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Le programme européen pour la recherche et l'innovation

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SOMMAIRE

AVANT-PROPOS

Horizon Europe est le programme-cadre de l'Union européenne pour la recherche et l'innovation.
Il couvre la période 2021-2027 et est doté d'un **budget** de **95,5 milliards d'euros.**

Le présent guide a été réalisé par les membres du **Point de Contact National** (PCN) français Horizon Europe en charge du **Cluster 4 sur la thématique numérique** (voir ici).

En **France**, le **dispositif des PCN** est placé sous l'autorité du **Ministère de l'enseignement supérieur et de la recherche.** (MESR) Il est piloté par la Délégation aux affaires européennes et internationales du Département « Accompagnement des opérateurs de l'ESR ». Les missions principales des PCN sont :

- **Informer, sensibiliser les communautés françaises de recherche et d'innovation sur les opportunités de financement d'Horizon Europe**
- **Aider, conseiller et former les porteurs de projets aux modalités de fonctionnement du programme.**

Ce guide s'adresse à tous les acteurs français de la recherche et du développement du secteur publique et privé ainsi qu'aux autorités publiques, aux acteurs économiques, sociaux et culturels potentiellement ciblés par le Cluster 4 numérique.
Il offre un premier niveau d'accès au **programme de travail 2023 du Cluster 4 numérique**, en proposant des éléments structurels qui permettent de comprendre les fondements et les priorités de ce Cluster, ainsi qu'une synthèse des éléments clés de chaque appel.

Les porteurs de projets intéressés doivent se référer au programme de travail 2023-2024 du Cluster

Les synthèses et traductions proposées dans ce guide n'engagent que la responsabilité de leurs auteurs et en aucune manière celle de la Commission européenne.

L'équipe Point de Contact National Numérique (PCN)

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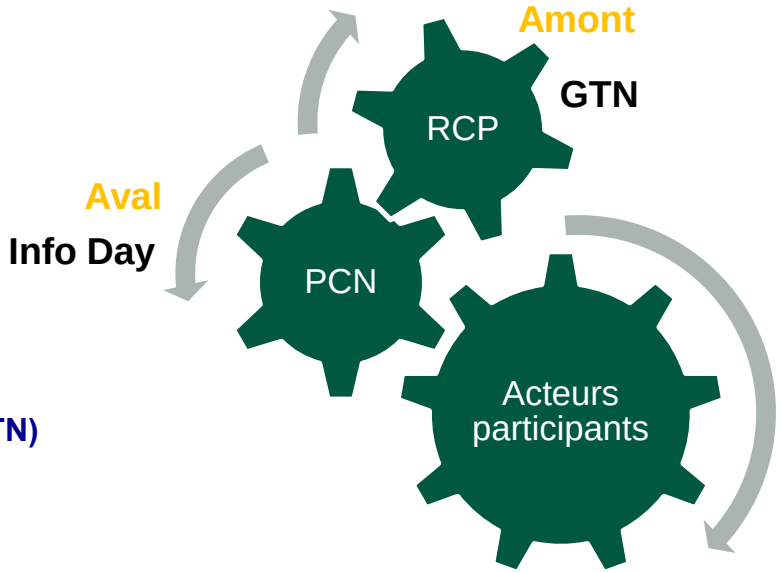
Collaboration avec le représentant au comité de programmation (RCP) sur la thématique numérique Horizon Europe



Géraud CANET – MESR

Plus d'informations sur le groupe de travail national (GTN) et sa contribution à l'élaboration des futurs appels du

Cluster 4 numérique : geraud.canet@recherche.gouv.fr

La Formule « gagnant-gagnant »

Accroître la participation française aux dispositifs européens de recherche et d'innovation

INCITER

- A participer dans les projets européens
- A coordonner des projets européens

1/ Communication renforcée

2/ Aides renforcées pour le montage d'une coordination française (MRSEI)

3/ Valorisation accrue des carrières EU des chercheurs

ACCOMPAGNER

- Soutenir et former les écosystèmes et relais

1/ Offre de services sur mesure avec un réseau professionnel de points de contact (PCN)

2/ Plus d'interactions avec les acteurs nationaux, régionaux et locaux (Relais des PCNs)

3/ Activités croisées entre les PCN thématiques

INFLUENCER

- Renforcer le pouvoir d'influence à Bruxelles

1/ Identification des sujets d'intérêt français

2/ En amont, préparation argumentée des textes des programmes de travail HE

3/ Usages de nos canaux formels (comitologie) et informels (représentation d'intérêts)

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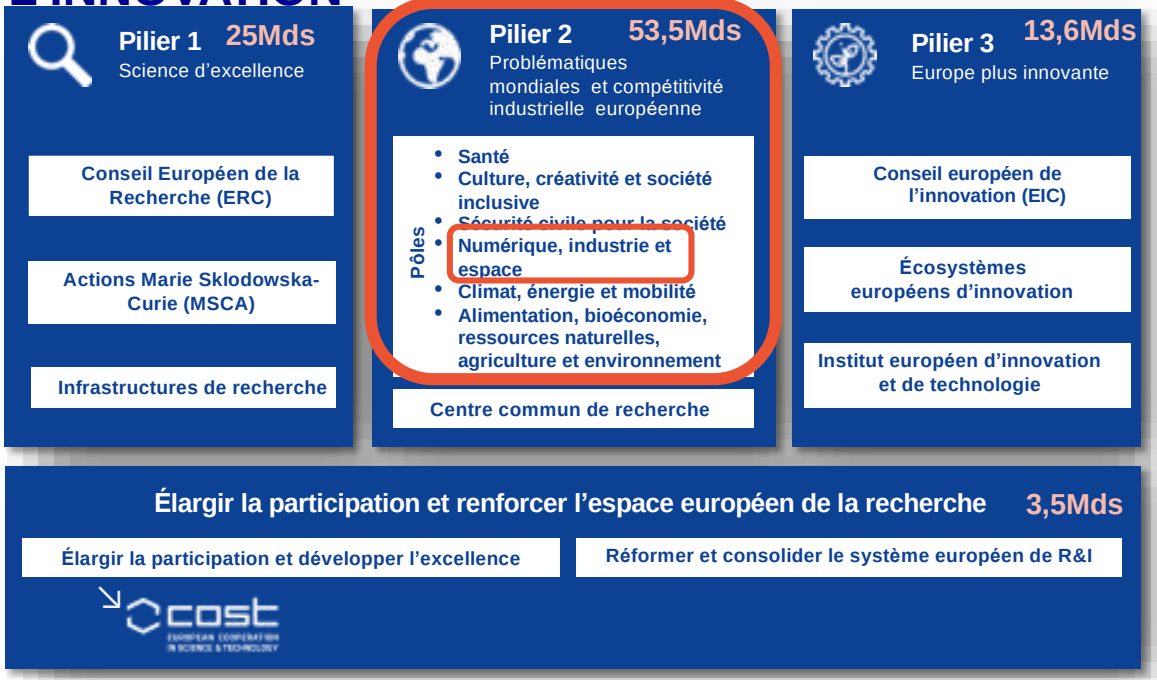
PRÉSENTATION GÉNÉRALE

HORIZON EUROPE
&
LE CLUSTER 4 Numérique

LE PROGRAMME-CADRE DE L'UNION EUROPÉENNE POUR LA RECHERCHE ET L'INNOVATION

- **2021 – 2027**
- **95,5 Mds€**
- *Renforcer les **bases scientifiques et technologiques** de l'Union ;*
- *Stimuler sa capacité d'**innovation**, sa **compétitivité** et la création d'**emplois** ;*
- *Concrétiser les **priorités politiques** stratégiques de l'Union ;*
- *Contribuer à répondre aux **problématiques mondiales**, dont les objectifs de **développement durable** des Nations Unies.*



Cluster 4
Impact et destinations visés

Strategic Plan (2021-2024) and Orientations →→→→ **Destinations**

Making Europe the first digitally enabled, circular, climate-neutral and sustainable economy	1. 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	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
Creating a more resilient, inclusive and democratic European society	6. **A human-centred and ethical development of digital and industrial technologies - HUMAN**

Appels thématiques « top-down »

Pilier 2 - CLUSTERS

Approche *"top-down"* pour soutenir les **priorités politiques stratégiques** de l'Union Européenne et les **objectifs de développement durable** des Nations Unies.

- Appels à projets **centrés sur des problématiques sociétales**, des **défis globaux :**
  - Répondre aux **impacts attendus**
  - Fournir des **options** et **solutions (non) technologiques**, **recommandations...**
- Projets **collaboratifs** trans**disciplinaires**, trans**sectoriels** et trans**nationaux**
- **3-4 ans** en moyenne
- Minimum **2-3 M€**, et **4-6 M€** en moyenne – voire au delà
- **3 types de projets :** RIA, IA, CSA

Appels thématiques « top-down »

Pilier 2 - CLUSTERS

Trois types de projets collaboratifs (instruments de financement)
Un financement à 100 %. Sauf : IA = financement à 70 % pour les acteurs privés (Entreprises de toutes tailles)

RIA – Research and Innovation Actions (TRL 2-5 en fin de projet)

- Projets visant à **établir de nouvelles connaissances** et/ou à **explorer la faisabilité** d'une technologie, d'un produit, d'un procédé ou d'un service : *recherche fondamentale et appliquée, développement de technologie, essais d'un prototype à petite échelle...*

IA – Innovation Actions (TRL 5-8 en fin de projet)

- Projets visant à produire des **plans, arrangements ou concepts pour un produit, procédé ou service** nouveau ou amélioré : *prototypage, essais, démonstration ou pilotes, validation du produit à grande échelle, première commercialisation...*

CSA – Coordination and Support Actions

- Projets consistant principalement en des **mesures d'accompagnement** : *mise en réseau des acteurs, actions de communication et sensibilisation, dialogue politique, production d'études/rapports, planification stratégique...*

Critères d'éligibilité

Projets Collaboratifs – Règles de participation

Au minimum **3 entités légales indépendantes, dans 3 Etats membres *ou associés* de l'U.E.* dont au moins une établie dans un des 27 Etats membres.**

A savoir: dans chaque appel à projets, certaines conditions spécifiques peuvent apparaitre (plus de partenaires, autre pays obligatoire et/financés, etc …).

Source documentaire :Les pays éligibles au financement d'Horizon Europe

Coûts éligibles

Projets Collaboratifs – Règles de participation

Les dépenses prévues dans un projet collaboratif sont remboursés à 100%
(sauf les entreprises dans les IA financées à 70%)

Les coûts directs (en lien direct avec le projet) :

- Coûts de personnel **A**
- Sous-Traitance **B**
- Coûts autres **C**
  - déplacements
  - équipements (amortissement)
  - autres bien, travaux et services: consommables, …
- Autres catégories de coûts **D**

+ Les coûts indirects : **taux forfaitaire de 25% des coûts directs** (sauf la sous-traitance, *les volontaires, le support financier à des tiers, les coûts unitaires spécifiques)*

Nota : Ces coûts éligibles s'appliquent dans le cadre du MGA général, pas aux projets en coûts unitaires.

Focus

LES PARTENARIATS DU CLUSTER 4 Numérique

Partenariats institutionnalisés	Partenariats cofinancés	Partenariats co-programmés
• Key Digital technologies (renamed Chip Act) • Smart Networks and Services • High Performence Computing • European Metrology (Art. 185)	• AI-Data-Robotics • Photonics	

Pour en savoir plus: https://www.horizon-europe.gouv.fr/partenariats-public-prive-numeriques-et-topics-numeriques-dans-les-clusters-28304

Les modalités d'évaluation et la convention de subvention des projets *lump sum (Financements par sommes forfaitaires)* suivent autant que possible l'approche standard

- Même critères d'évaluation, même calendrier des paiements, obligations de rapports techniques et similaires, avec l'accent mis sur l'achèvement des lots de travail (« work packages »)

Une somme est fixée dans la convention de subvention pour chaque lot de travail et répartie vers ses bénéficiaires

- L'achèvement définitif du lot de travail entraine le paiement de la somme forfaitaire
- Les paiements dépendent de la réalisation des activités, et non de l'obtention de résultats positifs.
- Les lots de travail peuvent être modifiés via des amendements

Deux options

Option 1 : L'appel à proposition définit le montant de la somme forfaitaire

- Le budget demandé dans votre proposition doit être égal à ce montant
- Votre proposition doit décrire les ressources que vous comptez mobiliser pour ce montant

Option 2 : Vous définissez le montant de la somme forfaitaire dans votre proposition

- Vous être libre de définir le montant nécessaires pour mener à bien votre projet
- Le montant de la somme forfaitaire doit être justifié par les ressources que vous comptez mobiliser

Focus
LIRE LE PROGRAMME DE TRAVAIL - 1/2

Programme de travail 2021-2022 du cluster 4
Industrie – **Numérique** – Espace du programme-cadre Horizon Europe

- **« Destination 3 » =** Section thématiques qui introduit les grandes orientations politiques et les impacts attendus
- **« Call » =** Appel thématique
- « **Heading** » = Rubrique
- **« HORIZON-CL4-2023-DATA-xx-xx » = Liste des sujets « topics »** ouverts en 2023 aux candidatures pour des projets collaboratifs

Table of contents

Lire un appel « topic »

1) **Code et titre de l'appel ou « topic » : Programme, Cluster, appel prévu en 2022, de la destination 3 (data) du 01er call, pour le 02 ème topic.**

2) **Conditions : budget approximatif par projet, budget total pour l'appel, instrument de financement...**

3) **Résultats attendus des projets financés**

4) **Activités : enjeux traités, périmètre du sujet, liens avec les stratégies politiques, références à d'autres projets, etc.**

HORIZON-CL4-2023-DATA-01-02: Integration of data life cycle, architectures and standards for complex data cycles and/or human factors, language (AI, data and robotics partnership) (RIA)

Specific conditions	
Expected EU contribution per project	The Commission estimates that an EU contribution of around EUR 9.00 million would allow these outcomes to be addressed appropriately. Nonetheless, this does not preclude submission and selection of a proposal requesting different amounts.
Indicative budget	The total indicative budget for the topic is EUR 45.00 million.
Type of Action	Research and Innovation Actions
Eligibility conditions	The conditions are described in General Annex B. The following exceptions apply: If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used).
Technology Readiness Level	Activities are expected to start at TRL 2-3 and achieve TRL 4-5 by the end of the project – see General Annex B

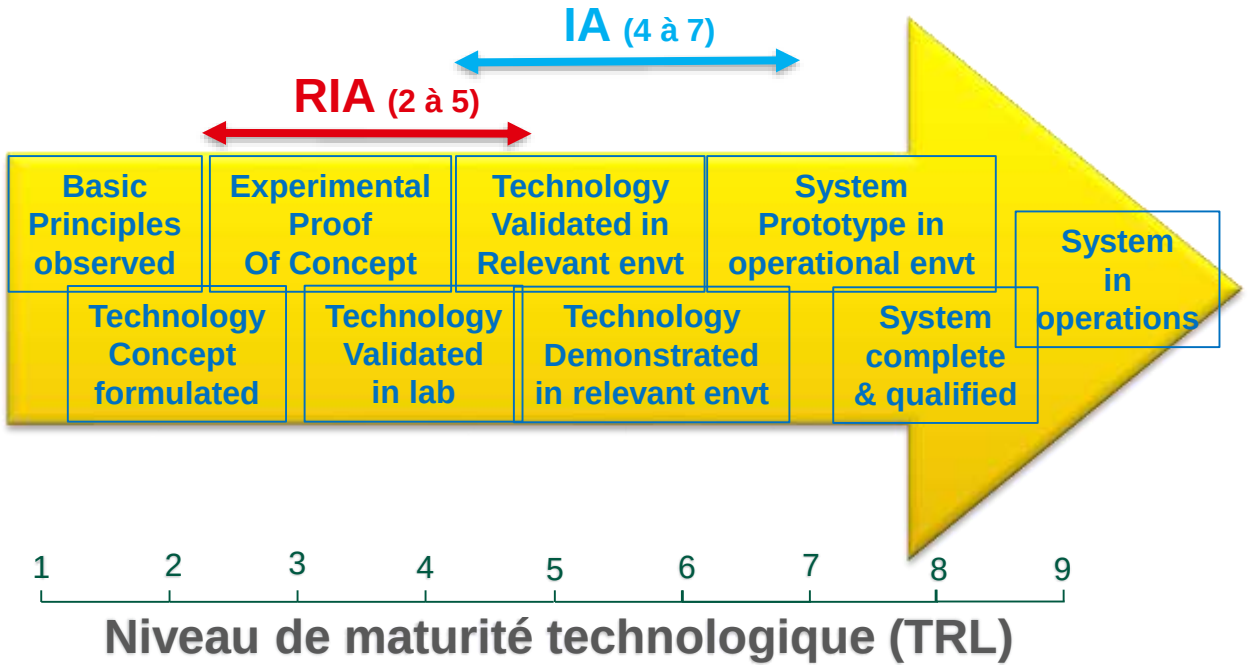
Expected Outcome: Projects are expected to contribute to the following outcomes:

- ability to process vast volumes data as one of the key enablers for other technological developments, supporting the competitiveness of the EU's industrial ecosystems;
- successful deployment of data spaces involving several sectors of economy or society;

Scope: Proposals should address the entire data life cycle from data generation/collection to the final use and disposal/deletion of data (especially when required by applicable legislation, for example the General Data Protection Regulation (GDPR)[215]. Proposals should build on

Les TRLs des technologies numériques

Cluster 4 : Destination 3, 4 et 6



Cluster 4 Numérique : Destinations et « sous-destinations »

ARCHITECTURE DU PROGRAMME DE TRAVAIL 2023-2024 – 1/3

Destination 3
Technologies informatiques et de données de pointe

Destination 4
Les technologies numériques et émergentes au service de la compétitivité et de l'adaptation au Green Deal

Destination 6
Un développement des technologies numériques et industrielles éthique et centré sur l'homme

Cluster 4 Numérique : Destinations et « sous-destinations »

ARCHITECTURE DU PROGRAMME DE TRAVAIL 2023-2024 – 2/3

Destination 3 – Technologies informatiques et de données de pointe

- Partage des données et capacité d'analyse
- Du cloud à l'Edge et à l'IoT pour les données européennes

Destination 4 - Les technologies numériques et émergentes au service de la compétitivité et de l'adaptation au Green Deal

- Leadership européen en matière d'innovation dans le domaine de la photonique
- Intelligence Artificielle (IA), données et robotique
- Open Source pour le Cloud/Edge et les fondamentaux de l'ingénierie logicielle pour soutenir l'autonomie numérique.
- Leadership européen dans les technologies émergentes et habilitantes
- Programme phare sur les technologies quantiques : un changement de paradigme
- Graphène : l'Europe en tête

Lien vers le programme de travail 2023/2024

Cluster 4 Numérique : Destinations et « sous-destinations »

ARCHITECTURE DU PROGRAMME DE TRAVAIL 2023-2024 – 3/3

Destination 6 – Un développement des technologies numériques et industrielles éthique et centré sur l'homme

- Un leadership en intelligence artificielle (IA) basé sur la confiance
- Un Internet de la confiance
- Réalité élargie (XR)
- Des approches systémiques pour tirer le meilleur parti des technologies au sein de la société et de l'industrie.
- Recherche et innovation pour l'industrie 5.0
- Normes européennes pour la compétitivité industrielle
- Humanisme numérique et technologies compatibles avec l'homme
- La coopération internationale

Lien vers le programme de travail 2023/2024

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GUIDE DES APPELS 2023

Cluster 4 – Numérique

HORIZON EUROPE

- 1er Décembre 2022 -

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Horizon Europe - Numérique

DESTINATION 3

Appels de l'année 2023

décembre 2022

horizon-europe.gouv.fr

World-leading Data and Computing Technologies

Date d'ouverture : 08/12/2022
Date de clôture : 29/03/2023

			Type of action	Budget (M€)	Expected EU contribution per project	Indicative Nb of projects expected to be funded
Data sharing and analytics capacity (46 M€)	HORIZON-CL4-2023-DATA-01-02	Integration of data life cycle, architectures and standards for complex data cycles and/or human factors, language (AI, data and robotics partnership)	RIA	45	Around 9.00	5
	HORIZON-CL4-2023-DATA-01-07	Collaboration with NSF on fundamental research on new concepts for distributed computing and swarm intelligence	CSA	1	Around 1	1
From Cloud to Edge to IoT for European Data (30 M€)	HORIZON-CL4-2023-DATA-01-04	Cognitive Computing Continuum: Intelligence and automation for more efficient data processing (AI, data and robotics partnership)	RIA	28	4 to 6	6
	HORIZON-CL4-2023-DATA-01-06	Coordination and Support of Cognitive Computing Continuum research and policy	CSA	2	Around 2	1

DATA Destination - 2 headings

1. Data sharing and analytics capacity
2. From Cloud to Edge to IoT for European Data

HORIZON-CL4-2023-DATA
Data sharing and analytics capacity

Objective

- Support the competitiveness of the EU's industrial ecosystems
- Drive the European data economy and industrial transformation
  - **Data sharing and the availability of interoperable datasets**
- Make Europe the most successful area in the world in terms of data sharing and data re-use while respecting the legal framework
- Make the EU fully autonomous in processing, combining, modelling and analysing large amounts of data
  - **Support the development of responsible and useful AI solutions, built on high-quality and high-value data**

DATA
Data sharing and analytics capacity

Deadline: 29/03/2023

HORIZON-CL4-2023-DATA-01-02: Integration of data life cycle, architectures and standards for complex data cycles and/or human factors, language (AI, data and robotics partnership) (RIA) /
TRL 2-3 => TRL 4-5

- 9 M€ per project - 5 projects funded (45 M€)
- Address the entire data life cycle from data generation/collection to the final use and disposal/deletion of data (especially when required by applicable legislation (GDPR)

HORIZON-CL4-2023-DATA-01-07: Collaboration with NSF on fundamental research on new concepts for distributed computing and swarm intelligence (CSA)

- 1 M€ per project - 1 project funded (1 M€)
- Landscaping analysis of relevant tools and frameworks in this field (linked to but not limited to the topic HE-CL4-2022-DATA-01-03)

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HORIZON-CL4-2023-DATA

From Cloud to Edge to IoT for European Data

Objective

- Nurture a European ecosystem and deliver swift results
- Establish the European supply and value chains in cloud to edge computing to Internet of Things (IoT) and tactile internet
  - **Enhanced performance enabled by AI**
- Ensure digital autonomy for Europe in key high-end supercomputing technology (hardware and software)

DATA
From Cloud to Edge to IoT for European Data

Deadline: 29/03/2023

HORIZON-CL4-2023-DATA-01-04: Cognitive Computing Continuum: Intelligence and automation for more efficient data processing (AI, data and robotics partnership) (RIA)/ TRL 2 => 5

- 4-6 M€ per project - 6 projects funded (28 M€)
- Provide seamless management schemes to allow services and data to be processed across various providers

HORIZON-CL4-2023-DATA-01-06: Coordination and Support of Cognitive Computing Continuum research and policy (CSA)

- 2 M€ per project - 1 project funded (2 M€)
- Support the European Commission and the European computing constituency by providing to them annually updated roadmaps for research and innovation

Topic presentation
Destination 3

Data sharing and analytics capacity

5 projects 9 M€ | RIA | TRL 4-5

HORIZON-CL4-2023-DATA-01-02: Integration of data life cycle, architectures and standards for complex data cycles and/or human factors, language (AI, data and robotics partnership) (RIA)

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

Manage the entire data life cycle from data, addressing relevant human language issues at all stages of data life cycle (social and cultural)

Expected results

- Ability to process vast volumes data
- Successful deployment of data spaces involving several sectors of economy or society
- Improve data access (in line with the FAIR principles), sovereignty, interoperability and protection as an essential factor in the development for all stakeholder interests, particularly SMEs.
- Support and promote data sharing and the use of data for social and economic benefit

Data sharing and analytics capacity

1 project 1 M€ | CSA

HORIZON-CL4-2023-DATA-01-07: Collaboration with NSF on fundamental research on new concepts for distributed computing and swarm intelligence (CSA)

Prepare the grounds for cooperation between DG Connect and the relevant entity at US National Science Foundation (NSF)

Identify mutual benefit, organise brokerage events for matching of on-going work streams in projects

Expected results

- Support structure for EU-NSF cooperation: networking events, exchange and fellowship programmes, and vision workshops for the academic and industrial computing community, at least one annual EU-US workshop

From Cloud to Edge to IoT for European Data

6 projects 4/6 M€ | RIA | TRL 5

HORIZON-CL4-2023-DATA-01-04: Cognitive Computing Continuum: Intelligence and automation for more efficient data processing (AI, data and robotics partnership) (RIA)

- If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)
- Lump sum
- Develop synergies in Cluster 3
  - HORIZON-CL3-2023-CS-01-01
  - HORIZON-CL3-2023-CS-01-02
- International cooperation is encouraged, especially with Japan and S. Korea.

Exploit Artificial Intelligence techniques to advance automation and dynamic adaptation of resource management.

Focus should be on autonomous and AI-enabled management schemes and data processing

Expected results

- Accelerate and steer the digital and green transitions
- Industrial cooperation in data processing required to support future hyper-distributed applications by building open platforms
- International collaboration guaranteeing a minimum level of interoperability, facilitate European access to foreign markets

HORIZON-CL4-2023-DATA-01-06: Coordination and Support of Cognitive Computing Continuum research and policy (CSA)

- International cooperation is encouraged, especially with Japan and South Korea

Seek collaboration with other relevant [Important Project of Common European Interest on Cloud Infrastructure and Services (IPCEI CIS)] and the European Alliance for Industrial Data, Edge and Cloud.

Disseminate project results and organising scientific and policy events

Expected results

- Support structure for the European Computing ecosystem: networking events and vision workshops for the academic and industrial computing community
- Yearly updated roadmaps on the computing continuum
- Creation of a sustainable European forum of stakeholders representing the whole Cloud to Edge to IoT Computing research, industry and users from different domains/sectors

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DESTINATION 4

Appels de l'année 2023

décembre 2022

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DIGITAL-EMERGING Destination - 6 headings

1. AI, Data and Robotics
2. Open Source for Cloud/Edge and Software Engineering Fundamentals to support Digital Autonomy[1]
3. European leadership in Emerging and Enabling Technologies
4. Graphene & 2D Materials: Europe in the lead
5. Flagship on Quantum Technologies: a Paradigm Shift
6. European Innovation Leadership in Photonics

[1] Pas de calls en 2023

HORIZON-CL4-2023-DIGITAL-EMERGING

1 AI, Data and Robotics

1

Objective

- Ensure autonomy for Europe in AI, data and robotics in developing world-class technologies:
  - **From manufacturing to healthcare**
  - **Public sector, utilities, retail, finance, insurance, transport, agriculture, energy, telecommunications, environmental monitoring, construction, media, creative and cultural industries, fashion, tourism ……**

Deadline: 29/03/2023

HORIZON-CL4-2023-DIGITAL-EMERGING-01-01: Novel paradigms and approaches, towards AI-driven autonomous robots (RIA)

- Around 8M€ per project - 4 projects funded (30 M€)
- Important applications for robots become possible achieving next step autonomy in specific use cases and sectors

HORIZON-CL4-2023-DIGITAL-EMERGING-01-02: Industrial leadership in AI, Data and Robotics – advanced human robot interaction (IA)

- Around 10M€ per project - 3 projects funded (30 M€)
- Attract new user industries and involve SMEs and/or start-ups with high potential to foster innovation that advances the nature and level of interaction between people and robots

HORIZON-CL4-2023-DIGITAL-EMERGING

3 European leadership in Emerging and Enabling Technologies

3

Objective

- To identify early technologies that have the potential to become Europe's future leading technologies
- To establish industry leadership in these technologies
  - **The heading has a unique focus on off-roadmap transformations with a longer time-horizon but profound potential impact.**

European Leadership in Emerging and Enabling Technologies

Deadline: 29/03/2023

HORIZON-CL4-2023-DIGITAL-EMERGING-01-11: Low TRL research in micro-electronics and integration technologies for industrial solutions (RIA)

3-4 M€ per project – 10 project funded (35 M€)

- Innovative semiconductor and micro-nanoelectronic systems design, very low energy consumption, integrated security, connectivity, sensing, actuating and embedded functions suited to mixed analogue/RF and digital circuits. Alternative to mainstream Silicon CMOS technologies

HORIZON-CL4-2023-DIGITAL-EMERGING-01-12: Adaptive multi-scale modelling and characterisation suites from lab to production (RIA)

5-7 M€ M€ per project - 4 project funded (22 M€)

- Enable industry to more effectively develop new and work with existing advanced materials
- Accelerate the materials innovation process by allowing a better interpretation

HORIZON-CL4-2023-DIGITAL-EMERGING

4 Graphene: Europe in the lead

4

Objective

- R&I activities need to be pursued and accelerated, to translate achieved technology advances into production capabilities in e.g. aviation, automotive, electronics, batteries, healthcare.
- Strengthen and accelerate the technology developments to support European supply and value chain in graphene and related materials
- **Activities beyond R&I investments will be needed:**
  - **Testing, experimentation, demonstration, and support using the capacities, infrastructures.**
  - **Such as the European Digital Innovation Hubs, large-scale roll-out of innovative new technologies and solutions, development of skills and competencies via the European Institute of Innovation and Technology, in particular EIT Digital; …..**

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Deadline: 29/03/2023

Graphene: Europe in the lead

HORIZON-CL4-2023-DIGITAL-EMERGING-01-32: Sustainable safe-by-design 2D materials technology (RIA)

3M€ to 5 m€ per project - 2 projects funded (6 M€)

- Development of Safe and Sustainable by Design two-dimensional materials (2DM) technology.
- Societal acceptance of 2DM and 2DM-based technologies.
- A set of robust and verified assays for toxicity and eco-toxicity testing of 2DM

HORIZON-CL4-2023-DIGITAL-EMERGING-01-33: 2D materials of tomorrow (RIA)

3M€ to 4 m€ per project - 3 projects funded (12M€)

- A broad portfolio of innovative two-dimensional materials (2DM), networks and multicomponent hetero-structures
- New properties or complementary functionalities leading to breakthroughs in digital systems and devices.

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HORIZON-CL4-2023-DIGITAL-EMERGING

5 - Flagship on Quantum Technologies: a Paradigm Shift

5

Objective

- Develop quantum technologies and their applications in the areas of :
  - **quantum computing,**
  - **simulation,**
  - **sensing and**
  - **Communication**

- Eligibility to participate in restricted quantum topics is limited to specific entities

Deadline: 29/03/2023

Quantum
Digital & Emerging Technologies for Competitiveness and Fit for the Green Deal

HORIZON-CL4-2023-DIGITAL-EMERGING-01-40: Quantum Photonic Integrated Circuit technologies (RIA)
- 4 to 6M€ per project - 2 projects funded (12 M€)
- Enhancement of Quantum Photonic Integrated Circuits (QPIC) performance, fabrication and miniaturization

HORIZON-CL4-2023-DIGITAL-EMERGING-01-41: Investing in alternative quantum computation and simulation platform technologies (RIA)
- 7 to 12M€ per project - 2 projects funded (20 M€)
- Further mature alternative and promising quantum computation and simulation platforms - scalability & programmability

HORIZON-CL4-2023-DIGITAL-EMERGING-01-43: Framework Partnership Agreement for developing large-scale quantum Computing platform technologies (FPA)
- 1 project funded
- Establish a stable and structured partnership between the Commission and the institutions and organisations in quantum computing enable for the completion of the research roadmap

HORIZON-CL4-2023-DIGITAL-EMERGING-01-50: Next generation quantum sensing and metrology technologies (RIA)
- 2 to 3M€ per project - 3 projects funded (10 M€)
- Demonstrate the feasibility of next generation quantum sensing and metrology technologies and devices

HORIZON-CL4-2023-DIGITAL-EMERGING

6 European Innovation Leadership in Photonics

6

Objective

- Strengthen current leadership in photonic technologies and applications, and to secure access in Europe to cutting-edge photonic technologies:
  - **The topics of this heading are under the co-programmed Partnership 'Photonics'.**

Deadline: 29/03/2023

European Innovation Leadership in Photonics (Photonics Partnership)

HORIZON-CL4-2023-DIGITAL-EMERGING-01-51: Pervasive photonics - multi-technology integration for digital infrastructure, sensors and internet of things (RIA)

3 to 5M€ per project – 4 projects funded (18M€)

- Improved key metrics for communications or for sensing, making photonics ubiquitous in digital systems
- New photonic-enabled sensing functions or computing paradigms enabling new systems architectures

HORIZON-CL4-2023-DIGITAL-EMERGING-01-53: Versatile light sources and systems as tools for manufacturing and medical application (RIA)

3 to 5M€ per project – 4 projects funded (18M€)

- Increased manufacturing productivity or increased quality and speed of diagnosis results;
- Increased accuracy and/or reduced size in microelectronics production (integration of photonic and electronic);

HORIZON-CL4-2023-DIGITAL-EMERGING-01-56: Photonic Strategies and Skills Development (CSA)

1 to 3 M€ per project – 2 projects funded (2M€)

- Reinforced value chains and deployment of photonics technologies: stronger cooperation stakeholders, clusters and end-users;

HORIZON-CL4-2023-DIGITAL-EMERGING-01-57: Advanced imaging and sensing technologies (IA)

5 to 7 M€ per project – 4 projects funded (20M€)

1. Development of next generations sensory systems based on photonic technologies
2. Technology leadership in autonomous vehicles, robots and sensory systems.

Topic presentation
Destination 4

AI, Data and Robotics

Around 8M€ per project | 4 projects | RIA | TRL 2-3 to 4-5

HORIZON-CL4-2023-DIGITAL-EMERGING-01-01: Novel paradigms and approaches, towards AI-driven autonomous robots (RIA)

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

Address the interdependence between safety, security and system performance

Address several of the following aspects of autonomy: lower environmental footprint, robust and safe autonomy, self-reconfiguration, multiple collaborative robots

Address all of the following : SSH, reproducible and re-usable, demonstrated through use-cases, End-users should be involved, Ethics principles needs to be adopted from early stages

Expected results

- Achieve substantial “next step autonomy” in robots : In human interaction, In manipulation
- Deliver a step change in autonomy in various industries, sectors and services : support humans in their daily activities, address human and work interaction

AI, Data and Robotics

3 projects | 10 M€ | IA | TRL 3-4 to 6-7

HORIZON-CL4-2023-DIGITAL-EMERGING-01-02: Industrial leadership in AI, Data and Robotics – advanced human robot interaction (IA)

Financial support to third parties (FSTP 1) : Minimum 50% to SMEs developing innovative solutions

Financial support to third parties (FSTP 2) : Minimum 50% to Large scale pilots

Development of innovative solutions to address major application-driven challenges involving a large set of SMEs/ midcaps developing innovative solutions in order to boost the innovator community in Europe (FSTP 1)

Large scale pilots bringing major industries from key application sectors in Europe to exploit re-usable tools, systems, sub-systems and solutions in various use-cases/sectors (FSTP 2)

Expected results

- Reach the point where human robot interaction adds value and improves the quality of outcome for complex tasks
- Demonstrate the potential of integrating these technologies to address challenges in key industries
- Enhance interactions between robots and people

Emerging and Enabling Technologies

3-4 M€ per project I 10 projects I RIA I TRL 1-2 to 3-4

HORIZON-CL4-2023-DIGITAL-EMERGING-01-11: Low TRL research in micro-electronics and integration technologies for industrial solutions (RIA)

- Low-TRL research with high potential in the design, fabrication process and/or packaging of the micro-nano-electronics.
- Multi-disciplinary research activities from materials, processes, equipment, metrology, back-end processing to packaging, integration and tests.
- International cooperation is encouraged, especially with leading semiconductor countries (e.g. Japan, South Korea, Taiwan

•Multi-disciplinary research activities should be address
•International cooperation is encouraged (Japan, Korea etc.)

Expected results

- Innovative semiconductor and micro-nanoelectronic designs for very low energy consumption, integrated security, connectivity, sensing, actuating and embedded functions, mixed analogue/RF and digital circuits.
- Alternative semiconductor manufacturing process technologies for device performance, miniaturisation and cost, while reducing environmental footprint.

Emerging and Enabling Technologies

5-7 M€ per project | 4 projects | TRL 3 to 5

HORIZON-CL4-2023-DIGITAL-EMERGING-01-12: Adaptive multi-scale modelling and characterisation suites from lab to production (RIA)

- Development of benchmarked, integrated suites of models and characterisation methods for critical applications in strategic innovation markets
- Research should build on existing standards or contribute to standardisation

- Support the green and digital industrial transition -> need to accelerate the design and production of new advanced materials, improving the circular economy.
- Develop integrated methodologies of multi-scale and multi-technique characterisation to improve the reliability and quality of data.

Expected results

1. Enable industry to develop new and work with existing advanced materials, building on digitally integrated and validated modelling and characterisation methods for enhanced materials knowledge along value chains.
2. Accelerate the materials innovation process by allowing a better interpretation of available experimental data and by providing more effective guidance on further experiments.
3. Overcome gaps in modelling and characterisation capabilities targeted at different stages in materials and production value chains.

Graphene

3M€-5 m€ per project | 2 projects | RIA | TRL 2-3 to 4-5

HORIZON-CL4-2023-DIGITAL-EMERGING-01-32: Sustainable safe-by-design 2D materials technology (RIA)

- Should build on existing standards
- Collaboration with existing projects: European, national or regional initiatives, Graphene and 2D-materials: RESILIENCE-01-21/22/23/24.
- Contribution to the governance and overall coordination of the Graphene Flagship initiative.

- Commercial exploitation of 2DM -> a comprehensive evaluation of their potential impact on human health and the environment. Understand the properties of the potential toxicity.
- Proposals to ensure a safe development of 2DM technology and in the long term.
- Critical examination of 2DM health and environment issues, ranging from general toxicology, to occupational health and environmental impact.
- Build/seek collaboration with existing projects: European, national or regional initiatives.

Indicate which chapters of the **Strategic Research and Innovation Plan for chemicals and materials**(1) they will contribute to.

Expected results

- Development of Safe and Sustainable by Design two-dimensional materials (2DM) technology.
- Societal acceptance of 2DM and 2DM-based technologies.

1 https://op.europa.eu/en/publication-detail/-/publication/9f04603f-534b-11ed-92ed-01aa75ed71a1/

Graphene

3-4M€ per project | 3 projects | RIA | TRL 2 to 4

HORIZON-CL4-2023-DIGITAL-EMERGING-01-33: 2D materials of tomorrow (RIA)

- Exploiting most promising emerging 2DM and/or discovering new ones, in functional systems & hetero-structures
- Identification and demonstration of new properties and physical phenomena (ex twist degree of freedom).
- Development of new characterisation methods, ultra clean and large-scale synthesis, new fabrication methods e.g. Artificial Intelligence assisting material & simulation.
- Build/seek collaboration with existing projects: European, national or regional initiatives, those selected in HE.

•Collaboration with existing projects European, national or regional (selectein HE)
•Cover the contribution to the governance/coordination Graphene Flagship initiative

Expected Results

- Innovative two-dimensional materials (2DM),
- Networks and multicomponent hetero-structures with new properties or complementary functionalities with breakthroughs in digital systems and devices.

Quantum

4-6M€ per project | 2 projects | RIA | TRL 2-3 to 4-5

HORIZON-CL4-2023-DIGITAL-EMERGING-01-40: Quantum Photonic Integrated Circuit technologies (RIA)

Eligible costs will take the form of a lump sum

- Participation is limited to Member States, Iceland, Norway and Israel.
- Entities that are directly or indirectly controlled by a non-eligible country may not participate in the action unless "their participation would not negatively impact the Union's strategic".

- Enhancement of Photonic IC performance, e.g. ultra-low loss; ultra-low laser linewidth; ultra-high extinction ratio modulators and switches , extending spectral and optical power coverage, optical coupling interfaces, packaging
- Identification of applications in quantum sensing, communication, computation and simulation.
- Testing of the developed QPIC technologies though trials at systems level in a representative laboratory or an operational environment
- **Expected results**
- QPIC technology enabling compact, high performance, reliable, cost-effective components
- Demonstrate the technology capability in key enabling Quantum PIC technologies with high potential impact on the quantum technology Industry.
- Prepare QPIC technologies for future Pilot Lines and Photonics hubs and open testing and experimentation facilities

Quantum

2 projects | 7-12 M€ | RIA | TRL 3-4 to 5-6

HORIZON-CL4-2023-DIGITAL-EMERGING-01-41: Investing in alternative quantum computation and simulation platform technologies (RIA)

- Participation is limited to Member States, Iceland, Norway and Israel.
- Entities that are directly or indirectly controlled by a non-eligible country may not participate in the action unless "their participation would not negatively impact the Union's strategic".

Further mature alternative and promising quantum computation and simulation platforms which have the prospects of high scalability and programmability

Expected results

- Development based, for example on photonic or nitrogen vacancy-centre platforms or hybrid systems
- Should be integrating the key building blocks such as
  - individual quantum systems (i.e. >10 qubits for a quantum computer and >50 quantum units for a quantum simulator),
  - control electronics,
  - quantum software stack,
  - use case applications, etc.
- Work should address the
  - scalability towards large systems (>100 qubits for a quantum computer and >1000 quantum units for a quantum simulator),
  - verification and validation of the quantum computation or simulation,
  - solving a concrete problem to demonstrate the quantum advantage.
- Quantum computation platform should explore fault-tolerance

Quantum

1 projects | --- M€ | FPA | TRL 4-5 to 6-7

HORIZON-CL4-2023-DIGITAL-EMERGING-01-43: Framework Partnership Agreement for developing large-scale quantum Computing platform technologies (FPA)

- Participation is limited to Member States, Iceland, Norway and Israel.
- Entities that are directly or indirectly controlled by a non-eligible country may not participate in the action unless "their participation would not negatively impact the Union's strategic".

The FPA will specify the objectives, the nature of the actions planned, and the procedure for awarding specific grants

Target the development of open quantum computing platforms compatible with the fabrication techniques of the semiconductor industry (e.g. silicon spin qubits)

Integrate the key building blocks such as quantum processors in the NISQ regime with control electronics, low-level software, verification and validation of the quantum computation

Expected results

- Establish a stable and structured partnership with the Commission
- Establish, maintain and implement a strategic research roadmap aligned with and contributing to the Quantum Flagship Strategic Research Agenda **in a scalable open quantum computing platform** based on a specific quantum platform technology.

Quantum

3 projects | 2-3 M€ | RIA | TRL 2-3 to 4-5

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

Participation in this topic is limited to legal entities established in MS, Associated Countries, **OECD** and Mercosur countries. Proposals including legal entities which are not established in these countries will be ineligible.

It is important to avoid a situation of technological dependency on a non-EU source.

Entities established in an eligible country, but which are directly or indirectly controlled by a non-eligible country or by a non-eligible country entity, may not participate in the action

- Focus on next generation quantum sensors and metrology devices such as for example quantum enhanced spectroscopy and imaging, including entangled and/or superposition-based clocks, quantum opto-mechanical sensing devices, squeezed states of light, point-defects in the solid-state (bulk or 2D materials).
- Address:
- the development of new methods and techniques to achieve full control over all relevant quantum degrees of freedom and to protect them from environmental noise; and/or
- Identification of correlated quantum states that outperform uncorrelated systems in a noisy environment and methods to prepare them reliably.
- **Expected results**
- Contribute to demonstrate the feasibility of next generation quantum sensing and metrology technologies and devices by showing disruptive progress in the performance, reliability and efficiency and application of such technologies

HORIZON-CL4-2023-DIGITAL-EMERGING-01-51 : Pervasive photonics - multi-technology integration for digital infrastructure, sensors and internet of things

- Implementing the European Partnership Photonics
- Proposals submitted under this topic should include a business case and exploitation strategy.

- Co-integration of photonics and microelectronics on single or multiple die (‘chiplet’ approach)
- Co-integration of multiple photonic IC material systems or components to address new wavelengths and sensor functions or new computing paradigms
- Work should cover at least two use cases linked to commercial applications e.g. in computing, communications, robotic and autonomous systems, sensors or Internet of Things

Expected results

- Improved key metrics for communications (speed, power consumption, density) or for sensing (sensitivity, compactness, power consumption)
- New photonic-enabled sensing functions or computing paradigms enabling new systems architectures

European Innovation Leadership in Photonics

4 projects | 3-5 M€ | RIA | TRL 2 to 5

HORIZON-CL4-2023-DIGITAL-EMERGING-01-53: Versatile light sources and systems as tools for manufacturing and medical application (RIA)

- Implementing the European Partnership Photonics
- The results and benefits should be demonstrated in at least two realistic use cases.
- Proposals submitted under this topic should include a business case and exploitation strategy,
- as outlined in the introduction to this Destination.

- Sources with multi-specification / multi-application potential
- Extended or new wavelength ranges, novel coherent sources
- Flexible and variable energy deposition (e.g. material processing, medical diagnosis)
- Versatility by flexible pulse shapes and by spectral tuneability,
- Miniaturized light sources and lasers employing photonic integrated circuit technology
- Laser concepts and systems for multiphoton microscopy, spectroscopy and imaging

Expected results

- Increased manufacturing productivity or quality and speed of diagnosis results
- Increased accuracy and/or reduced feature size in microelectronics production : packaging for the integration of photonic and electronic in chips;
- Increased specificity of diagnosis of human tissue, specific single cells, or molecular biomarkers in body liquids.

European Innovation Leadership in Photonics

2 projects | 1-3 M€ | CSA |

HORIZON-CL4-2023-DIGITAL-EMERGING-01-56: Photonic Strategies and Skills Development

- Implementing the European partnership Photonics
- Fostering strategic collaboration with financial institutions to improve financing conditions for Photonics industry,

Type 1: Supporting the industrial strategy for photonics in Europe (3 million EUR):

- ❖ Development of strategic technology road-maps,
- ❖ Coordination of regional, national and European strategies, fostering collaboration

▪ Type 2: Fostering careers in photonics (1 million EUR).

- ❖ Actions to encourage students to pursue a career in photonics, to make students more industry ready and to encourage innovation and entrepreneurship.
- ❖ Seek synergies with the skills development activities in the DEP

Expected results: Contribute to at least one of the outcomes

- ❖ Reinforced value chains and deployment of photonics technologies by stronger cooperation of photonics stakeholders, clusters and end-users
- ❖ Increased competitiveness of the European photonics sector
- ❖ More and better prepared professionals in the photonics sector.

HORIZON-CL4-2023-DIGITAL-EMERGING-01-57: Advanced imaging and sensing technologies

- Funding up to 60%, except for non-profit legal entities up to 100% of the total eligible costs.
- Contribution to the Digital Green deal policy and/or to the technological sovereignty of Europe

- Innovative HW and SW approaches, or techniques outperform the current standards.
  - ❖ Feasibility for future industrialization

  Addressing at least 1 of the sectors: Automotive, Safety and security, Industry, Health, Agriculture and food.
- Technologies covering more than one application sectors encouraged:
  - ❖ Long range, high speed, eye-safe imaging the sectors.
  - ❖ Imaging in presence of obscurants for the sectors
  - ❖ Spectroscopic imaging and sensing for the sectors

Expected results

- The development of next generations sensory systems based on photonic technologies
- Technology leadership in autonomous vehicles, robots and sensory systems;
- Growth in a number of strategic industries such as medical devices, automotive, manufacturing, agriculture & food, security of large added value which are in Europe.

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Liberté
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DESTINATION 6

Appels de l'année 2023

décembre 2022

horizon-europe.gouv.fr

HUMAN Destination - 8 headings – 28 topics in 2023

1. Leadership in AI based on trust
2. An Internet of Trust
3. eXtended Reality (XR)
4. Systemic approaches to make the most of the technologies within society and industry
5. Research and Innovation for Industry 5.0
6. European standards for industrial competitiveness
7. Digital Humanism and human compatible technologies
8. International cooperation

HORIZON-CL4-2023-HUMAN
Leadership in AI based on trust

Objective

- ensure autonomy for Europe in AI
- develop technologies that industries & citizens will trust
  - **Trustworthy AI is particularly key in applications such as healthcare or in diverse critical infrastructures**
- deploy technologies that are beneficial to humans
  - **individually, organisationally and societally**
- adhere to European values

5 topics in 2023

MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

horizon europe

Deadline: 29/03/2023

HUMAN Leadership in AI based on trust (1/2)

HORIZON-CL4-2023-HUMAN-01-01: Efficient trustworthy AI - making the best of data (AI, Data and Robotics Partnership) (RIA)

- 7-9 M€ per project - 5 projects funded (35 M€)
- AI methods that optimize training and reduce the amount of data and the processing intensity

HORIZON-CL4-2023-HUMAN-01-02: Large Scale pilots on trustworthy AI data and robotics addressing key societal challenges (AI Data and Robotics Partnership) (IA)

- 8 M€ per project - 3 projects funded (24 M€)
- To test and improve robustness, performance and reliability of AI based solutions, in real-world scenarios

HORIZON-CL4-2023-HUMAN-01-03: Natural Language Understanding and Interaction in Advanced Language Technologies (AI Data and Robotics Partnership) (RIA)

- 6-8 M€ per project - 3 projects funded (20 M€)
- Real meaning understanding of natural languages and recognition of gestures and activities to make AI-based human-computer interaction and collaboration more effective

Deadline: 29/03/2023

HUMAN Leadership in AI based on trust (2/2)

HORIZON-CL4-2023-HUMAN-01-04: Open innovation: Addressing Grand challenges in AI (AI Data and Robotics Partnership) (CSA)

- 1 project funded (4 M€)
- Organise open innovation challenges aimed at bringing together the best research teams from various public and private organizations that are trying to address key scientific and technological challenges in AI.

HORIZON-CL4-2023-HUMAN-01-05: Through AI from Disinformation to Trust (IA)

- 5 M€ per project - 2 projects funded (10 M€)
- Support innovation activities to move toward the market for AI-based and ultimately widely available solutions that can play an important role in ensuring pluralistic access to meaningful information, quality content and trustworthy online interactions.

HORIZON-CL4-2023-HUMAN

An Internet of Trust

- Internet users are more concerned about their online privacy
- Users express more distrust of the Internet and social media platforms

Objective

- develop a trustworthy digital environment, built on a more resilient, sustainable, and decentralised internet
- empower end-users with more control over their data & identity
- enable new social and business models respecting European values

4 topics in 2023

Deadline: 29/03/2023

HUMAN
An Internet of Trust

HORIZON-CL4-2023-HUMAN-01-11: Next Generation Internet Fund (RIA)

- 27 M€ per project with FSTP - 1 project funded (27 M€)
- Nurture a structured human-centric internet eco-system & create and mature new commons to the whole internet stack

HORIZON-CL4-2023-HUMAN-01-12: Pilots for the Next Generation Internet (IA)

- 2-5 M€ per project - ~4(tbc) projects funded (14 M€)
- Foster the take up of NGI technologies and solutions by integrating them in a industrial and societal use cases, enabling the emergence of internet ecosystems

HORIZON-CL4-2023-HUMAN-01-13: Next Generation Internet International Collaboration - USA (RIA)

- 4 M€ per project - 1 project funded (4 M€)
- Reinforce EU-US cooperation in NGI. Cooperation with entities participating in Internet projects funded by NSF

HORIZON-CL4-2023-HUMAN-01-14: Next Generation Internet Commons Policy (CSA)

- 2 M€ per project - 1 project funded (2 M€)
- Identify active communities of commoners in Europe and carry out consultation to identify internet commons priorities

HORIZON-CL4-2023-HUMAN
eXtended Reality (XR)

eXtended Reality & immersive environments provide personalised, innovative, and inclusive learning, for learners of all ages, gender and condition

- Low presence of Europe in the consumer electronics industry
- Increasing dependency on external providers

Objective

- gain industrial leadership
- ensure privacy, ethics and inclusiveness
- support digital transformation of education through XR in particular

3 topics in 2023

MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

horizon europe

Deadline: 29/03/2023

HUMAN eXtended Reality (XR)

HORIZON-CL4-2023-HUMAN-01-21: Next Generation eXtended Reality (RIA)

- 5-8 M€ per project - 4 projects funded (26 M€)
- Development and integration of advanced XR hardware components and new solutions to enhance user experience, skills and capabilities in social and professional XR configurations.

HORIZON-CL4-2023-HUMAN-01-22: eXtended Reality for Industry 5.0 (IA)

- 5-8 M€ per project - 4 projects funded (25 M€)
- Development of XR applications to support companies in all industrial ecosystems, and
- Creation of a European reference platform to develop and prototype advanced and interoperable XR solutions.

HORIZON-CL4-2023-HUMAN-01-23: Supporting the emergence of an open human-centric Metaverse (CSA)

- 1 project funded (2 M€)
- To provide an open, human-centered, trustworthy, safe and ethical Metaverse, offering opportunities to everyone, focusing not only on business opportunities but also on important societal challenges such as healthcare and green transformation.

HORIZON-CL4-2023-HUMAN

Systemic approaches to make the most of the technologies within society and industry

Objective: encourage creativity & make the most of technologies

- promote various systemic approaches
- test, experiment, demonstrate, & support for take-up
  - using the capacities, infrastructures, and EDIHs

➢ testing of ideas in local communities;
➢ support for IP, standardisation and industry-academia exchanges;
➢ art-driven design;
➢ assessments of complex socio-economic systems.

3 topics in 2023

Deadline: 29/03/2023

HUMAN
Systemic approaches

HORIZON-CL4-2023-HUMAN-01-31: Toolbox for efficient IP licensing for market uptake and societal value creation (CSA)

- 2 M€ per project - 1 project funded (2 M€)
- Harvest the lessons learned and deliver an IP toolbox for helping companies to establish quick and efficient co-operation and licences with businesses

HORIZON-CL4-2023-HUMAN-01-32: Piloting communities of expert facilitators to improve industry-academia-public sector co-creation (CSA)

- 2 M€ per project - 1 project funded (2 M€)
- Improve industry-academia interactions in Europe and enhance knowledge valorisation in innovation ecosystems

HORIZON-CL4-2023-HUMAN-01-33: Fostering knowledge valorisation through societal and cultural interactions (CSA)

- 1 M€ per project - 5 projects funded (5 M€)
- Strengthen and further develop schemes promoting arts-industrial technologies-citizens interactions to increase uptake of new technologies through better societal understanding, acceptance & co-creation.

HORIZON-CL4-2023-HUMAN
Research and Innovation for Industry

Industry 5.0 , the fifth industrial revolution, refers to
- *people* working alongside *robots* & *intelligent machines*
- AI and human creativity will work hand in hand

- looks beyond efficiency and productivity as the only goals
- strengthens the role and contribution of industry to society
- puts human aspect is at its heart to make human-robot interaction more fluid

3 topics in 2023

Deadline: 29/03/2023

HUMAN
R&I for Industry 5.0

HORIZON-CL4-2023-HUMAN-01-51: Pilots for an innovative human-centric industry (RIA)

- 10 M€ per project - 1 project funded (10 M€)
- Develop & demonstrate the concept of human-centricity in a real-life, operational industrial environment in at least 10 pilots

HORIZON-CL4-2023-HUMAN-01-52: Drivers and success factors for progress towards Industry 5.0 (RIA)

- 4 M€ per project - 1 project funded (4 M€)
- Select & thoroughly study the successful or less successful implementation of Industry 5.0 principles in at least 10 cases. Each case is in a different EU Member State or country associated to Horizon Europe.
  (est-ce que cela veut dire qu'il faut des partenaires de 10 pays différents ?!)

HORIZON-CL4-2023-HUMAN-01-53: Localised and Urban Manufacturing, supporting creativity and the New European Bauhaus (RIA with FSTP)

- 1.5 to 2.5 M€ per project with FSTP - ~5 projects funded (10 M€)
- Adaptation of green and digital technologies that allow production with lower environmental impacts. Developing skills and creativity taking into account inclusiveness.

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horizon europe

HORIZON-CL4-2023-HUMAN
European standards for industrial

Technology leadership goes hand-in-hand with leadership in standard-setting

Bringing R&I communities early on into the standards-making process is key to:

- identify the issues and priorities
- share views on future developments and stakeholder needs,
- provide recommendations to the European Commission and European standardisation organisations for future standardisation needs

5 topics in 2023

Deadline: 29/03/2023

HUMAN Standards for industrial competitiveness (1/2)

HORIZON-CL4-2023-HUMAN-01-62: Boosting industrial symbiosis by standardisation (CSA)

- 2 M€ per project - ~1 project funded (2 M€)
- Identify solutions on how standardisation can allow stakeholders at all levels develop a shared understanding of processes by which waste or by-products of an industry or industrial process become the raw materials for another

HORIZON-CL4-2023-HUMAN-01-63: Provide for a strong and sustainable pool of experts for European Standardisation: attract the students of university/HEI

- 2.5 to 3 M€ per project ~ 1 project funded (3 M€)
- Provide for a pool of European professionals ready to contribute to standardisation and support positioning EU as global standard-setter

HORIZON-CL4-2023-HUMAN-01-64: Pre-normative research and standardisation in industrial ecosystems (CSA)

- 0.5 to 1 M€ per project ~10? projects funded (8 M€)
- Cover the coordination/execution of pre-normative research activities in the various ecosystems with a view to exploit synergies among the stakeholders

HUMAN
Standards for industrial competitiveness (2/2)

Deadline: 29/03/2023

HORIZON-CL4-2023-HUMAN-01-65: Support facility for digital standardisation and international cooperation in digital partnerships (CSA)

- 1.5 M€ per project - 1 project funded (1.5M€)
- Defining a common vision and agenda for key digital technologies as regards their standardisation aspects

HORIZON-CL4-2023-HUMAN-01-66: Promoting EU standards globally (CSA)

- 3 M€ per project - 1 project funded (3 M€)
- Enhance cooperation with countries participating in InDiCo (India, China, Brazil and LAC region)

HORIZON-CL4-2023-HUMAN

Digital Humanism and human compatible technologies

The European approach for digital transformation is based on

1. values
2. technological leadership.

There is a lack of systematic approaches to integrate non-technology innovation and social innovation in technology development.

Objective

- ensure people are at the centre of the digital transformation, in line with Europe values and principles

2 topics in 2023

Deadline: 29/03/2023

HUMAN
Digital Humanism & human compatible technologies

HORIZON-CL4-2023-HUMAN-01-81: Digital Humanism - Putting people at the centre of the digital transformation (CSA)

- 1.5 M€ per project - 1 project funded (1.5M€)
- Co design a horizontal and holistic approach for creating a more resilient, inclusive and democratic European society.
- Support the development of cross-disciplinary communities with computer sciences, legal, economic, sociological, philosophical and other kinds of expertise.

HORIZON-CL4-2023-HUMAN-01-82: Art-driven digital innovation: Towards human compatible & ecologically conscious technology (CSA)

- 3 M€ per project - 1 project funded (3 M€)
- Adopt artistic experimentation as a complementary method for technology development and use across all EC programs.

HORIZON-CL4-2023-HUMAN
International cooperation

Objectives

- build strong international digital partnerships
- promote a human-centred digital agenda
- support digital dialogues with partner countries
- promote European technologies in key international markets
- foster links with relevant research institutions on R&I activities

Important aspects

- Trade and industrial policy
- Cooperation with Japan, Republic of Korea, Singapore, Africa and Latin America

3 topics in 2023

Deadline: 29/03/2023

HUMAN International Cooperation

HORIZON-CL4-2023-HUMAN-01-91: International Hub for Digital Partnerships in the Indo-Pacific (CSA)

- 3 M€ per project - 1 project funded (3 M€)
- Organize networks, conferences, workshops and other actions that support R&I activities in the Digital Partnerships with Japan, South Korea, Singapore, and India

HORIZON-CL4-2023-HUMAN-01-92: R&I cooperation with Sub-Saharan Africa (CSA)

- 2 M€ per project - 1 project funded (2 M€)
- Foster cooperation and prepare ground for joint R&I opportunities between the EU and sub-Saharan Africa

HORIZON-CL4-2023-HUMAN-01-93: R&I cooperation with Latin America (Mexico, Brazil, Argentina, and other countries in the BELLA network or members of RedClara) (CSA)

- 2 M€ per project - 1 project funded (2 M€)
- Organize networks, conferences, workshops and other actions that support R&I activities with Brazil, Mexico, Argentina and other countries connected to the BELLA network or members of RedClara

MINISTÈRE
DE L'ENSEIGNEMENT
SUPÉRIEUR
ET DE LA RECHERCHE

horizon
europe

Topic presentation
Destination 6

MINISTÈRE DE L'ENSEIGNEMENT SUPÉRIEUR ET DE LA RECHERCHE

horizon europe

1

Leadership in AI based on trust

HORIZON-CL4-2023-HUMAN-01-01	RIA	35.00	7.00 to 9.00	5
HORIZON-CL4-2023-HUMAN-01-02	IA	24.00	Around 8.00	3
HORIZON-CL4-2023-HUMAN-01-03	RIA	20.00	6.00 to 8.00	3
HORIZON-CL4-2023-HUMAN-01-04	CSA	4.00	Around 4.00	1
HORIZON-CL4-2023-HUMAN-01-05	IA	10.00	Around 5.00	2

Leadership in AI based on trust

5 projects 7-9 M€ | RIA | TRL 4-5

HORIZON-CL4-2023-HUMAN-01-01: Efficient trustworthy AI - making the best of data

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

To achieve the expected outcomes, **international cooperation** is encouraged, in particular with **Canada and India**

Dedicate tasks and resources to collaborate with and provide input to the open innovation challenge under HORIZON-CL4-2023-HUMAN-01-04

Address novel AI methods and training data provision processes, aiming at high quality and reliable AI.

Better quality of AI by smart data selection/harvesting/preparation and reduces the need to collect, store, process and transfer large amounts of data and/or large AI models, while reducing energy consumption

Expected results

- Optimized AI solutions: optimizing model design and data usage to maximize accuracy and robustness.
- Ensure in general, the pipeline of high-quality, representative, unbiased and compliant training data for AI development in all relevant sectors
- Support data preparation and AI training processes that lead to efficient and more trustworthy AI

Leadership in AI based on trust

3 projects 8 M€ | IA | TRL 6-7

HORIZON-CL4-2023-HUMAN-01-02: Large Scale pilots on trustworthy AI data and robotics addressing key societal challenges

The funding rate is up to 60% of the eligible costs

Except for non-profit legal entities, 100% of the total eligible costs.

Large scale pilots involving industry and end users can demonstrate how AI, Data and Robotics enabled solutions can benefit, both industry as well as a society, demonstrating robustness and "trustworthiness"

Expected results

- Technology progress in AI addressing major challenges hampering the deployment of AI, Data and Robotics technologies;
- Wide uptake of AI, Data and Robotics technologies by industry and end-users towards the Digital Decade targets for 2030.
- Robust and trustworthy AI, Data and Robotics technologies

Leadership in AI based on trust

3 projects 6-8 M€ | RIA | TRL 5

HORIZON-CL4-2023-HUMAN-01-03: Natural Language Understanding and Interaction in Advanced Language Technologies

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

Dedicate tasks and resources to collaborate with and provide input to the open innovation challenge under HORIZON-CL4-2023-HUMAN-01-04

Improve **context-aware human-machine interaction** to increase understanding and exploitation of the interaction context

Support and enhance **seamless human-to-human communication** across languages e.g. by means of automatic translation or interpretation

Expected results

- Development of natural language understanding and interaction in advanced language technologies
- AI systems and solutions based on novel multilingual pre-trained language models
- Higher uptake of innovative language technology solutions by European companies

Leadership in AI based on trust

1 project 4 M€ | CSA

HORIZON-CL4-2023-HUMAN-01-04: Open innovation: Addressing Grand challenges in AI

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

Financial support to third parties (FSTP), can only be provided in the form of prizes.

500 K€ is the maximum amount per grant to TP

Deliver open innovation challenges with the aim to : Attract the best research teams, reinforce the research excellence in Europe, address challenges in collaboration with the projects funded under the following topics: CL4-2023-HUMAN-01-01, CL4-2023-HUMAN-01-03, enable continuous interaction between academia and industry

Expected results

- Demonstrate and reinforce Europe's research excellence in AI in the following major scientific & technological AI areas: optimisation, explainability, robustness, natural language understanding and interaction, and collaborative intelligence
- Mobilise wide participation of top scientists from academia, industry including start-ups and as well as young teams and rising stars
- Substantially increase interest from industry in AI (incl. SMEs and start-ups)

Leadership in AI based on trust

2 projects 5 M€ | IA | TRL 6-7

HORIZON-CL4-2023-HUMAN-01-05: Through AI from Disinformation to Trust

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

Lump sum

Detection of different forms of content manipulation (e.g. deep-fakes, tampered content and scammed environments)

The innovation actions will bring together technological providers, media professionals and end users for ensuring market readiness of the results

Expected results

- Innovative AI solutions for trusted information production for media professionals.
- Innovative AI solutions for supporting trustworthy online activity of citizens.

2

An Internet of Trust

HORIZON-CL4-2023-HUMAN-01-11	RIA	27.00	Around 27.00	1
HORIZON-CL4-2023-HUMAN-01-12	IA	14.00	3.00 to 5.00	5
HORIZON-CL4-2023-HUMAN-01-13	RIA	4.00	Around 4.00	1
HORIZON-CL4-2023-HUMAN-01-14	CSA	2.00	Around 2.00	1

An Internet of Trust

1 project 27 M€ | RIA | TRL non spécifié

HORIZON-CL4-2023-HUMAN-01-11 : Next Generation Internet Fund (RIA)

Must provide financial support to third parties (FSTP):

- through open calls
- in the form of grants.

500 K€ is the maximum amount per grant to TP

A minimum of 80% of the total requested EU contribution should be allocated to FSTP.

Create and mature internet commons that encompass the whole internet stack

- **Open hardware, transport technologies, firmware, operating systems and virtualisation, electronic identities and middleware, decentralised ledgers, software productivity tools, traffic supervision tools, & vertical applications.**

Expected results

- A human centric internet aligned with Europe values and principles: protection of privacy, inclusiveness, transparency, autonomy, openness, and decentralisation.
- Internet based on common building blocks created within NGI, that enables better control of our digital life and better sharing of data.
- A structured eco-system of contributors driving the creation of new internet commons and the evolution of existing internet commons based on open source
- Synergies with NGI pilots

An Internet of Trust

5 projects 3 to 5 M€ | IA | TRL non spécifié

HORIZON-CL4-2023-HUMAN-01-12 : Pilots for the Next Generation Internet (IA)

Beneficiaries must provide financial support to third parties.

The maximum amount to be granted to each third party is 60K€.

A minimum of 15% of the total requested EU contribution should be allocated to FSTP, selected through open calls.

- Foster the take up of Next Generation Internet (NGI) technologies and solutions in Europe by integrating them in a variety of industrial and societal use cases.
- Enable the emergence of internet ecosystems supporting the needs of specific sectors, such as public services, healthcare and well-being, supply chain management, transport, finance, creative and cultural industries, tourism, energy and ICT.
- **Proposals should address use cases from at least two different verticals and address their interdependencies**.

Expected results

- Generate new business opportunities and enable the emergence of new business and sustainability models based on Open Source.
- Support the community of Europe's best Internet innovators who are able to set the course for the evolution of the Internet with a human-centered approach.

An Internet of Trust

1 project 4 M€ | RIA | TRL n spécifié

HORIZON-CL4-2023-HUMAN-01-13 : Next Generation Internet International Collaboration - USA (RIA)

Beneficiaries must provide FSTP.

Support collaboration between third parties and NSF-funded US teams.

The maximum amount to be granted to each third party is 150K€.

A minimum of 80% of the total requested EU contribution should be allocated to FSTP, selected through open calls.

Promote :

- Organise open calls for third party projects
- Support open source software and open hardware design

Expected results

- Supporting the EU internet policy objectives by sharing the EU vision and values with international partners, and forging bonds through concrete collaborations.
- Reinforced collaboration between NGI and the Internet programmes of the US National Science Foundation (NSF).
- A transatlantic ecosystem of researchers, open source developers, high-tech startups / SMEs and Internet related communities collaborating on the evolution of the Internet according to a human-centric approach.
- Generate new business opportunities for European Internet innovators based on decentralised technologies and open source

An Internet of Trust
1 project 2 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-14 : Next Generation Internet Commons Policy (CSA)

overall duration of 36 months

- Identify active communities of commoners in Europe and monitoring of their evolution and maturity levels
- Define a strategic agenda valid for the Multi-Annual Financial Framework timeframe and planning expected maturation of the various commons incubated in NGI
- Carry out consultation to identify internet commons priorities for ensuring European sovereignty
- Elaborate governance models for future commons integrating European strategic autonomy policies as well as maintenance strategy

Expected results

- A long-term strategy for internet commons which are critical for sovereignty and trust, based on a clear mapping of existing communities of commoners and commons
- A more coherent funding landscape integrating national and European dimensions from public and private sector

3

eXtended Reality (XR)

HORIZON-CL4-2023-HUMAN-01-21	RIA	26.00	5.00 to 8.00	4
HORIZON-CL4-2023-HUMAN-01-22	IA	25.00	5.00 to 8.00	4
HORIZON-CL4-2023-HUMAN-01-23	CSA	2.00	Around 2.00	1

eXtended Reality (XR)
4 projects 5-8 M€ | RIA | TRL 5

HORIZON-CL4-2023-HUMAN-01-21: Next Generation eXtended Reality (RIA)

To ensure a balanced portfolio, grants will be awarded not only in order of ranking but at least also to the highest ranked proposal of each type :

- Type I Development and integration of advanced XR hardware components,
- Type II development of new solutions aiming to improve the user experience, skills and capacity in social and professional XR setups

- Development and integration of advanced XR hardware components, such as displays, optics and sensors, for a new generation of XR devices providing greater visual, wearable, vestibular and social comfort
- The development of new solutions aiming to improve the user experience, skills and capacity in social and professional XR setups

Expected results

- Next generation of XR devices and applications between technologies such as 5G/6G, IoT, data, artificial intelligence, edge and cloud computing, and microelectronics) and across domains of use such as (education, manufacturing, health, cultural heritage, media and security….)
- More realistic, more affordable and gender-neutral devices and applications, developed by European companies, respecting European values of ethics, privacy, security and safety, aiming at technological sovereignty and resilience

eXtended Reality
4 projects 5-8 M€ | IA | TRL 7-8

HORIZON-CL4-2023-HUMAN-01-22: eXtended Reality for Industry 5.0 (IA)

If projects use satellite-based earth observation, positioning, navigation and/or related timing data and services, beneficiaries must make use of Copernicus and/or Galileo/EGNOS (other data and services may additionally be used)

Innovation Type II:

- Financial support to third parties (FSTP) : 250-500 K€ is the maximum amount per grant to TP (12-15 months)
- A minimum of 60% of the total requested EU contribution should be allocated to FSTP.

Innovation Type I: The development of XR applications to support companies in all industrial ecosystems, especially SMEs, to use innovative interactive and immersive technologies, increasing their competitiveness, productivity, efficiency and human-centricity

Innovation Type II : The creation of a European reference platform aiming to develop and prototype advanced interoperable XR solutions to solve common challenges encountered by the industry

Expected results

- Develop “XR made in Europe”, contributing to technological sovereignty.
- Contribute to develop virtual worlds European platforms.
- Support the use of XR technologies for a sustainable, human-centric and resilient European industry

eXtended Reality (XR)

1 project 2 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-23: Supporting the emergence of an open human-centric Metaverse

Collaborate and build synergies with other existing related European initiatives such as the AR/VR coalition, the eXtended Reality Ethics, Interoperability and Impact CSA funded under HORIZON-CL4-2021-HUMAN-01-28, the Common European Data spaces funded under DIGITAL, the relevant European Partnerships (such as Data, AI and Robotics; Photonics, the European Blockchain Partnership); NGI initiative, the European Flagships, the EU supported digital twins initiatives

Structure and support the Metaverse community, engagement process with relevant stakeholders with citizens and civil society, development of an EU strategy and roadmap, help with the definition of industry standards for the Metaverse, identify ethical, legal, societal and economical aspects

Expected results

- Co-shape and promote an open, decentralised, trustworthy European and global Metaverse in line with the vision of human-centric technology set out in the EU Declaration on Digital Principles and Rights.
- A strong and competitive ecosystem, with European companies playing a leading role in the adoption and acceptance, and in the development and deployment of Metaverse technologies.

4

Systemic approaches for accelerating uptake of technology and innovation

HORIZON-CL4-2023-HUMAN-01-31	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-32	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-33	CSA	5.00	Around 1.00	5

Systemic approaches for accelerating uptake of technology and innovation
1 project 2 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-31: Toolbox for efficient IP licensing for market uptake and societal value creation (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

IP and use of different types of collaboration contracts, and licenses are key elements for increasing technology sharing, scaling up & industry capacities

- Promote better IP management in R&I to materialise research into innovation
- **Deliver an IP toolbox for helping organisations to establish quick co-operation and licences with businesses**
- **Deliver practical examples of incentives which motivate private sector to commit voluntary licensing for other areas e.g. climate change emergency**

Expected results

- Promote use and deployment of Intellectual Property (IP) ensuring easier access to and sharing of IP-protected assets.
- Provide models to improve the preparedness to respond to future emergencies with adequate solutions (including digital and industrial solutions) via efficient technology licensing

Systemic approaches for accelerating uptake of technology and innovation
1 project 2 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-32: Piloting communities of expert facilitators to improve industry-academia-public sector co-creation (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

Drive communities of experts

- to increase knowledge exchange and co-creation between industry, academia and the public sector, and
- to help match innovation supply and demand.

Attention must be paid to promoting **gender-sensitive and inclusive research**

Expected results

- Strengthen the base for industry-academia collaboration the higher education;
- Facilitate industry and SMEs to capitalise on the diversity of R&I talents;
- Spread novel approaches for industry-academia-public sector co-creation in cross-border manner;
- Transform research results into sustainable solutions with economic and social value

Systemic approaches for accelerating uptake of technology and innovation
5 projects 1 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-33: Fostering knowledge valorisation through societal and cultural interactions (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

Address at least one of the following challenges:

1. Develop new schemes & initiatives for arts-industrial technologies-citizens interactions leading to increased uptake of research results.
   At least 20 new schemes and initiatives across Europe will be tested;
2. Transferring in another environment, existing schemes & initiatives for arts-industrial technologies-citizens interactions that increase uptake of research results
   At least 20 existing (or recent) schemes and initiatives will be tested in a different member state to where they are in place/ originate, across Europe

Expected results

- Artistic methodologies and new conceptualisations of societal challenges, leading to innovative solutions with societal acceptance for uptake;
- Interactions, schemes and modes engaging civil society, arts, cultural institutions and industry to promote preparedness, recovery and the twin transition

5

Research and Innovation for Industry 5.0

HORIZON-CL4-2023-HUMAN-01-51	RIA	10.00	Around 10.00	1
HORIZON-CL4-2023-HUMAN-01-52	RIA	4.00	Around 4.00	1
HORIZON-CL4-2023-HUMAN-01-53	RIA	10.00	1.50 to 2.50	4

Research and Innovation for Industry 5.0
1 project 10 M€ | RIA | end TRL 6 or 7

HORIZON-CL4-2023-HUMAN-01-51: Pilots for an innovative human-centric industry (RIA)

The set of pilots, as a whole, will

- cover a variety of industrial sectors and company sizes, including SMEs ,
- be situated in at least **13 different member states or associated countries**

Cyber-security to be addressed in design, implementation and governance

Promote a human-centric industry with respect to work organisation

Address themes as the ones listed hereunder in a non-exhaustive manner:

- development of models and technologies to stimulate creativity of workers,
- participation of workers as end-users in the design of application in the work process
- inclusivity of the work environment,
- offering jobs that are rewarding for the individual worker along the life cycle,
- development of technologies in learning environments to increase the workforce skill

Expected results

- Understanding of the socio-technical and ethical implications of technologies for workers and work organization, across industrial sectors;
- Work and learning environments and work models;
- Skilled and creative industry workforce aligned with European social values

Research and Innovation for Industry 5.0
1 project 4 M€ | RIA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-52: Drivers and success factors for progress towards Industry 5.0 (RIA)

Interdisciplinary approach with contribution of SSH disciplines

Attention to gender dimension

Transfer knowledge to actors including
- policy makers,
- social partners and industry federations and partnerships,
- organised civil society (NGOs)

Address the following research themes related to Industry 5.0:
- Implementation practices
- Drivers
- Success factors and bottlenecks
- How can SMEs/start-ups/scale-ups take up Industry 5.0 principles
- Measurement of progress in the three Industry 5.0 dimensions: 1) resilience, 2) sustainability and 3) human-centricity.

Expected results
- Increased uptake of the Industry 5.0 principles and practices across industrial sectors, achieved through improved understanding of its benefits for enterprises and society and actionable knowledge about factors of success and impediment;
- Sound data and analysis of the uptake of Industry 5.0 in its different dimensions for policy makers at EU, national/regional and sectoral level

Research and Innovation for Industry 5.0
4 projects 1.5 to 2.5 M€ | RIA | start at TRL 5 – end at TRL 6

HORIZON-CL4-2023-HUMAN-01-53: Localised and Urban Manufacturing, supporting creativity and the New European Bauhaus (RIA using FSTP)

To ensure a balanced portfolio covering demonstration activities in diverse geographical areas,

1. grants are awarded first to the highest ranked application,

2. followed by other applications that are the highest ranked among those that ensure the most complementary geographical coverage regarding the demonstration location

R&I activities should cover:

- Production in urban contexts with lower noise, waste, energy & space consumption
- Closing the material and energy cycles in cities and transforming waste streams into productive resources.
- Developing skills and creativity
- Artistic experimentation taking into consideration inclusion and aesthetics

Expected results

- Designing and demonstrating symbiotic and sustainable factories that support a decentralised manufacturing vision close to the customer
- Developing regenerative concepts that offer increased value for the larger community, inspired by the New European Bauhaus
- Human-centric and participatory approaches
- Improved access to flexible production capabilities in decentralised environments

6

European standards for industrial competitiveness

HORIZON-CL4-2023-HUMAN-01-62	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-63	CSA	3.00	2.50 to 3.00	1
HORIZON-CL4-2023-HUMAN-01-64	CSA	8.00	0.50 to 1.00	8
HORIZON-CL4-2023-HUMAN-01-65	CSA	1.50	Around 1.50	1
HORIZON-CL4-2023-HUMAN-01-66	CSA	3.00	Around 3.00	1

European standards for industrial competitiveness
1 project 2 M€ | CSA | end TRL N/A

HORIZON-CL4-2023-HUMAN-01-62: Boosting industrial symbiosis by standardisation (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

- Identify solutions on how standardisation can allow stakeholders at all levels develop a shared understanding of processes by which waste or by-products of an industry or industrial process become the raw materials for another
- cover manufacturing and process industries in a wider context taking into consideration waste treatment and management, energy use and materials sourcing
- reduce the multiplicity of approaches, terminologies, measurements allowing for accurate benchmarking and target setting

Expected results

- Reinforcing the links between standardisation and R&I in circular value chains.
- Facilitating the market entry of solutions that could aid the circularity of resources.
- Identifying the major bottlenecks for standardisation to support industrial symbiosis.
- Helping the development of agile and green standards to ensure interoperability in the domain of industrial symbiosis

European standards for industrial competitiveness
1 project 2.5 to 3 M€ | CSA | end TRL N/A

HORIZON-CL4-2023-HUMAN-01-63: Provide for a strong and sustainable pool of experts for European Standardisation: attract the students of university/HEI (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

- Provide a robust and sustainable pool of European professionals ready to contribute to standardisation and support positioning EU as global standard-setter.
- In co-operation with industry, design an innovative teaching concept of standardisation.
- The teaching concept has the mission to integrate the aspects of a human-centric standardisation and the EU core values
- Promotion actions should be designed.
- Proposals should involve appropriate expertise in SSH

Expected results

- Inclusion of standardisation knowledge in curricula of /Higher Education Institutions
- More set of courses for universities/HEI integrating standardisation contents and covering the respective technological, innovations-supportive and societal aspects including the potential of standards to safeguard EU core values

European standards for industrial competitiveness
8 projects 0.5 to 1 M€ | CSA | end TRL N/A

HORIZON-CL4-2023-HUMAN-01-64: Pre-normative research and standardisation in industrial ecosystems (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

In line with the objectives of the standardisation strategy [**COM(2022) 31 final**]

- Boost the interactions between research projects and pre-normative work in the various ecosystems
- Establish interoperability standards for data sharing within and across the ecosystems

Expected results

- Contribute to the achievement of the European industrial policy objectives, especially in relation to the digital transitions (twin transitions) and the circular economy;
- Define standardisation needs and priorities, the role to be played by pre-normative research, and the contributions to be provided at the standardisation level;
- Define roadmaps for pre-standardisation activities in emerging domains ;
- Establish a platform for the deployment of education and training in standardisation in the framework of the identified industrial sectors.

European standards for industrial competitiveness
1 project 1.5 M€ | CSA | end TRL N/A

HORIZON-CL4-2023-HUMAN-01-65: Support facility for digital standardisation and international cooperation in digital partnerships (CSA)

Eligible costs will take the form of a **lump sum**

Contribute to the EU Standardisation Strategy. Proposals should cover the following

- **Define a common agenda and work plan**, to **set up a mechanism to exchange relevant information**, align positions etc.
- T2: Conduct regular studies and analyses of the relevant activities in in international ICT standardisation, especially in key technologies promoted in HE
- T3: Organise international conferences, workshops or supporting material, including newsletters, websites, or promotional videos.
- T4: Achieve synergies with ongoing research and innovation activities

Expected results

- Further alignment with like-minded countries on a common vision on ICT standardisation of key technologies and developing a robust coordination mechanism to express this common vision in international fora/SDOs.
- Engage with relevant entities working in ICT standardisation from Japan, South Korea, Taiwan, Singapore, Canada, Australia, and the USA.

European standards for industrial competitiveness
1 project 3 M€ | CSA | end TRL N/A

HORIZON-CL4-2023-HUMAN-01-66: Promoting EU standards globally (CSA)

Eligible costs will take the form of a **lump sum**

Beneficiaries should provide financial support to third parties (FSTP) : at least 40% of the total requested EU contribution

The maximum amount to be granted to each third party is 50K€.

FSTP should be eligible to third parties in India, Southeast Asia, the African Union, Latin America and Caribbean (LAC), the Western Balkans and the Eastern Partnership.

- Strengthen cooperation with selected countries participating in InDiCo (India, China, Brazil, and the LAC region) and extend its geographic scope to important areas such as the Western Balkans, the Eastern Partnership, Southeast Asia, and the African Union.
- Expand the technological scope to cover better technologies that are priorities in Horizon Europe

Expected results

- Strengthen the promotion of EU ICT/digital standards
- Promote the EU model for establishing globally interoperable ICT/digital standards (stakeholder-driven model) in selected target countries
- Understand the third country standardization ecosystem

7

Digital Humanism and human compatible technologies

HORIZON-CL4-2023-HUMAN-01-81	CSA	1.50	Around 1.50	1
HORIZON-CL4-2023-HUMAN-01-82	CSA	3.00	Around 3.00	1

Digital Humanism and human compatible technologies
1 project 1.5 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-81 : Digital Humanism - Putting people at the centre of the digital transformation (CSA)

Eligible costs will take the form of a **lump sum**

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

A horizontal and holistic approach for creating a more resilient, inclusive and democratic European society

Expected results

- Create cross disciplinary communities on digital humanism bringing together ICT experts, ethnologists, sociologists and experts in fundamental rights
- Formulate approaches how to transform and strengthen European standards (rule of law, social market economy, fundamental rights, social standards and social partnership) into the digital realm
- Propose a concrete framework for measuring and promoting progress of the promotion and putting into practice of the digital rights and principles declaration in the context of the Digital Decade policy programme.

Digital Humanism and human compatible technologies
1 project 3 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-82 : Art-driven digital innovation: Towards human compatible and ecologically conscious technology (CSA)

FSTP is foreseen.
S+T+ARTS residencies: The consortium will provide grants to artists (maximum EUR 40 000 per grant, in total between 400.000 and 600.000 EUR for S+T+ARTS in the form of grants).
STARTS prize: For three consecutive years, the consortium will hand out annually two prizes of EUR 20 000 each (in total 120.000 EUR for FSTP in the form of prizes).

DG CONNECT launched S+T+ARTS - innovation at the nexus of Science, Technology and the ARTS – and the European Commission president proposed the 'New European Bauhaus', where synergies between art and novel technologies are identified as enablers of the Green Transition. The present call encourages actors in R&I to adopt artistic experimentation as a complementary method for technology development and use across all EC programs.

Expected results

- Facilitate artistic experimentation with (digital) technologies to accelerate development and novel use cases of digital technologies. The emphasise will be on ecologically conscious and human compatible technologies and use cases of technologies
- Continuation of the annual S+T+ARTS prize
- Organise an annual AI and music S+T+ARTS Festival

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International Cooperation

HORIZON-CL4-2023-HUMAN-01-91	CSA	3.00	Around 3.00	1
HORIZON-CL4-2023-HUMAN-01-92	CSA	2.00	Around 2.00	1
HORIZON-CL4-2023-HUMAN-01-93	CSA	2.00	Around 2.00	1

International Cooperation
1 project 3 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-91: International Hub for Digital Partnerships in the Indo-Pacific (CSA)

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

- Organize networks, conferences, workshops and other actions
- Foster cooperation and prepare ground for joint research
- Networking and collaboration of stakeholders from the EU and the partner countries with a view to addressing current needs and considering future requirements

Expected results

- Concrete pilot projects (e.g. AI, digital identity) linked to implementing **Digital Partnerships** with **Japan, the Republic of Korea, and Singapore** and in the context of the Trade and Technology Council (TTC) with India with a view to drive technology development and standardisation, or regulatory/legislative approaches
- Reports on synergies and commonalities in policies, strategies and programmes between the EU and partner countries
- Promotion of European positions in international fora such as G7, G20, OECD, WTO, and standardisation organisations.

International Cooperation
1 project 2 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-92: R&I cooperation with Sub-Saharan Africa (CSA)

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

- Foster cooperation and prepare ground for joint research between the EU and sub-Saharan Africa.
- Organize networks, conferences, workshops and other actions
- Link EU and African internet R&I communities, building on the work of existing projects such as the African-European Digital Innovation Bridge (AEDIB) and the FPI project “Open Internet in Africa”.

Expected results

- Stimulate **digital R&I cooperation** between **Sub-Saharan Africa** and the EU
- Support to trade and industrial policy aspects by promoting European technologies in African markets, and vice-versa.
- Contribute to Africa’s economic growth and job creation
- Promote EU values for a human-centric digital transformation

International Cooperation
1 project 2 M€ | CSA | TRL N/A

HORIZON-CL4-2023-HUMAN-01-93: R&I cooperation with Latin America (Mexico, Brazil, Argentina, and other countries in the BELLA network or members of RedClara) (CSA)

If projects use
- satellite-based earth observation,
- positioning,
- Navigation, and/or
- related timing data and services,

beneficiaries must make use of
- Copernicus and/or
- Galileo/EGNOS

(other data and services may additionally be used).

- Organize networks, conferences, workshops and other actions that support R&I activities with Brazil, Mexico, Argentina and other countries connected to the BELLA network or members of RedClara .
- Promote best practice exchanges between the European and LAC R&I communities

Expected results

- Exploitation of the full potential of the BELLA programme, which supported the construction of a new submarine fibre-optic cable linking Lisbon (Portugal) with Fortaleza (Brazil) as well as an onward terrestrial connection with several countries in the region.
- Implementation of the outcomes of EU-LAC dialogues in relation to digitalisation and R&I.

Des documents pour aller plus loin

- **Les appels du Cluster 4 Horizon Europe**
  - Sur le **portail européen** "Funding & tenders"
  - Sur le **portail français** : https://www.horizon-europe.gouv.fr/numerique-cluster4
- **Les documents de référence pour le numérique**
  - European data strategy | European Commission (europa.eu)
  - A European approach to artificial intelligence | Shaping Europe's digital future (europa.eu)
  - European Data Governance Act | Shaping Europe's digital future (europa.eu)
  - Data Act | 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)

Ressources

Page dédiée “Lump Sum sur le portail “Funding &Tenders opportunities”

Conseils	• What do I need to know? & Quick guide • Frequently asked questions • Detailed guidance for applicants and beneficiaries • Lump sum briefing slides for experts
Documents de référence	• Model Grant Agreement Lump Sum • Decision authorising the use of lump sum contributions under the Horizon Europe Programme
Etudes	• European Commission assessment (October 2021) • European Parliament (STOA) study on lump sums in Horizon 2020 (May 2022)
Evènements	• Future events • Past events and recordings
Listes des sujets “Lump Sum”	• List of Horizon Europe topics using lump sum funding

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Pourquoi

- ✓ Comprendre **l'évaluation** des projets, les attendus
- ✓ Être en **contact direct avec les responsables** des Directions thématiques de la CE
- ✓ Bénéficier d'un **environnement de travail international** - réseautage
- ✓ Bénéficier d'**un état de l'art** à l'instant T dans votre domaine

Comment

- **Inscription une seule fois** pour 7 ans ⇢ ***Mise à jour*** *régulière de votre profil*
- La CE interroge la base de données à travers des **mots clés** pour solliciter les experts et constituer ses panels d'évaluation

Liens

- Guide pour devenir expert
- S'enregistrer comme expert

Posez-nous vos questions

- **Via le formulaire sur le site d'Horizon Europe :** https://www.horizon-europe.gouv.fr/contactez-les-pcn?point_de_contact_national=num%C3%A9rique

ou

- **Par email** : pcn-tic@recherche.gouv.fr

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