ncpwallonie.be

Infos day Horizon Europe

Atelier : Appels Space&Aviation 2024

Cluster 4

19/04/2023

Légende

RIA → **TYPE D'ACTION**

€

6 M€ → **BUDGET / PROJET**

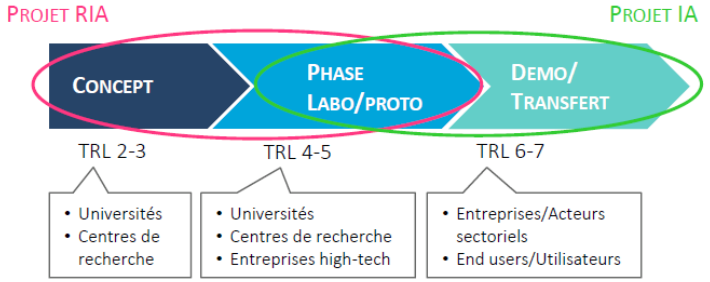
29.09.21 → **DEADLINE**

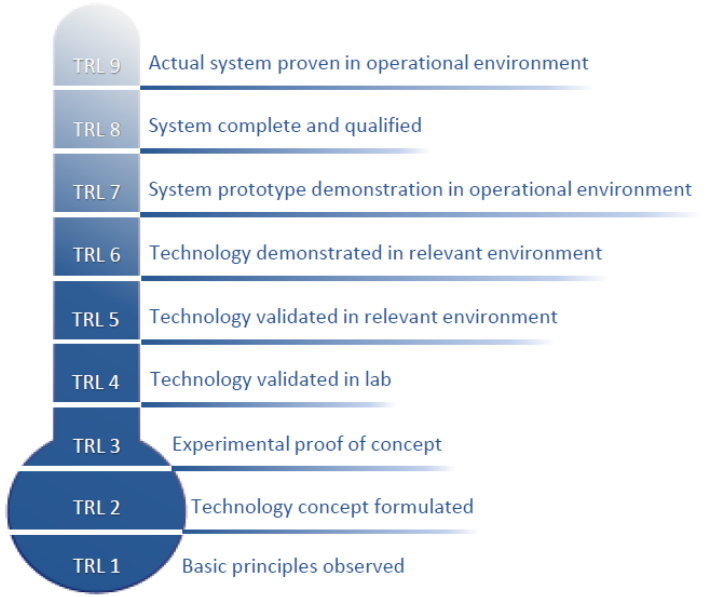
4 → **NB PROJETS FINANCÉS**

3-5 → **TRL TECHNOLOGY EDGINESS LEVEL***

RIA	RESEARCH & INNOVATION ACTIONS	100% FUNDING
IA	INNOVATION ACTIONS	70% FUNDING: ENTREPRISES
		100% FUNDING - NON PROFIT ORGANISATIONS
CSA	COORDINATION & SUPPORT ACTIONS	100% FUNDING

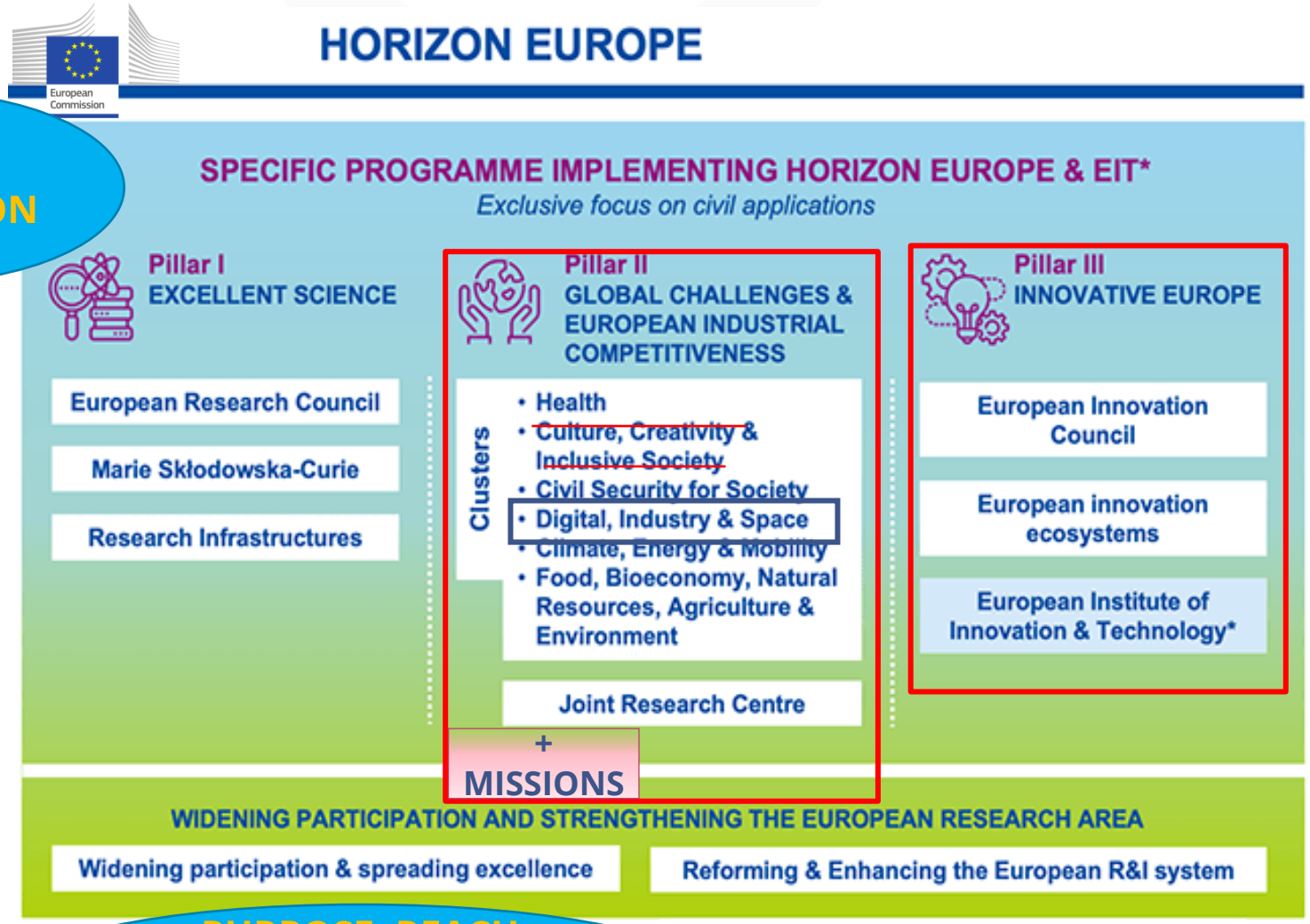
- **ECHELLE DE TRL**
  - Maturité technologie
  - 1 projet / 1 techno = 1degré de TRL
  - 1 techno = plusieurs briques techno
    - 1 brique = 1 degré de TRL





* In the sense of ISO 16290:2013 applicable to the space sector.

BUDGET = €95,5 BILLION



PURPOSE: REACH OBJECTIVES OF EUROPEAN GREEN DEAL

Strategic Planning and Programming (EC)

STRATEGIC PLAN

WORK PROGRAMME

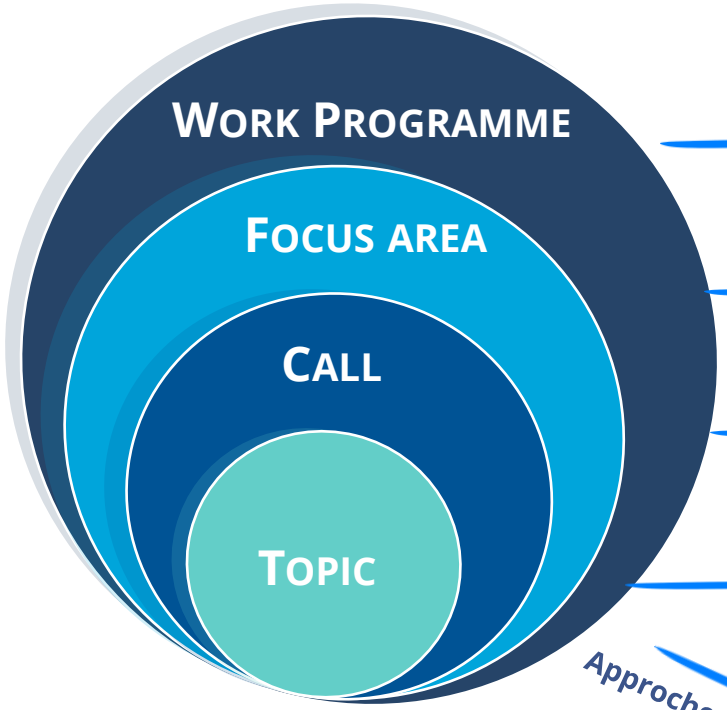
EU POLICY PRIORITIES	Overall priorities of the European Union (Green Deal, Fit for the Digital Age,…)
KEY STRATEGIC ORIENTATIONS	Set of strategic objectives within the EC policy priorities where R&I investments are expected to make a difference
IMPACT AREAS	Group of expected impacts highlighting the most important transformation to be fostered through R&I
EXPECTED IMPACTS = DESTINATIONS	Wider long term effects on society (including the environment), the economy and science, enabled by the outcomes of R&I investments (long term). It refers to the specific contribution of the project to the work programme expected impacts described in the destination. Impacts generally occur some time after the end of the project.
EXPECTED OUTCOMES = TOPICS	The expected effects, over the medium term, of projects supported under a given topic. The results of a project should contribute to these outcomes, fostered in particular by the dissemination and exploitation measures. This may include the uptake, diffusion, deployment, and/or use of the project's results by direct target groups. Outcomes generally occur during or shortly after the end of the project.
PROJECT RESULTS	What is generated during the project implementation. This may include, for example, know-how, innovative solutions, algorithms, proof of feasibility, new business models, policy recommendations, guidelines, prototypes, demonstrators, databases and datasets, trained researchers, new infrastructures, networks, etc. Most project results (inventions, scientific works, etc.) are 'Intellectual Property', which may, if appropriate, be protected by formal 'Intellectual Property Rights'

PROJECT PROPOSALS

Application process (researchers)

Lecture d'un topic

HORIZON-CL4-2022-DIGITAL-EMERGING-02-06



EU policy priorities: Cadre légal et financier

Destination : Stratégie Européenne (ex: Green Deal) à long terme

Outcome : Impacte du projet à moyen terme

Scope : délivrable du projet à court terme

Approche Top-down

INFORMATION DRAFT APPEL → **IDENTIFICATION TOPIC RÔLE/CHAÎNE R&D** → **CONSORTIUM** → **RÉDACTION** → **SOUMISSION**

Analyse

→ Go/ No Go →

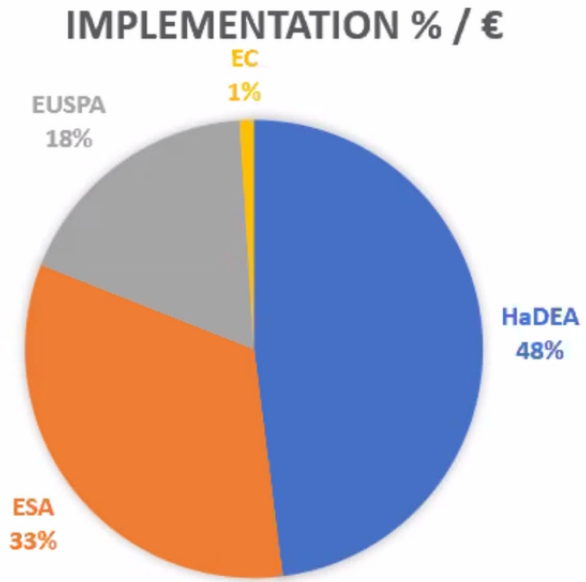
Identifier partenaires

Structurer le projet
Faire relire par le NCP

Budget allocation 2023

2023: €290 million → 11 areas → 29 topics

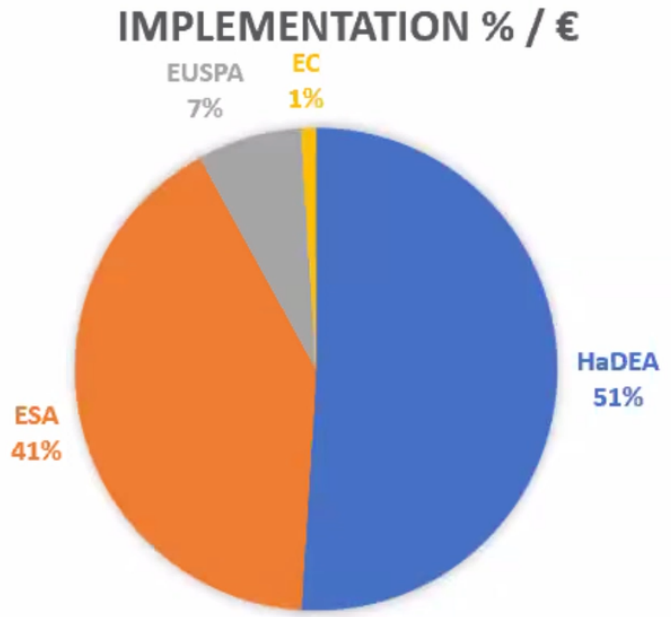
1.	Competitiveness	€28 million
2.	Access to Space	€53 million
3.	Evolution of EGNSS	€50 million
4.	GOVSATCOM/Secure Connectivity	€38 million
5.	Copernicus Services	€19 million
6.	EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses	€47 million
7.	Quantum	€8 million
8.	Space Entrepreneurship	€1 million
9.	IOD/IOV	€15.1 million
10.	Technological non-dependence	€20 million
11.	Space Science	€10,7 million



Budget allocation 2024

2024: €200 million → 9 areas → 16 topics

3. Evolution of EGNSS	€46 million
4. GOVSATCOM/Secure Connectivity	€20,6 million
5. Copernicus Services	€10 million
7. Quantum	€14 million
8. Space Entrepreneurship	€13 million
9. IOD/IOV	€13 million
10. Technological non-dependence	€20 million
12. Space Surveillance and Tracking (SST)	€56.5 million
13. Space WEather (SWE) & Near-Earth Objects (NEO)	€5.7 million



Destination 5: Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructures, Services, Applications and Data

Key strategic Orientations

- *KSO A, 'Promoting an open strategic autonomy by leading the development of key digital, enabling and emerging technologies, sectors and value chains to accelerate and steer the digital and green transitions through human-centred technologies and innovations.'*
- *KSO B, 'Restoring Europe's ecosystems and biodiversity, and managing sustainably natural resources to ensure food security and a clean and healthy environment.'*
- *KSO C, 'Making Europe the first digitally led circular, climate-neutral and sustainable economy through the transformation of its mobility, energy, construction and production systems.'*
- *KSO D, 'Creating a more resilient, inclusive and democratic European society, prepared and responsive to threats and disasters, addressing inequalities and providing high-quality health care, and empowering all citizens to act in the green and digital transitions.'*

Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructures, Services, Applications and Data 2024

Innovative space capabilities: SSA, GOVSATCOM, Quantum

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
		2024		
Opening: 21 Nov 2023 Deadline(s): 20 Feb 2024				
HORIZON-CL4-2024-SPACE-01-64	RIA	14.20	Around 14.00	1
HORIZON-CL4-2024-SPACE-01-73	RIA	20.10	2.00 to 3.00	7

Space Situational Awareness (SSA) will provide services to European users including spacecraft owners/operators and governmental entities that will reinforce the protection and resilience of European space and ground infrastructures against various hazards and risks. The **GOVSATCOM** component aims to provide reliable, secured and cost-effective satellite communications services to EU and Member State authorities. **Quantum Technologies**, as an emerging field with great potential to be applied in the EU Space programme, require basic research and validation activities for its space component.

Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructures, Services, Applications and Data 2024

Innovative space capabilities: SSA, GOVSATCOM, Quantum

Topics	Synergie	Implementation	Modèle de financement
HORIZON-CL4-2024-SPACE-01-64	Member States, Norway, Iceland and the United Kingdom.	launched within this decade	Regular
HORIZON-CL4-2024-SPACE-01-73	Member States, Norway and Iceland.	1 business plan	Lump Sum

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.

HORIZON-CL4-2024-SPACE-01-64: Quantum Space Gravimetry Phase-B study & Technology Maturation

RIA

~14.2 M€

20 FEB 2024

1 PROJET

➔7

Scope

Prepare the next phases of the implementation of a Quantum Space Gravimetry pathfinder mission. This activity will cover both the quantum space gravimetry payload and satellite platform. The focus of the QSG pathfinder mission shall be on the operation of a complete quantum accelerometer system and the detailed characterization of its performance in space thanks to ultra-sensitive sensors.

Expected outcomes

Project results are expected to contribute to the following expected outcomes:

- Support the EU space policy and the green deal by providing the detailed definition of a quantum space gravimetry pathfinder mission;
- Securing the autonomy of supply and ensuring EU sovereignty and non-dependence for the development of capacities leading to the availability of quantum space gravimetry;
- Enhance the TRL of the critical components necessary to build quantum gravimetry for space

HORIZON-CL4-2024-SPACE-01-73: Space technologies for European non-dependence and competitiveness

RIA

2-3 M€

20 FEB 2024

7 PROJETS

➔5/8

Scope

Research and innovation to mature critical space technologies that currently have dependency issues for use in the EU space programme components which are:

- Low shock Non-Explosive Actuators for smallsats [Target TRL 7];
- High data rate (12.5 to 28 Gbps or higher 56 Gbps), low consumption, short range links [Target TRL 7];
- Power laser sources in the eye-safe region [Target TRL 6] and Photonics components [Target TRL 7] ;
- space qualified detectors – visible range [Target TRL 7-8];
- Ultra Deep Submicron technology space integrated circuits: ASICS, FPGA, microprocessors [Target TRL 5];
- Discrete power devices (200V normally-off GaN) [Target TRL 7];

Expected outcomes

Project results are expected to contribute to the following expected outcomes:

- To reduce the dependence on critical technologies and capabilities on EU space programme components from outside EU;
- To develop or regain in the mid-term the European capacity to operate independently in space;
- Enhance the technical capabilities and overall competitiveness of European space industry vendors on the worldwide market;
- open new competition opportunities for European manufacturers by reducing dependency on export restricted technologies strategically;
- create synergy with activities of European and national programmes either in the space or non-space fields.

Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructures, Services, Applications and Data 2024

Evolution of services: Copernicus

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
		2024		
Opening: 21 Nov 2023 Deadline(s): 20 Feb 2024				
HORIZON-CL4-2024-SPACE-01-35	RIA	14.20	Around 14.00	1
HORIZON-CL4-2024-SPACE-01-36	RIA	20.10	2.00 to 3.00	7
Opening: 12 Sep 2023 Deadline(s): 05 Mar 2024				
HORIZON-CL5-2024-D1-01-01	RIA	15	Around 15.00	1
HORIZON-CL5-2024-D1-01-02	RIA	22	6.00 to 7.50	3

Copernicus core services (Climate Change, Marine Environment Monitoring, Land Monitoring, Atmosphere Monitoring, Emergency Management and Security) must evolve and improve to better respond to new and emerging policy needs, such as anthropogenic CO2, greenhouse gas and pollutant monitoring, climate change mitigation and integrated management, sustainable development goals, environmental compliance, protection of natural resources, ecosystems and biodiversity monitoring, food security, agriculture, fisheries, aquaculture, crisis management, safe transport, sustainable and clean energy, border management and preserving cultural heritage

Open Strategic Autonomy in Developing, Deploying and Using Global Space-Based Infrastructures, Services, Applications and Data 2024

Innovative space capabilities: SSA, GOVSATCOM, Quantum

Topics	Synergie	Implementation	Modèle de financement
HORIZON-CL4-2024-SPACE-01-64	Member States, Norway, Iceland and the United Kingdom.	launched within this decade	Regular
HORIZON-CL4-2024-SPACE-01-73	Member States, Norway and Iceland	1 business plan	Lump Sum
HORIZON-CL5-2024-D1-01-01	HORIZON-INFRA-2023-EOSC-01-02	EC-ESA Earth System Science Initiative,	Regular
HORIZON-CL5-2024-D1-01-02	relevant Horizon funded projects, HORIZON-INFRA-2023-EOSC-01-02 , HORIZON-CL6-2024-CLIMATE, HORIZON-CL6-2024-ZEROPOLLUTION	EC-ESA Earth System Science Initiative,	Regular

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.

HORIZON-CL4-2024-SPACE-01-35: Copernicus for Land and Water

RIA

1-1,5 M€

20 FEB 2024

2 PROJETS

1➔5

Scope

- Development of new and innovative methods to integrate the current land products into land surface, land use and cover change, and more sophisticated land planning and allocation models for different environment using all relevant Copernicus service products;
- Development of an integrated, harmonized and coherent product provision system using innovative methods and observations to improve current inland and coastal/shore hydrological satellite observation with more sophisticated and/or new products to improve global scale hydrological monitoring and forecasting.

Expected outcomes

Project results are expected to contribute to the following expected outcomes:

- Enhanced quality and efficiency of the Copernicus Land Monitoring service to respond respectively to several Green Deal policy;
- preserve continuity of what has been achieved while keeping the service modern and attractive using data fusion, data processing and data visualisation;
- efficient and reliable integrated products chains, calling with a holistic approach for better land use planning and hydrological monitoring and forecasting;
- Development of a leading-edge approach across services, in hydrological modelling serving various area such agriculture, navigation, energy, flood prevention;
- Development of new algorithms and processing chains preparing the use of new types of space observation data.

HORIZON-CL4-2024-SPACE-01-36: Copernicus for Security

RIA

~4 M€

20 FEB 2024

2 PROJETS

1➔5

Scope

Copernicus Security Services provide, today, a valuable contribution to civil security, law enforcement operations and crisis management in Europe as well as in support to its external actions. Member states are also calling to reinforce contribute to resilience and security in support to civil security due to major upcoming crisis such as population displacement due conflicts, impact of climate change or extreme weather phenomena at global or regional levels.

Expected outcomes

Project results are expected to contribute to the following expected outcomes:

- Enhanced fitness of the current services to better respond to evolving policy and user requirements;
- Enlargement of current service scope through the inclusion of new, complementary elements and extended communities of users;
- Technological enhancement in detection capabilities, timely access to data or delivery of information;
- improvement in integration of non-space data along end-user intelligence supply chains, bringing added value at operational level;
- Development of processing chain(s) to handle an increasing volume of satellite data;
- Integration og GeoAI and Earth Observation data analytics with other application-specific data sources from remote sensors accessed through IOT

HORIZON-CL5-2024-D1-01-01: Enhanced quantification and understanding of natural and anthropogenic methane emissions and sinks

RIA

~15 M€

6 FEB 2024

1 PROJET

➔?

Scope

This topic is part of a coordination initiative between the European Space Agency (ESA) and the EC on Earth System Science. The goal is to quantify and understand natural/anthropogenic methane emissions based on selected European land and sea sites with unprecedented resolution in space and time that should leverage the latest advances in observations from satellite, ground-based, and airborne, together with advances in reconciling inverse and bottom-up modelling approaches.

Expected outcomes

Actions are expected to contribute **to all of** the following outcomes:

- Quantify/understand hotspots for natural and anthropogenic methane emissions with high resolution in space and time thanks to advanced in situ data at multiscale, novel satellite observations and modelling;
- Coordination of in-situ observations of methane emissions including enhancing communication and networking between the relevant observation communities
- perform global and regional at long and short-term scale high-resolution assessment of the methane sources and sinks in relevant environments to relate to impacts on atmospheric chemistry and dynamics;
- Policy advice on current and future climate contributions of methane on global and regional (European) scale;
- Contribution to IPCC and COP26 Glasgow agreement on reducing methane emission (uncertainties) similar to those of the Global Carbon Project

HORIZON-CL5-2024-D1-01-02: Inland ice, including snow cover, glaciers, ice sheets and permafrost, and their interaction with climate change

RIA

6-7,5 M€

6 FEB 2024

3 PROJETS

➔?

Scope

Snow cover, ice sheets and glaciers affect not only the Earth radiation balance and the global climate, but also continental climate systems, the weather of circumpolar regions and their terrestrial and oceanic carbon dynamics, ecosystems, and sea level regulating the properties of the ground underneath. This topic is part of a coordination initiative between the European Space Agency (ESA) and the EC on Earth System Science.

Expected outcomes

Actions are expected to contribute **to all of** the following outcomes:

- Advanced knowledge on the impacts of climate change and different natural and socio-economic drivers on inland ice and permafrost, and its global repercussions ;
- Further developed and improved climate and Earth System Models (ESMs) that inform the international climate assessments;
- Advanced provision and use of observations, including in-situ, of complex processes with focus on dynamic and vulnerable regions that may lead to high impact changes;
- Supported climate change adaptation strategies including, where relevant, the development of solutions to enhance the resilience of local communities.

Implemented by EUSPA

- Applications for Galileo, EGNOS and Copernicus, including Galileo PRS & GOVSATCOM

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
		2024		
Opening: 07 Dec 2023 Deadline(s): FEB 2024				
HORIZON-EUSPA-2023-SPACE-01-41	IA	3.50	1.50 to 2.50	2
HORIZON-EUSPA-2023-SPACE-01-42	IA	8.00	1.50 to 2.50	4
HORIZON-EUSPA-2023-SPACE-01-43	RIA	7.00	1.00 to 2.00	5
HORIZON-EUSPA-2023-SPACE-01-44	IA	9.00	1.00 to 2.00	5
HORIZON-EUSPA-2023-SPACE-01-45	IA	3.00	1.50 to 3.00	2
HORIZON-EUSPA-2023-SPACE-01-46	RIA	6.00	0.80 to 1.00	7
HORIZON-EUSPA-2023-SPACE-01-61	IA	10.00	3.00 to 4.00	3

Actions under this area will cover the development and use of service demonstrators to consolidate the future EGNSS services, the optimization of the operation schemes using advanced dynamic strategies for Galileo constellation / system management for the efficient and continuous provision of the full portfolio of Services in EGNOS and in Galileo, and others.

Implemented by EUSPA

- Applications for Galileo, EGNOS and Copernicus, including Galileo PRS & GOVSATCOM

Topics	Synergie	Implementation	Modèle de financement
HORIZON-EUSPA-2023-SPACE-01-41	Galileo (OSNMA, HAS, RLS, CAS, etc), EGNOS, Copernicus, connectivity/5G and SATCOM	1 business plan	Regular
HORIZON-EUSPA-2023-SPACE-01-42	European Rail Traffic Management System (ERTMS), Cluster 4-5-6		Regular
HORIZON-EUSPA-2023-SPACE-01-43		1 business plan	Regular
HORIZON-EUSPA-2023-SPACE-01-44		1 business plan, at least 3 potential European user	Lump sum
HORIZON-EUSPA-2023-SPACE-01-45		at least 3 PRS Participants	Lump sum
HORIZON-EUSPA-2023-SPACE-01-46	EASA, ESSP, EMSA, ERA, EGNOS		Lump sum
HORIZON-EUSPA-2023-SPACE-01-61	at least one public entity	at least one GOVSATCOM use case	Regular

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.

HORIZON-EUSPA-2023-SPACE-01-41: EGNSS Transition towards a green, smart and more secure post-pandemic society

IA

1,5-2,5 M€

FEB 2024

2 PROJETS

➔7-9

Scope

Proposals should **leverage EGNSS services** including their differentiators (OSNMA, HAS, RLS, CAS, etc.) to develop technologies that focus on commercial exploitation in one of the following priority areas:

- Improving the **quality of life in cities** by addressing efficient mobility, energy efficiency and environmental friendliness.
- Addressing the **challenge of higher reliance on existing infrastructure**, the increased use of remote resources and the associated cyber-threats.

Expected outcomes

Actions are expected to contribute **to all of** the following outcomes:

- Stimulate the development, validation and use of efficient & resilient commercial downstream solutions based on **synergies between the different EU space programme components** and cutting-edge digital technology.
- Foster the development and validation of space technologiesthat **improve the quality of life in Europe**, toward environmentally-friendly and energetically-efficient communities.
- Create new space-based commercial opportunities by **exploiting digitalisationand the adaptation of business processes in the post-pandemic environment**in order to improve prospects of businesses.

HORIZON-EUSPA-2023-SPACE-01-42: EGNSS -Closing the gaps in mature, regulated and long lead markets

IA

1,5 – 2,5 M€

FEB 2024

4 PROJETS

➔7-9

Scope

Proposals should propose:

- **Rail safety critical applications** that support the rail network efficiency and cost reduction, converging towards a pan-European EGNSS-based solution adoption. Addressed activities can include the amendment of the European Rail Traffic Management

- EGNSS-supported operations **in coastal, harbour and maritime areas** (including for energy production), inland waterways, fisheries and aquaculture, addressing potential standardization and certification bottlenecks and assisting a diverse pool ofstakeholders.

- Certification bottlenecks for the use of EGNSS for **road and automotive market** safety-related applications (e.g. connected and autonomous cars, emergency assistance), liability applications (e.g. insurance telematics) and fleet management systems.

- **Aviation**: consolidation of standardizationand certification for efficient and green operations supported by EGNSS, EGNSS timing for 4D trajectory operations, EGNSS timing for System Wide Information Management (SWIM), integration of Dual Frequency Multi-constellation (DFMC) SBAS in avionics/aircraft and integration of Copernicus data into current aviation systems, and supporting airport operations via DFMC and the Galileo ARAIM.

Expected outcomes

Actions are expected to contribute **to all of** the following outcomes:

- Broaden the reach of EGNSS by supporting its **adoption in long lead markets** including rail, maritime inland waterways, fisheries and aquaculture, road and automotive, and aviation

- Development of industry-accepted **certification and standardization schemes** that exploit the use of EGNSS and its differentiators for operational services

HORIZON-EUSPA-2023-SPACE-01-43: Copernicus based applications for businesses and policy making

RIA

1 – 2 M€

FEB 2024

4 PROJETS

➔2

Scope

A proposal should address **only one area**, which should be clearly indicated

- **Emergency service** downstream applications for better preparedness to extreme events, geohazards, prediction insurances, resilience to climate change, local emergency management and short-term recovery
- **Security service** downstream applications or exploiting the combination of Sentinels with national missions or new space services to support resilience to major pan-European crises like pandemics
- **Marine service** downstream applications with special focus on biodiversity conservation, maritime spatial planning, local and demersal fisheries, coastal to shore services, new sources of pollution from land and blue carbon farming. The applications shall build on existing infrastructure and services
- **Climate change service** downstream applications, e.g. forecast and preparedness to counteract extreme climate events and/or Sentinel Data integration in decision-support systems
- **Land service** downstream applications for better land use and/or natural resources planning, as well as citizen awareness and reporting of environmental and biodiversity protection issues
- **Atmosphere monitoring service** downstream applications that tailor, refine and combine the products for serving users particularly in the areas of air quality, health, biodiversity, wildfires monitoring and greenhouse gases.

Expected outcomes

Actions are expected to contribute **to all of** the following outcomes:

- **Enhance existing applications or develop new applications and products relying on Copernicus** data and services, making an impact on users, businesses and/or answering needs from public authorities, e.g. support policy making and implementation such as for the Green Deal, Destination Earth or the Horizon Europe missions
- Increase the integration and uptake of Copernicus data, services and applications in the European economy, in particular the European data economy

HORIZON-EUSPA-2023-SPACE-01-44: The Galileo PRS Service for governmental-authorized use cases

IA

1 – 2 M€

FEB 2024

5 PROJETS

➔5-7

Scope

Proposals should identify, design and create applications leveraging the items for the first generation of Galileo. Applications should address the governmentally authorized user communities and scenarios for which the technical, operational and security related features requirements of PRS Service constitute barriers to entry.

Expected outcomes

Actions are expected to contribute to the following outcomes:

Develop the use cases for authorized civilian users based on the added value of PRS service;

•**Develop the PRS applications** targeting civilian users by leveraging PRS technology;

•Build on top of previous exploratory activities and lessons learnt on the development of PRS items by stimulating the corresponding downstream PRS uptake;

•**Foster a European-level cooperation** of industrial entities for the development of authorized PRS applications;

HORIZON-EUSPA-2023-SPACE-01-45: Joint test activities for Galileo PRS services

IA

1 – 2 M€

FEB 2024

5 PROJETS

➔7-9

Scope

- Proposals shall be coordinated by the Competent PRS Authorities and should address actions related to the1) **validation and verification PRS Service** (support to the Galileo Programme); 2) **testing of PRS Service and PRS items** (PRS Participants actions); and 3) **preparation of the awareness activities and uptake to the authorisedusers**.

- The proposed activities shall be carried out in full compliance with applicable regulatory framework (e.g. Decision 1104/2011, PRS regulatory framework).

Expected outcomes

Actions are expected to contribute to the following outcomes:

• Support the Programme activities related to the validation of the PRS Service, Support the PRS Participants defined activities related to testing, validation and introduction of the PRS Service;

• Build on top of previous Joint Test Activities and lesson learnt thereof;

• Foster cooperation among European PRS Participants.

HORIZON-EUSPA-2023-SPACE-01-46: Designing space-based downstream application with international partners

RIA

0,8 – 1 M€

FEB 2024

6 PROJETS

➔3-4

Scope

Proposals should target one of the three expected outcomes

- Actions should focus on technical developments of EU-space based solutions, dissemination, awareness-raising, as well as provide **opportunities for the creation of business-oriented partnerships** between European industry and international partners in order to demonstrate the advantages of the differentiators
- It is important to **exploit the value-added of integration** of EO data (both satellite, airborne and ground-based) with positioning data and ICT (e.g. cloud computing) from international partner countries
- Proposals dealing with EGNSS are encouraged to **involve relevant organisations** on the European side (e.g. EASA, ESSP, EMSA)

Expected outcomes

Actions are expected to contribute to the following outcomes:

- **Use of EGNSS and sharing of expertise** with public and/or private entities to introduce EU-space based solutions leveraging in particular Galileo differentiators and European know-how
- The **use of Copernicus data**, to develop jointly algorithms, services and/or products, which serve local user needs and/or enhance the Copernicus global product quality
- The **combined use of EGNSS and Copernicus** to develop innovative downstream applications

HORIZON-EUSPA-2023-SPACE-01-61: EU GOVSATCOM for a safer and more secure EU

IA

3 – 4 M€

FEB 2024

3 PROJETS

➔7-9

Scope

Proposals should select at least one GOVSATCOM use case and support the adaptation of one or more existing SATCOM terminals in order to carry out the demonstration and ensure engagement of relevant user communities and focus on following areas :

- Disaster response or Emergency services / ambulances (for Civil Protection)
- Rail traffic management to improve the limitations linked to geographical barriers (e.g. valleys, cities)
- Telemedicine for humanitarian aid

Expected outcomes

Actions are expected to contribute to the following outcomes:

- Identification, assessment and development of one or more suitable use cases in the area of surveillance, crisis management and key infrastructure;
- Support the development and/or improvement of GOVSATCOM demonstration terminals enabling end-to-end validation of the first services provided by the GOVSATCOM HUB
- Elaborate the definition of the GOVSATCOM validation strategy and a user engagement plan
- Foster the identification/definition of GOVSATCOM tools required for the development of the GOVSATCOM terminals
- Develop the application necessary to enable end-to-end demonstration of the selected use case(s) using services provided by the EU GOVSATCOM Hub and operational terminals
- Perform extensive in-field activities and a final demonstration aimed at verifying the suitability of the solution, involving the relevant user communities

Implemented by EUSST partnership*

Space situation awareness, space surveillance&tracking

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
		2024		
Deadline(s): end 2024				
HORIZON-CL4-2024-SSA-SST-MS	RIA			
HORIZON-CL4-2024-SSA-SST-AE	RIA			
HORIZON-CL4-2024-SSA-SST-SB	RIA			
HORIZON-CL4-2024-SSA-SST-SP	IA			
HORIZON-CL4 2024-SSA-SST-SD	RIA			

This Space Surveillance and Tracking (topic contributes to ensuring full and optimal capacity of the EUSST Partnership once the latter is set up Its outcomes and scope are expected to build on previous and ongoing actions and aim at achieving full capacity of the EUSST Partnership by end 2024

*Grants not subject to calls for proposals

HORIZON-CL4-2024-SSA-SST-MS : New&improved EUSST Missions and Services

RIA

? M€

END OF 2024

? PROJETS

➔6/7

Scope

- R&I on evolution of the Collision Avoidance service towards a higher responsiveness in case of risks, and in all phases of the spacecraft life;
- R&I on evolution of the EUSST system for debris mitigation in order to reduce the generation of space debris;
- R&I on evolution of the EUSST system for space debris remediation by managing existing space debris.
- R&I on evolution of the EUSST6 Service Provision Portal in line with the evolution of existing services (CA, RE, FG) and the inclusion of new ones.

Expected outcomes

Actions are expected to contribute to the following outcomes:

Keep EU knowledge and capabilities in the Space Surveillance and Tracking domain at the leading edge.

- Adapt, improve and evolve the current EUSST initial services portfolio in line with future user needs and the space environment.
- Improve the overall performance of the EUSST services and ensure, in the long-term, a high level of performance and appropriate autonomy at Union level.
- Identify and define new missions and services,
- Explore the implementation of new services, in complementation to the three existing ones.
- Support pre-developments and end-to-end early demonstration of new SST services.

HORIZON-CL4-2024-SSA-SST-AE : SST&STM system architecture and evolutions

RIA

? M€

END OF 2024

? PROJETS

➔6/7

Scope

- EUSST architecture engineering.
- Improve the future EUSST architecture and the associated development roadmap.
- Contribute to technical standardization activities in these areas.

Expected outcomes

Actions are expected to contribute to the following outcomes:

•The environment in which the EUSST system performs its mission and delivers its services is constantly evolving due to e.g. technological or political factors changing the way in which space is used, orbital environment, etc.

•EUSST system architecture engineering & evolutions: **the analysis of the EU SST system architecture needs to continuously progress to determine how the system has to evolve in the medium-and long-term at network level, data processing level and services level**. Other aspects like data flows, security constraints, interconnectivity and complementarity between EU assets as well as cooperation with other non-European SST systems need to be considered as well.

HORIZON-CL4-2024-SSA-SST-SB : Space-based SST (mission, system and sensors network)

RIA

? M€

END OF 2024

? PROJETS

➔6/7

Scope

Study various mission configurations and payload definition to maximize the number of catalogued objects and associated accuracy. Analyse EUSST gaps and solutions to fill them with best value for money.

Expected outcomes

Actions are expected to contribute to the following outcomes:

•With a growing orbital population and the need to observe smaller objects in order to be able to better protect EU space assets, the need for
and added value of developing Space Based Space Surveillance (missions in complementation to ground based SST sensors should be
studied in Europe
•Projects are expected to contribute to the following outcomes
- Study and assess several technical solutions for the development of future European SBSS capabilities.
- Explore the use of small satellite solutions to reduce capital expenditures CAPEX and operational expenditures OPEX.
- In the medium term, develop European capacities to operate SBSS independently
- Reduce dependence on critical SBSS technologies and capabilities from outside Europe.

HORIZON-CL4-2024-SSA-SST-SP : SST Sensors and Processing

IA(45%)

? M€

END OF 2024

? PROJETS

➔6/7

Scope

R&I activities which needs to be addressed include:

- Adapt and improve technologies already in use in SST sensors such as radars, telescopes and lasers
- Specify, develop, test and pre integrate improved sensors
- Develop innovations for detection of smaller objects and higher processing capabilities Develop new detection strategies to cope with an increased number/size of objects in the sensors' Field of Regard/Field of View
- Explore new technologies and/or processing algorithms and techniques to develop and implement potential new services developed in HORIZON CL 4 2024 SSA SST MS New Improved EUSST Missions and Services topic
- Improve algorithms for a more agile and accurate cataloguing of the growing space objects population and increasing services provision for data fusion for a more efficient use of data and information coming from different sensors on the same object

Expected outcomes

Actions are expected to contribute to the following outcomes:
Supporting the upgrade and development of on ground assets, in particular radars and telescopes as well as data processing

- SST radiofrequency optical sensors (telescopes, etc technological research and innovation
- SST data processing research and innovation (e g Artificial Intelligence)

HORIZON-CL4 2024-SSA-SST-SD : SST Networking, Security Data sharing

RIA

? M€

END OF 2024

? PROJETS

➔6/7

Scope

- Update operation centres to improve current services (Collision Avoidance Fragmentation Re entry) adapted to future user needs and the space environment
- Update operation centres to new missions and services

Expected outcomes

Actions are expected to contribute to the following outcomes:

- Support the upgrade, development and security issues of the EUSST infrastructure based on the European network of assets
- Concrete aspects of the EUSST network (e g pooling of data from multiple sensor sources exchange between multiple operationscentres of Member States) shall be considered in highly detailed case studies, modelling
- SST networking of sensors & operation centres (EU SST network Command & Control)
- Research on EUSST network hardening against external threats

Clean and competitive solutions for all transport modes

Aviation

Topics	Type of Action	Budgets (EUR million)	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
		2024		
Opening: 07 Dec 2023 Deadline(s): 18 Apr 2024				
HORIZON-CL5-2024-D5-01-07	RIA	17.00	4.00 to 5.00	4
HORIZON-CL5-2024-D5-01-08	RIA	16.00	3.00 to 5.00	4
HORIZON-CL5-2024-D5-01-09	RIA	8.00	Around 8.00	1
HORIZON-CL5-2024-D5-01-10	RIA	16.00	Around 16.00	1

Disruptive low TRL technologies : 30% reduction in fuel burn and CO2 by 2035, sustainable aviation fuels, new energy carriers, hybrid-electric architectures, next generation of ultra-high efficient engines and systems, advanced aerostructures between 2035 and 2050. New technologies for significantly lower local air-pollution and noise

Clean and competitive solutions for all transport modes

Aviation

Topics	Synergie	Implementation	Modèle de financement
HORIZON-CL5-2024-D5-01-07	SESAR3 JU, Digital Sky Demonstrators,		Lump Sum
HORIZON-CL5-2024-D5-01-08	Clean Aviation JU		Lump Sum
HORIZON-CL5-2024-D5-01-09	HORIZON-CL5-2022-D5-01-14, Clean Aviation JU, SERAR3 JU, EASA		Regular
HORIZON-CL5-2024-D5-01-10	RTOs/Academia/SMEs,	Implementation plan	Regular

Proposals should build on or seek collaboration with existing projects and develop synergies with other relevant European, national or regional initiatives, funding programs and platforms.

HORIZON-CL5-2024-D5-01-07: Accelerating climate neutral aviation, minimising non-CO2 emissions

RIA

~4 M€

18 APR 2024

4 PROJETS

➔2-4

Scope

Avoiding climate sensitive regions has a large potential in reducing climate impact at relatively low costs without causing significantly more CO2 emissions that outweigh the overall climate effect. The integration of data analytics and weather forecasting into advanced decision-support software tools that are able to predict real-time the contrail formation as well as propose alternative paths. This topic aims to integrate and provide clear operational guidelines supported by validated flight tests.

Expected outcomes

Actions are expected to contribute **at least three of** the following outcomes:

- Further increase the scientific understanding related to the impact of aerosols on clouds as well as the contribution of aviation NOx emissions to climate change and costs;
- Investigate further on how to support potential policy measures identified in the EASA study281;
- Perform engine gas and particle emissions characterisation, when data is incomplete or unavailable;
- Perform flight tests and demonstrate the benefits and fuel burn trade-offs of avoiding climate sensitive regions;
- Perform hydrogen and aviation drop-in fuel research with an eye towards reducing further non-CO2 emissions;
- Develop further real-time decision-support software for airlines and ATM, to predict the location and global warming impact of contrail and contrail cirrus formation;

HORIZON-CL5-2024-D5-01-08: Competitiveness and digital transformation in aviation – advancing further composite aerostructures

RIA

3 TO 5 M€

18 APR 2024

4 PROJETS

➔2-4

Scope

The proposal is expected to develop further advanced composite design and manufacturing technologies that have potential to contribute to the digital transformation of the European aircraft supply chain, with a scale-demonstrated in relevant challenging industrial cases.

Expected outcomes

Actions are expected to contribute **at least two** the following outcomes:

- Advanced composite technologies, with emphasis on new designs, high-volume sustainable manufacturing with integrated inspection, sustainable and free of toxic substances, recycling and circularity, structures safety requirements (EMC/lighting protection, ice formation, fire, fatigue, crashworthiness and ditching) and additive manufacturing of the new generation of composites - for aerostructures and propulsion.
- Breakthrough technologies in coupled aerostructures-systems-propulsion integration.
- Cost-competitive maintenance and repair of composite aerostructures, including Structural Health Monitoring (SHM).
- Advancements in physical and digital research infrastructures, with emphasis on aerostructures for all aircraft configurations, with an eye towards virtual certification.

HORIZON-CL5-2024-D5-01-09: Impact monitoring of EU Aviation R&I

RIA

~8 M€

18 APR 2024

1 PROJET

N/A

Scope

Deliver a toolbox, including impact assessments, that will be the reference choice for the definition and assessment of environmental, climate and competitiveness policy options of future European aviation R&I and regulatory measures (e.g. be used as the reference software to support future European Commission Impact Assessments) and assist EU Member States/Associated Countries, the European Commission and EASA in ICAO Working Groups and other International regulatory agencies.

Expected outcomes

The proposal is expected to build on and improve an already established reference European toolbox:

- Incorporate methodological, science-based and validated models that can be traced;
- Address and improve (as a result of new technologies, aircraft configurations and missions) climate-assessment methods and optimised trajectories towards identifying promising mitigation options. Pay particular attention, beyond CO2 emissions, to non-CO2 emissions and climate-sensitive regions as well as address interdependencies (e.g. noise in the airport vicinity);
- Integrate and make use of existing toolboxes developed in previous EU R&I Framework Programmes;
- Be able to set the level of fidelity for aircraft technologies and air transport system, based on available data;
- Have an interactive user interface and incorporate modern open-source visualisation tools;

HORIZON-CL5-2024-D5-01-10: Towards a flying testbed for European leadership in aviation

PCP

~19 M€

18 APR 2024

1 PROJET

➔4-5

Scope

This topic aims at significantly reinforcing the EUs leading position in Aerospace innovation through new radical configuration, experimental innovation for zero-emission aircraft of the future, by creating a flying, experimental test bed for twin transition of Europe towards a climate neutral and digital society. The E-Plane will enable disruptive ideas to be tested and will shape the sustainable, zero-emission air transport of tomorrow. The concept aircrafts are also expected to address long-range (>4000km) missions to fill gaps for implementation in time to help ensure global aviation carbon neutrality by 2050.

Expected outcomes

The project is expected to deliver **on all of** the following expected outcomes:

- Design of concepts and validation of an experimental aircraft that will test, validate and accelerate radical new technologies and aircraft configurations that go well beyond the state-of-the-art;
- Deliver feasibility studies of the targeted aircraft concept, towards a preliminary design review, making use of sound/proven advanced simulation and modelling techniques;
- Deliver detailed technical roadmaps that demonstrate the path towards a flying test bed. Should include a needs and gaps analysis in terms of Technology Infrastructures with respect to radical aircraft configurations and related technology validation and certification;
- Provide a preliminary implementation and execution plan for the targeted aircraft concept, including a business and operating model.

EIC support to space tech SMEs & start-ups

- EIC objective is identify, develop and deploy high risk innovations with a focus on breakthrough market creation and deep tech innovations
- The EIC supports breakthrough technologies and game changing innovations for space SMEs and start-ups
- Funding their disruptive/high-risk ideas and supporting them in the process of disruptive innovation, demonstration and commercialization with transversal EIC Pathfinder, Transition and Accelerator programs
- Enhances the **European innovation ecosystem** (partnerships with EIT, ERC, etc)

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EIC Challenge: In-space solar energy harvesting for innovative space applications

PATHFINDER

0,5-2,5 M€

18 OCTOBER 2023

?

1➔4

Scope

- Scalable solutions (e.g., solar energy harvesting antennas, on-board spacecraft photovoltaic cells) for in-orbit efficient solar energy collection and storage.
- Conversion of the harvested energy in a form, appropriate for transmission at long distances in empty space.
- Efficient wireless and secure power transmission of the transformed energy between in-space harvesting devices on spacecraft and re-translation stations or other final receivers. This may require a grid of re-transmitting stations, which not only amplify the wireless transmission, but also redirect the transmission as necessary.

Expected outcomes

Actions are expected to contribute to the following outcomes:

- Design and laboratory validation of concepts to develop technologies for energy harvesting in space e.g. in-space utilisation of this energy for transportation and other related research and innovation activities, in particular for cleaning space debris;
- Development and laboratory validation of breakthrough technologies for wireless power transmission of energy, e.g. through power grid, for energy beam pointing and control;
- Development of eco-friendly and innovative green propulsion solutions for in-space applications (e.g., spacecraft orbital corrections, in orbit satellite servicing, active debris removal, end-of-life services, etc.) addressing the barriers to the use of in-space solar energy for innovative propulsion.
- Use of innovative in-space robotic solutions for in-space manufacturing and assembly of space-based solar units.

EIC Challenge : In-space solar energy harvesting for innovative space applications

ACCELERATOR

65 M€

7 JUNE & 4 OCTOBER 2023

1 PROJET

6➔9

Scope

Ensuring Europe is able to service and protect its own Space infrastructure, avoiding the risk of losing its strategic autonomy, and enhance the competitiveness of its space industry by encouraging the emergence of innovative, interoperable, scalable, and autonomous “customer-driven” innovative space technologies and services.To have the means to inspect spacecraft in orbit, to augment satellite capabilities and resilience.

- Autonomous and in-space collision avoidance mature assembly and manufacturing in orbit with different applications (e.g., in-orbit, cis-lunar exploration, Earth observation, space debris inspection, space situational awareness, etc.);
- To collect space debris with a view for recycling, recovering and transforming purposes);
- To design and construct a R&I assembled in low Earth orbit
- host in-orbit microgravity experiments or collect/re-use space;
- space situational awareness (SSA) innovation, in-space logistics, Earth observation, navigation, satellite communications (SATCOM), and others.

Expected outcomes

This Challenge aims at developing:

- an European servicing and re-use/recycling capability for servicing European space infrastructure, while contributing to the management and reduction of space debris;
- timely and cost-effective Space Traffic Management services for on-time collision avoidance manoeuvres;
- the re-use, refurbish or recycling of a spacecraft components or launchers upper stages;
- scientific and technological solutions for in-orbit services and re-use/refurbishing and recycling of old spacecraft (e.g. satellites, rockets upper stages or critical raw materials etc.);
- Innovative technologies for space transportation and propulsion, Earth observation, navigation, satellite communications, space science, space situational awareness.

IOD IOV experiments needing aggregation

IOD/IOV

0,5-2,5 M€

Multiple cut-off
15 March 2026

?

➔5/6

Scope

- The IOD/IOV activities intend to provide a regular and cost effective service and solution for common flight ticket actions (spacecraft design including reuse of existing solutions, assembly, integration and tests, launch and operations) based on EU solutions both for the spacecraft (i e platform, experiments aggregation, operations in orbit including preparation and associated Ground Segment) and for the launch services
- The scope of the activities may include mission design, integration and implementation, for all the necessary tasks to prepare, provide and operate spacecraft(s), together with the related ground segment, which accommodates the selected IOD/IOV experiments as well as the associated launch services
- Concerning launch aspects, IOD/IOV activities should support the European launcher exploitation policy, therefore relying as far as possible on EU manufactured launcher solutions launched from the EU territory

Expected outcomes

Actions are expected to contribute to the following outcomes:

•To contribute to reduce the time to market or operational use of new technologies, products, concepts, architectures, and operations techniques

•To provide a cost effective service for regular aggregation (if needed), launch and operations in orbit for IOD/IOV experiments, based on EU solutions both for the spacecraft and for the launch services

•To have at least one opportunity every year during the Horizon Europe implementation period

NOS SERVICES

Informer

Accompagner

Connecter

What's next?

[Site Internet NCP Wallonie](#) ☞ APPELS À PROPOSITIONS

Liste des appels Energy 2022-2023

Topic ID	Topic + lien web	Deadline	Origin	NCP
Destination 3 – Sustainable, secure and competitive energy supply				
Global leadership in renewable energy				
HORIZON-CL5-2022-D3-02-01	Digital solutions for defining synergies in international renewable energy value chains	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Thomas Chauvaux
HORIZON-CL5-2022-D3-02-02	AU-EU Energy System Modelling	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Jean-Jacques Lemaire
HORIZON-CL5-2022-D3-02-03	Innovative renewable energy carrier production for heating from renewable energies	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Mathias LUCAS
HORIZON-CL5-2022-D3-02-04	Technological interfaces between solar fuel technologies and other renewables	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Mathias LUCAS
HORIZON-CL5-2022-D3-02-05	Renewable energy carriers from variable renewable electricity surplus and carbon emission	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Mathias LUCAS
HORIZON-CL5-2022-D3-02-06	Direct renewable energy integration into process energy demands of the chemical industry	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Mathias LUCAS
HORIZON-CL5-2022-D3-02-07	Renewable energy incorporation in agriculture and forestry	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Mathias LUCAS
HORIZON-CL5-2022-D3-02-08	Demonstration of complete value chains for advanced biofuel and non-biological renewabl	27-oct.-22	Cluster 5: Climate, Energy and Mobility	Mathias LUCAS

Industry | Mobility | Space | Energy | Climate, Envi | EIC | EIE | EU Missions | Explorer

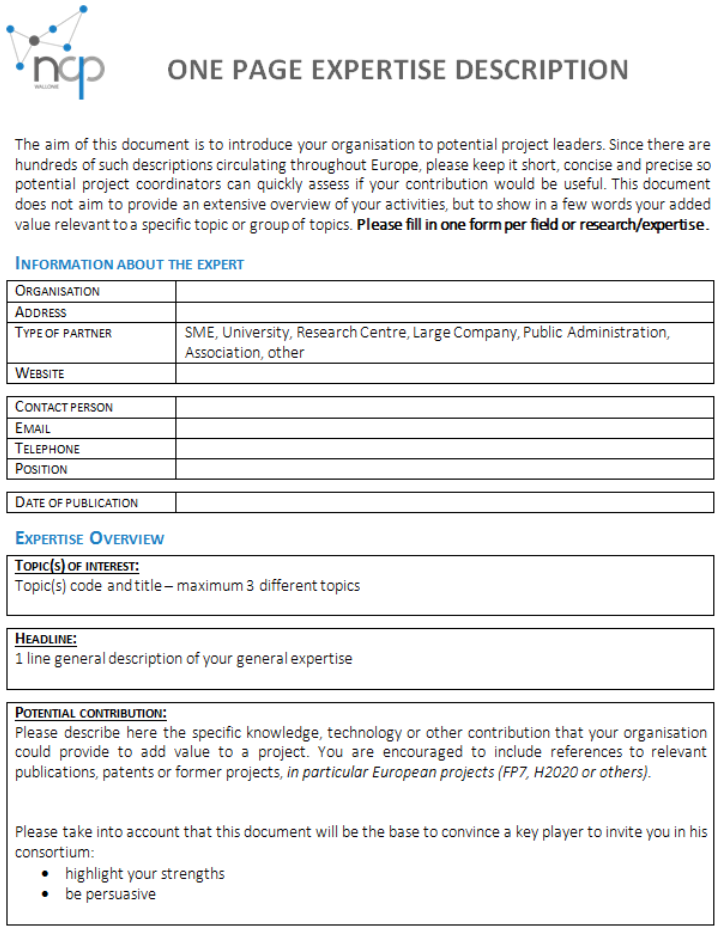
What's next?

Fiche du NCP Wallonie « One page expertise description »

Données administratives

Topic Identifié

Contribution **CONCRÈTE** au projet / Valeur ajoutée



ONE PAGE EXPERTISE DESCRIPTION

The aim of this document is to introduce your organisation to potential project leaders. Since there are hundreds of such descriptions circulating throughout Europe, please keep it short, concise and precise so potential project coordinators can quickly assess if your contribution would be useful. This document does not aim to provide an extensive overview of your activities, but to show in a few words your added value relevant to a specific topic or group of topics. **Please fill in one form per field or research/expertise.**

INFORMATION ABOUT THE EXPERT

ORGANISATION	
ADDRESS	
TYPE OF PARTNER	SME, University, Research Centre, Large Company, Public Administration, Association, other
WEBSITE	
CONTACT PERSON	
EMAIL	
TELEPHONE	
POSITION	
DATE OF PUBLICATION	

EXPERTISE OVERVIEW

TOPIC(S) OF INTEREST:
Topic(s) code and title – maximum 3 different topics

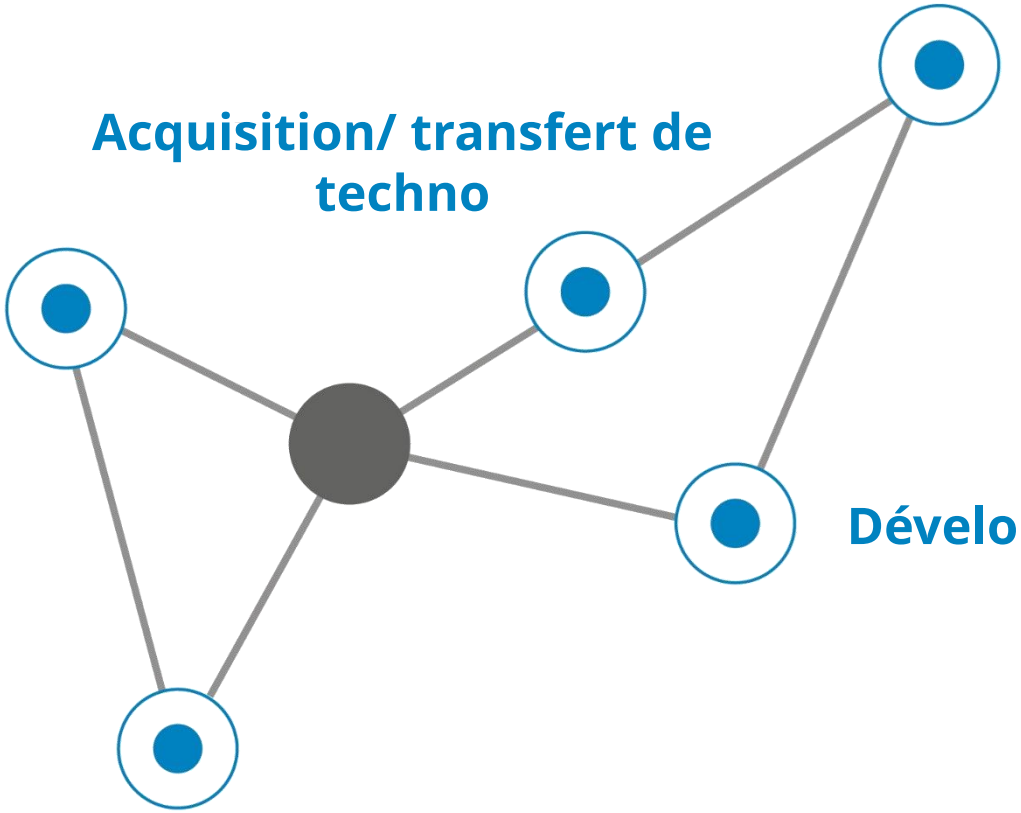
HEADLINE:
1 line general description of your general expertise

POTENTIAL CONTRIBUTION:
Please describe here the specific knowledge, technology or other contribution that your organisation could provide to add value to a project. You are encouraged to include references to relevant publications, patents or former projects, *in particular European projects (FP7, H2020 or others).*

Please take into account that this document will be the base to convince a key player to invite you in his consortium:

- highlight your strengths
- be persuasive

CONCLUSION



Développer votre équipe/ compétences

Acquisition/ transfert de techno

Levier financier/ technologique

Développer votre business

Gagner en visibilité

Merci pour votre attention

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NCPWallonie

Transversalities in climate and EO services

Topics	Type of Action	Budgets (EUR million) 2023/2024	Expected EU contribution per project (EUR million)	Indicative number of projects expected to be funded
Opening: 12 Sep 2023 Deadline(s): 06 Feb 2024				
HORIZON-CL5-2024-D1-01-01	RIA	15.00	Around 15.00	1
HORIZON-CL5-2024-D1-01-02	RIA	22.00	6.00 to 7.50	3