innovation Action	70% + 25%	6 - 8	activités R&D limitées, prototypage, essais, démonstration, pilotes, validation à grande échelle
CSA Coordination & Support Action	100% + 25%		Activités complémentaires stratégiques (coordination, sensibilisation, mise en réseau, formation)

* Non-profit: 100% + 25% overhead

Critères d'éligibilité

- Au moins une entité légale indépendante établie dans un des Etats membres
- Au moins deux autres entités légales indépendantes d'un Etat membre ou associé

Critères D'admission

- RIA et IA: limite de 45 pages
- CSA: limite de 30 pages
- Exceptions: sera spécifié dans le texte de l'appel

Point d'attention sur la parité: une section sera dédiée à la présentation nominative des personnes impliquées ; l'équilibre entre hommes et femmes comptera dans l'évaluation en cas d'ex aequo

Destination 3

Horizon Europe - Cluster 4

Sommaire

Destination 3 World leading data and Computing technologies

1. Data sharing in the common European data space

- a. To make Europe the most successful area in the world in terms of data sharing and data re-use
- b. Respecting the legal framework relating to security and privacy

2. Strengthening Europe's data analytics capacity

- a. To make the EU fully autonomous in processing, combining, modelling and analysing such large amounts of data
- b. To predict future courses of action
- c. To replace classical experiments by data-driven digital models
- d. To support the development of responsible and useful AI solutions

3. From Cloud to Edge to IoT for European Data

- a. To establish the European supply and value chains in cloud to edge computing to Internet of Things (IoT)
- b. To increase European autonomy in the data economy with enhanced performance enabled by AI
- c. HPC

Data sharing in the common European data space

Deadline: 05/04/2022

- DATA-01-04: Technologies and solutions for data trading, monetizing, exchange and interoperability (IA)
 - 10-13M€/project – 4 projects funded (52M€)
 - solutions & frameworks that facilitate the collection, sharing, storing, processing, trading and re-using of data in an energy efficient way

<https://www.horizon-europe.gouv.fr/technologies-and-solutions-data-trading-monetizing-exchange-and-interoperability-ai-data-and-25979>

Strengthening Europe's data analytics capacity

Deadline: 05/04/2022

- DATA-01-01: Methods for exploiting data and knowledge for extremely precise outcomes (analysis, prediction, decision support), reducing complexity and presenting insights in understandable way (RIA)
 - 8-12M€/project – 3 projects funded (33M€)
 - Exploit « extreme data »
 - Push the frontiers of analytics, prediction, simulation and visualisation to provide extremely precise, timely and useful results from data and knowledge to support (human or automated) decision-making

<https://www.horizon-europe.gouv.fr/methods-exploiting-data-and-knowledge-extremely-precise-outcomes-analysis-prediction-decision-25970>

- DATA-01-05: Extreme data mining, aggregation and analytics technologies and solutions (RIA)
 - 5M€/project – 6 projects funded (30M€)
 - Ground-breaking advances in the performance, speed and/or accuracy as well as usefulness of data discovery, collection, mining, filtering and processing in view of coping with “extreme data”
 - Integration of relevant technologies (e.g. big data, AI, IoT, HPC, edge/fog/cloud computing, language technologies, cybersecurity, telecommunications, autonomous systems etc.)

<https://www.horizon-europe.gouv.fr/extreme-data-mining-aggregation-and-analytics-technologies-and-solutions-ria-25982>

From Cloud to Edge to IoT for European Data

Deadline: 05/04/2022

- DATA-01-02: Cognitive Cloud: AI-enabled computing continuum from Cloud to Edge (IA)
 - 4-6€/project – 10 projects funded (50M€)
 - Cloud management layer making the best application of artificial intelligence techniques and AI models
 - Automatic adaptation to the computing resources (i.e., connectivity, computing & storage) in cloud and edge to optimize where data are being processed

<https://www.horizon-europe.gouv.fr/cognitive-cloud-ai-enabled-computing-continuum-cloud-edge-ria-25973>

- DATA-01-03: Programming tools for decentralised intelligence and swarms (RIA)
 - 4-8M€/project – 5 projects funded (40M€)
 - Agile and secure architectures
 - Dynamic programming environments
 - Energy-efficient

<https://www.horizon-europe.gouv.fr/programming-tools-decentralised-intelligence-and-swarms-ria-25976>

Opening: 23 Nov 2021 Deadline(s): 05 Apr 2022

Le paysage des topics 2022 :

5 topics, ~28 projets, total : 205 M€

1. Data sharing in the common European data space

1 Topic	Type	M€	#Pj
HORIZON-CL4-2022-DATA-01-04	IA	52	4
TOTAL		52	4

2. Strengthening Europe's data analytics capacity

2 Topics	Type	M€	#Pj
HORIZON-CL4-2022-DATA-01-01	RIA	33	3
HORIZON-CL4-2022-DATA-01-05	RIA	30	6
TOTAL		63	9

3. From Cloud to Edge to IoT for European Data

3 Topics	Type	M€	#Pj
HORIZON-CL4-2022-DATA-01-02	RIA	50	10
HORIZON-CL4-2022-DATA-01-03	RIA	40	5
TOTAL		90	15

Destination 4

Horizon Europe - Cluster 4

Sommaire

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

1. Ultra-low power processors
2. European Innovation Leadership in Electronics
3. European Innovation Leadership in Photonics
4. 6G and foundational connectivity technologies
5. Innovation in AI, Data and Robotics
6. Tomorrow's deployable Robots: efficient, robust, safe, adaptive and trusted
7. European leadership in Emerging Enabling Technologies
8. Graphene: Europe in the lead

Ultra-low power processors

Deadline: 05/04/2022

- DIGITAL-EMERGING-01-26: Open source for cloud-based services (RIA)
 - 4-6M€/project – 4 projects funded (22M€)
 - Virtual environments, methods and tools, deployment of full open source stacks e.g. RISC-V

European Innovation Leadership in Electronics

- DIGITAL-EMERGING-01-38: International cooperation in semiconductors (CSA)
 - 3M€/project – 1 projects funded (3M€)
 - Support EC for measures to strengthening the position of Europe's global semiconductor industry

European Innovation Leadership in Photonics

- DIGITAL-EMERGING-01-03: Advanced multi-sensing systems (Photonics Partnership) (RIA)
 - 3-5M€/project – 10 projects funded (48M€)
 - Sensing devices and components, green deal objectives, high levels of reuse/repair/repurpose, recovery and recycling, reduce overall power consumption

Deadline: 05/04/2022

6G and foundational connectivity technologies

- DIGITAL-EMERGING-01-30: European Enabling technologies for Beyond 5G/6G RAN disaggregated architectures (RIA)
 - 13M€/project – 1 projects funded (13M€)
 - B5G and 6G Base station : high capabilities enabling the most demanding high performance
- DIGITAL-EMERGING-01-39: Ultra low energy and secure networks (RIA)
 - 13M€/projet 1 projects funded (13M€)
 - Ultra-low energy networks & ultra-high security over fibre nets (1 Péta (10^{15}) bit/s)

European leadership in Emerging Enabling Technologies

- DIGITAL-EMERGING-01-35: Advanced characterisation methodologies to assess and predict the health and environmental risks of nanomaterials (RIA)
 - 2 - 3 M€ / project 5 projects funded (17.5M€)
 - Dev of reliable and practical tools for a sustainable use of nanomaterials

Innovation in AI, Data and Robotics

Deadline: 16/11/2022

- DIGITAL-EMERGING-02-05: AI, Data and Robotics for Industry optimisation (AI, Data and Robotics Part.) (IA)
 - 3-5M€/project 5 projects funded (19M€)
 - Strong interactions between the telecom and the microelectronics/photonics communities, looking at a combined "system and enabling technologies" perspective.
 - Involvement of the security community for the "ultra-secure" part.

Tomorrow's deployable Robots: efficient, robust, safe, adaptive and trusted

- DIGITAL-EMERGING-02-06: Pushing the limit of physical intelligence and performance (RIA)
 - ~4M€ / project - 7 projects funded (28,5M€)
 - Robots with advanced physical functionalities, beyond human capabilities.
 - Robots with improved abilities and robustness, adapt to changes in environment, energy efficient
- DIGITAL-EMERGING-02-07: Increased robotics capabilities demonstrated in key sectors (AI, Data and Robotics Partnership) (IA)
 - ~6 M€ / project - 6 projects funded (36M€)
 - Demonstrators to show robotics performances in major application sectors, or in dangerous, dull, dirty tasks or those strenuous for humans or in extreme environments

Deadline: 16/11/2022

Graphene: Europe in the lead (1/2)

- DIGITAL-EMERGING-02-17: New generation of advanced electronic and photonic 2D materials-based devices, systems and sensors (RIA)
 - ~16M€ / projet 1 project
 - New technological solutions, Improved performance and reduced energy consumption
- DIGITAL-EMERGING-02-18: 2D materials-based devices and systems for energy storage and/or harvesting (RIA)
 - ~9M€ / projet 1 project
 - New technology solutions for portable energy sources outperforming alternative technologies
- DIGITAL-EMERGING-02-19: 2D materials-based devices for biomedical applications (RIA)
 - ~6M€ 1project
 - New technology solutions exploiting the unique properties of 2D materials (2DM)

Deadline: 16/11/2022

Graphene: Europe in the lead (2/2)

- DIGITAL-EMERGING-02-20: 2D-material-based composites, coatings and foams (IA)
 - ~9M€ / projet 1 project
 - New multifunctional recyclable materials enabling solutions to environmental challenges
- DIGITAL-EMERGING-02-22: Supporting the coordination of the Graphene Flagship projects (CSA)
 - ~3M€ / projet 1 project
 - Providing key support functions, enabling participating projects to find synergies in their work and share best practice.

Topic	Call	Type	M€	M€/Project	#Pj
Ultra-low power processors	DIGITAL-EMERGING-01-26	RIA	22	4-6	4
European Innovation Leadership in Electronics	DIGITAL-EMERGING-01-38	CSA	3	3	1
European Innovation Leadership in Photonics	DIGITAL-EMERGING-01-03	RIA	48	3-5	10
6G and foundational connectivity technologies	DIGITAL-EMERGING-01-30	RIA	13	13	1
	DIGITAL-EMERGING-01-39	RIA	13	13	1
European leadership in Emerging Innovation in AI, Data and Robotics	DIGITAL-EMERGING-01-35	RIA	17.5	2-3	5
	DIGITAL-EMERGING-02-05	IA	19	3-5	5
Tomorrow's deployable Robots	DIGITAL-EMERGING-02-06	RIA	28.5	4	7
	DIGITAL-EMERGING-02-07	IA	36	6	6
Graphene: Europe in the lead	DIGITAL-EMERGING-02-17	RIA	16	16	1
	DIGITAL-EMERGING-02-18	RIA	18	18	1
	DIGITAL-EMERGING-02-19	RIA	6	6	1
	DIGITAL-EMERGING-02-20	IA	9	9	1
	DIGITAL-EMERGING-02-22	CSA	3	3	1

Destination 6

Horizon Europe - Cluster 4

Sommaire

Human-centred and Ethical Development of Digital and Industrial Technologies

1. Leadership in AI based on trust

- a. Verifiable robustness, energy efficiency and transparency for trustworthy AI
- b. Awareness, Standardization, Adoption, Networks of Centers of Excellence
- c. Fighting gender, racial bias and misinformation

2. An Internet of Trust

- a. Trust and data sovereignty on the Internet
- b. Open and trusted search and discovery
- c. The Next Generation Internet: Community Building and Outreach

3. eXtended Reality (XR)

- a. User/machine modeling, Haptics, Collaborative telepresence
- b. Ethics and societal impact

An Internet of Trust (1/2)

Deadline: 05/04/2022

- HORIZON-CL4-2022-HUMAN-01-03: Internet architecture and decentralised technologies (RIA)
 - ~11M€/project – 2 projects funded (22M€)
 - Focus on one of the two research areas below :
 - Subtopic 1: Review and upgrade the open Internet architecture (hardware, software, protocols):
Performance and Energy Efficiency
 - Subtopic 2: Address the current limitations of decentralised technologies, such as Blockchain and DLT

<https://www.horizon-europe.gouv.fr/internet-architecture-and-decentralised-technologies-ria-26033>

- HORIZON-CL4-2022-HUMAN-01-05: Next Generation Safer Internet: Technologies to identify digital Child Sexual Abuse Material (CSAM) (RIA)
 - ~2M€/project – 1 project funded (2M€)
 - AI tools and technologies including the development of classifiers to identify digital CSAM
 - Annotate representative CSAM data sets, train and test the tools in cooperation with LEAs
 - Dynamically incorporate user comments and feedback, without the need of retraining the model

<https://www.horizon-europe.gouv.fr/next-generation-safer-internet-technologies-identify-digital-child-sexual-abuse-material-csam-ria>

An Internet of Trust (2/2)

Deadline: 05/04/2022

- HORIZON-CL4-2022-HUMAN-01-07: NGI International Collaboration - USA and Canada (RIA)
 - ~6M€/project – 1 project funded (6M€)
 - Strengthening EU cooperation with the US and Canada in the development of next-generation Internet technologies, services and standards
 - The focus should be on trust and data sovereignty, digital identity, renovation of the Internet architecture, and decentralized technologies.
 - Organize open calls for projects involving EU, US and/or Canadian teams on emerging topics

<https://www.horizon-europe.gouv.fr/ngi-international-collaboration-usa-and-canada-ria-26039>

eXtended Reality (XR)

Deadline: 05/04/2022

- HORIZON-CL4-2022-HUMAN-01-14: eXtended Reality Technologies (RIA)
 - ~5 to 8M€/project – 3 projects funded (19M€)
 - Cover at least one of the following points and will provide well designed and fully tested scenarios in real-world environment for enhanced eXtended Reality experiences
 - 1) Innovative digital interfaces, 2) Multisensory experiences through multi-user collaboration solutions, 3) 3D data acquisition techniques, 4) Creation of digital avatars and agents with natural behaviours

<https://www.horizon-europe.gouv.fr/extended-reality-technologies-ria-26042>

- HORIZON-CL4-2022-HUMAN-01-19: eXtended Reality Learning - Engage and Interact (IA)
 - ~5 to 8M€/project – 3 projects funded (21,5M€)
 - Create a European reference platform on learning and teaching with XR with the aim to:
 - Develop and use of XR in education
 - Build a focal point where the EdTech and XR community can share/market their existing XR solutions
 - Support digital start-ups.

<https://www.horizon-europe.gouv.fr/extended-reality-learning-engage-and-interact-ia-26045>

Leadership in AI based on trust

Deadline: 16/11/2022

- HORIZON-CL4-2022-HUMAN-02-01: AI for human empowerment (AI, Data and Robotics Partnership) (RIA)
 - ~4M€/project – 4 projects funded (16M€)
 - Focus on one of the two research areas below :
 - Realizing mixed human-IA initiatives for human empowerment
 - Reliable trustworthy hybrid decision support, including approaches for mixed decision making

<https://www.horizon-europe.gouv.fr/ai-human-empowerment-ai-data-and-robotics-partnership-ria-26027>

HORIZON-CL4-2022-HUMAN-02-02: European Network of AI Excellence Centres:
Expanding the European AI lighthouse (RIA)

- ~11,5M€/project – 3 projects funded (34,5M€)
- Proposals should create a network of excellence for the topics of:
 - Next Generation AI to improve performance such as accuracy, robustness, verifiability, reliability or adaptability, and efficiency of data and to develop paradigms, algorithms or architectures for hybrid learning
 - Scientific research and priority technologies in the Strategic Research and Innovation Agenda of the AI

<https://www.horizon-europe.gouv.fr/european-network-ai-excellence-centres-expanding-european-ai-lighthouse-ria-26030>

Le paysage des topics HUMAN 2022 :

2. An Internet of Trust

Opening: 23 Nov 2021
Deadline: 05 Apr 2022

1 Topic	Type	M€	#Pj
HORIZON-CL4-2022-HUMAN-01-03	RIA	22	2
HORIZON-CL4-2022-HUMAN-01-05	RIA	2	1
HORIZON-CL4-2022-HUMAN-01-07	RIA	6	1
TOTAL		30	4

3. eXtended Reality (XR)

Opening: 23 Nov 2021
Deadline: 05 Apr 2022

2 Topics	Type	M€	#Pj
HORIZON-CL4-2022-HUMAN-01-14	RIA	19	3
HORIZON-CL4-2022-HUMAN-01-19	IA	21,5	3
TOTAL		40,5	6

1. Leadership in AI based on trust

Opening: 16 Jun 2021
Deadline: 16 Nov 2022

3 Topics	Type	M€	#Pj
HORIZON-CL4-2022-HUMAN-02-01	RIA	16	4
HORIZON-CL4-2022-HUMAN-02-02	RIA	34,5	3
TOTAL		50,5	7