EU SPACE

WP 2023-2024

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Horizon Europe, Pillar II, Cluster 4

Space part

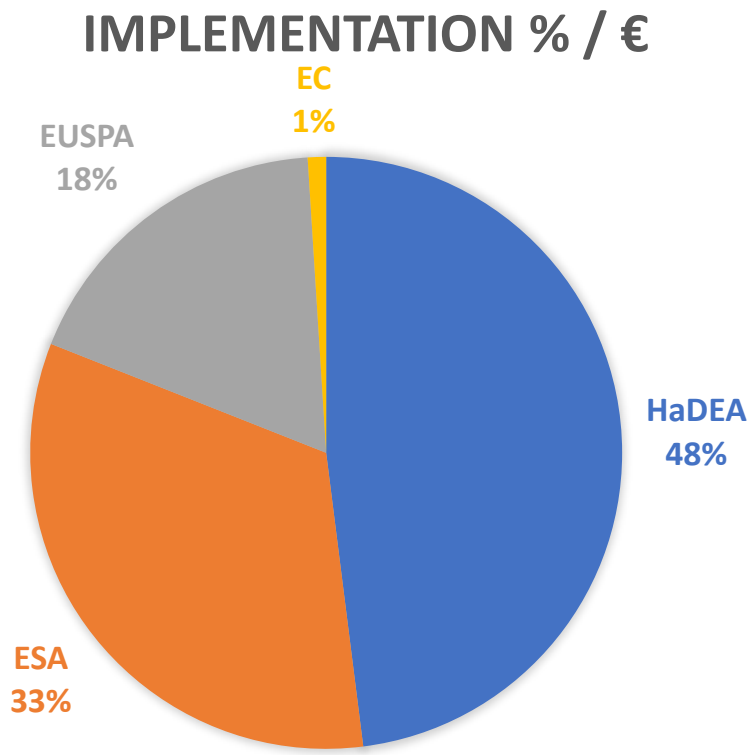
9 November 2022

European Commission – DG DEFIS
Innovation, Start-ups and Economics (Unit B.2)
Romain LEZIER
romain.lezier@ec.europa.eu

Horizon Europe, Pillar II, Cluster 4 - Space

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



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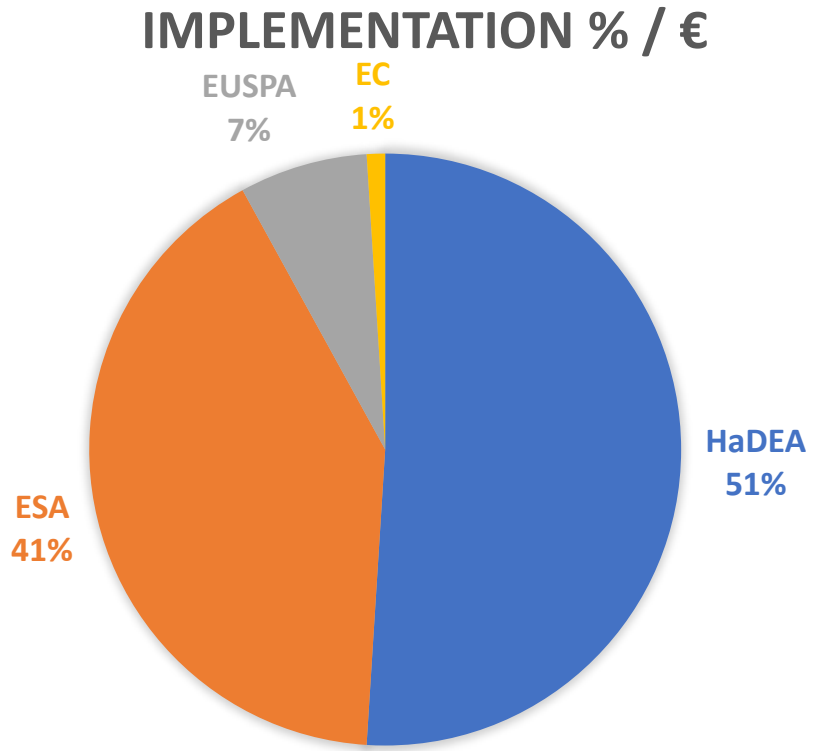
Horizon Europe, Pillar II, Cluster 4 - Space

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



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Expected timing

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- Work Programm 2023 – 2024 publication: 28 November 2022

- HaDEA - Call opening and closing:
- HORIZON-CL4-2023-SPACE-01: 22 December 2022 – 28 March 2023
- HORIZON-CL4-2024-SPACE-01: 21 November 2023 – 20 February 2024

- EUSPA Call opening and closing:
- HORIZON-EUSPA-2023-SPACE: S1 2023 (target)

1 - Competitiveness

- HORIZON-CL4-2023-SPACE-01-11: End-to-end Earth observation systems and associated services
- HORIZON-CL4-2023-SPACE-01-12: Future Space Ecosystem and Enabling Technologies
- HORIZON-CL4-2023-SPACE-01-13: CSA Future Space Ecosystem

- Other Actions: CSA Space Partnership

1 - Competitiveness

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-11: End-to-end Earth observation systems and associated services

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
10,10	1 to 2,50	5	IA	5/6	lump sum	No

Expected Outcomes:

- Achieve and maintain the worldwide leadership for Earth Observation system;
- A flexible and competitive end-to-end system demonstration;
- Short to medium term disruptive development and maturation of key technologies;
- Contribute to European non-dependence for the development of Earth-observation technologies and to the Green Deal.

Scope:

- Earth observation technologies based on a network of small satellites with innovative capabilities seizing the full innovation potential of low cost and/or disruptive and sustainable approaches;
- Satellite Data Management and Processing including image processing for end-to-end performance improvement and on infrastructures and networks for ground processing and virtual network functions;
- R&I to identify, develop and implement AI in industrial processes means fostering digitalisation for Earth observation including software validation and verification.

1 - Competitiveness

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❑ HORIZON-CL4-2023-SPACE-01-12: Future Space Ecosystem and Enabling Technologies

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
15	0,50 – 2,50	7	RIA	(1) 4-6, (2) 3-5	Lump sum	No

Expected Outcomes

- A future space ecosystem, fostering the industrialisation and business in space;
- A sustainable, highly automated, flexible and economically viable space infrastructure, building on technologies and concepts for a circular economy in space such as plug-and-play spacecraft functionality
- New technologies and approaches for future space systems, application and services such as on-orbit services (OOS)
- Short to medium term disruptive development and maturation of key technologies.

Scope

- Generic building blocks technologies for electric propulsion systems considering paradigms relevant for industrialization;
- Technologies and concepts with a clear application, pathway to applications and business sustainability in mind, e.g., next generation of services, enabling technologies, or serial production and manufacturing concepts.

1 - Competitiveness

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-13: CSA Future Space Ecosystem

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2,00	~2,00	1	CSA	N/A	lump sum	No

Expected Outcomes

- Future Space Ecosystem roadmap focusing on in-space services, that take advantages of enabling technologies and of synergies between cluster 4 destinations and activities for the future space ecosystem maximising the market opportunities and benefits;
- Coherent principles, and guidelines and standards for On-Orbit Services supporting European actors implementing their business in this domain ensuring consideration of sustainability, safety and competitiveness.

Scope

- Pathways to innovative and promising applications and services taking into account new space approaches, enabling technologies as well as synergies with terrestrial sectors while making use of continuous market and trend analyses;
- Pathways for quick maturation and space qualification of game-changing/key technologies;
- Follow project(s) of other FSE calls to support decisions regarding programmatic and strategy questions and to verify the applicability of the existing principles and guidelines for future missions;
- Contribute to international dialogue on recommendations for guidelines and standards for In-Space Services based on the work done in the European Operations Framework (EOF) supporting the European Commission in policy and standards development;
- Targeted dissemination and outreach activities for FSE activities to
European stakeholders, and to promote EU Space R&I activities in th

1 - Competitiveness

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❑ Other Actions: Management and Coordination of the European partnership Globally Competitive

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 – 1,5	~1,5	1	CSA	N/A	lump sum	No

- **Pre-identified beneficiary** = The founding members of **the association SPACE** as defined by its statutes

- Outcomes – The project is expected to contribute to the successful set-up and initial operation of the Space Partnership.

- Scope : This Coordination and Support Action shall:
  - Support the successful setup and initial operation of the Space Partnership which will demonstrate **principles of transparency, openness and inclusiveness**. The partnership association or the associations of the founding partners should be **open to new partners**.
  - Contribute to the introduction of an open and transparent process for **consulting stakeholders** including relevant entities in Member States and Associated Countries on the design of the roadmaps. Dedicated actions in relation to the involvement of entities from widening countries should also be considered.
  - **Update and maintenance of the SRIA** (Strategic Research and Innovation Agenda) for the Partnership.
  - **Reporting and dissemination of Partnership a**ctivities, and support of the community building.

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2 - Access to Space

- HORIZON-CL4-2023-SPACE-01-21: Low cost high thrust propulsion for European strategic space launchers - technologies maturation including ground system tests
- HORIZON-CL4-2023-SPACE-01-22: New space transportation solutions and services
- HORIZON-CL4-2023-SPACE-01-23: Modern, flexible and efficient European test, production and launch facilities

2 - Access to Space

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-21: Low cost high thrust propulsion for European strategic space launchers - technologies maturation including ground system tests

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
20,00	~20,00	1	RIA	7	N/A	Yes

Expected outcomes:

- Contribution to the overarching objective of launch cost/price reduction by 50% by 2030 (with respect to A6/VegaC cost/price 2021 economic conditions).
- Innovation acceleration of enabling technologies.
- Selection of most promising technologies for cost-reduction possibilities for the current European launchers.

Scope: The propulsion systems represent a significant part of launch system costs. It is necessary to mature new or optimised low cost effective, high performance (high thrust to weight ratio, high specific impulse) and green propulsion concepts, technologies and propellants for high thrust engines. The activities should address:

1. Maturation of enabling technologies, building blocks, tools and processes including maintenance/overhaul and safety, up to TRL5/6 and subsystem tests including prototyping and integrated ground tests at subsystems level by 2025;
2. Demonstration of the above technologies by subsystems and engine on-ground demonstration tests by 2026 to reach TRL 7.

The matured technologies, building blocks, tools and processes should be applicable to strategic launchers able to launch EU Space Programme components, with the objective of enabling ope

2 - Access to Space

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-22: New space transportation solutions and services

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
23,10	4,00 – 10,00	4	RIA	5/6	N/A	Yes

Expected outcomes:

- Contribute to EU Green Deal objective through the reduction of the environmental impact of space transportation and to be prepared for the upcoming REACH regulations, especially with respect to the use of hydrazine and its derivatives, focusing on commercial market as a driver for business growth.
- Contribute to expand commercial space transportation offer and services with new space transportation solutions. The objective is to contribute to double the accessible new space transportation service market to European industry by 2030.
- Design and performance studies as well as business cases (demonstration of economical viability).

Scope:

The maturation of enabling new technologies and subsystems (including common building blocks) in the field of green propulsion, micro launchers and associated launch facilities, kick stage, orbital propulsion and distancing, attitude and landing, re-entry solutions, smart satellite deployment systems/dispensers, for space transportation including also new routes up to Lunar orbit or surface. The maturation could go up to subsystem and system level technology demonstration and must include at least one of the following areas and linked technologies:

1. Technologies for recovery of Space Transport vehicles elements
2. Space Transportation technologies in support to In-orbit servi

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2 - Access to Space

EU SPACE

- HORIZON-CL4-2023-SPACE-01-23: Modern, flexible and efficient European test, production and launch facilities

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
10,00	2,00 to 5,00	3	RIA	5/7	N/A	Yes

Expected outcomes:

- Contribution to the overall objective of launch cost/price reduction by 50% by 2030 (with respect to A6/ Vega C cost/price 2021 economic conditions).
- Contribute to expand commercial space transportation offer and services with new space transportation solutions. The objective is to contribute to double the accessible new space transportation service market to European industry by 2030.
- Improve cost efficiency of European test, production and space launch facilities.
- Matured technologies, standardised technology for improving cost efficiency, interoperability of access to space ground facilities in Europe, ground assets portability to speed-up deployments.

Scope:

Cost reduction and improving flexibility of European launch systems. The activities will address one or several of the following listed domains:

a. Multi sites flexible industrial platform
b. Develop standardised and cost-effective innovative technologie
facilities, their interoperability and compatibility/attractiveness fo

3 – Evolution of EGNSS

- Other Actions: Mission and Services
- Other Actions: Technology and Infrastructure
- Other Actions: Operations and service provision

3 – Evolution of EGNSS

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❑ Other Actions: Mission and Services

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 – 2,5 2024 – 2,5	n/a	TBD	COM Public procurement	N/A	N/A	TBD on a case-by-case basis

- The objective is to **study potential new user needs**, as well as the resulting enhancement of services, and determine whether and **how the EGNSS programmes Galileo and EGNOS shall evolve** to answer these new user needs. This includes the preparation of contributions and technical analysis supporting the EU position in multilateral and bilateral working groups and meetings.
- The upstream R&D actions in this area will cover the assessment of new mission concepts and of services improvements and of new services or capacities to be introduced based on the user needs, developing the service concept including with international partners when relevant, assessing costs to the programme versus benefits to users and defining the roadmap of activities until an operational service could be provided.

3 – Evolution of EGNSS

EU SPACE

❑ Other Actions: Technology and Infrastructure

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 – 43 2024 - 43	n/a	TBD	Delegated to ESA	N/A	N/A	TBD on a case-by-case basis

- Actions under this area will address upstream R&D activities. They will cover the **maturing of the existing technologies and the development of new and emerging technologies** (e.g. Low Earth Orbit Positioning, Navigation and Timing EOPNT), the engineering activities for the further evolution of Galileo and EGNOS existing systems, technical studies for the assessment of exploratory system concepts and/or responding to new mission needs and a changing environment, the development and maintenance of state-of-the-art system tools and technical test-beds, the implementation of actions agreed at Programme level to reduce the dependence of the supply chain on non-EU markets, the definition, design, development and implementation of experimental satellite demonstrator, and others.

3 – Evolution of EGNSS

EU SPACE

❑ Other Actions: Operations and service provision

Budget - € million		# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 – 5	n/a	TBD	Delegated to EUSPA	N/A	N/A	TBD on a case-by-case basis

- The improvement of the complex operations is essential to improve the performance of EGNSS services. Likewise, maintenance activities must be subject to a continuous improvement process to guarantee the service continuity. 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 (e.g. machine learning, advanced on-board diagnosis, predictive maintenance) for Galileo constellation / system management for the efficient and continuous provision of the full portfolio of Services in EGNOS and in Galileo, and others.

4 – GOVSATCOM/Secure Connectivity

- Other Actions: GOVSATCOM/Secure Connectivity infrastructure
- Other Actions: GOVSATCOM/Secure Connectivity upstream R&D

4 – GOVSATCOM/Secure Connectivity

EU SPACE

❑ Other Actions: GOVSATCOM/Secure Connectivity infrastructure: Development and Validation

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 – 28 2024 – 20,6	tbd	TBD	Delegated to ESA	TBD	N/A	TBD on a case-by-case basis

- The Commission has adopted a proposal for a Union Programme for Secure Connectivity. The future satellite-based communication infrastructure should build upon the GOVSATCOM component of the EU Space Programme, which should also take advantage of additional national and European capacities, and develop further the European Quantum Communication Infrastructure (EuroQCI) initiative.
- This action should therefore enable and **support the development and validation actions for the construction of the initial space and ground infrastructure required for the provision of governmental services** . This includes the development and validation of the Quantum Key Distribution (QKD) payload for the EuroQCI 1st generation satellites based on EU technologies.

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4 – GOVSATCOM/Secure Connectivity

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❑ Other Actions: GOVSATCOM/Secure Connectivity upstream technology R&D activities

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 only - 10		TBD	Delegated to ESA	TBD	N/A	TBD on a case-by-case basis

- A number of key technology needs have been identified in order to provide state of the art GOVSATCOM services, either through the GOVSATCOM pooling and sharing HUB or through a new secure connectivity infrastructure. These activities will be implemented by ESA under Contribution Agreement between the Commission and ESA.
- The upstream R&D actions in this area will cover **development of critical building blocks in the space segment**, **ground control and mission** (network) **segment and user segment terminals**, such as multi-orbit compatible broadband user terminals and government services user terminals.
- Proposals under this topic should explore synergies and be complementary to already funded actions in the context of technology development at component level. In particular, the topics: Critical Space Technologies for European non-dependence (H2020 SPACE-10-TEC-2018-2020, COMPET-1-2014-2015-2016-2017, HorizonEurope 2021-SPACE-01-81, 2022-SPACE-01-81). Furthermore, activities must be complementary to national activities and activities funded by ESA, while contributing to EU non-dependence (at system, equipment and component level).

5 - Copernicus Services

- HORIZON-CL4-2023-SPACE-01-31: Copernicus for Atmosphere and Climate change, including CO2 monitoring
- HORIZON-CL4-2023-SPACE-01-32: Copernicus for Emergency Management
- HORIZON-CL4-2023-SPACE-01-33: Copernicus in-situ component
- HORIZON-CL4-2023-SPACE-01-34: Copernicus for Marine Environment Monitoring

- HORIZON-CL4-2024-SPACE-01-35: Copernicus for Land and Water
- HORIZON-CL4-2024-SPACE-01-36: Copernicus for Security

5 - Copernicus Services

EU SPACE

- HORIZON-CL4-2023-SPACE-01-31: Copernicus for Atmosphere and Climate change, including CO_2 monitoring

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
8,60	2,00 to 3,00	3	RIA	5/6	Lump sum	No

Expected Outcomes:

- Enhanced quality and efficiency of the Copernicus Atmosphere Monitoring and Copernicus Climate Change services to respond to evolving policy and/or user requirements and to technological developments
- Continuation of the set-up of the new Copernicus service element for the monitoring of anthropogenic CO_2 emissions
- Development of efficient and reliable product chains, new algorithms for data fusion, big data and analytics, use of new Sentinels and contributing missions

Scope (one focus per proposal):

- CAMS focus: improve aerosol representation in CAMS operational global and regional systems
- C3S focus: develop innovative methodologies to characterise compound and cascading extreme weather events, including determining the potential frequency, intensity and impacts of these events in a changing climate
- CO_2MVS focus: improve the requirements (accuracy, mass-conservation) for the numerical schemes in the CO_2MVS system

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5 - Copernicus Services

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❑ HORIZON-CL4-2023-SPACE-01-32: Copernicus for Emergency Management

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
3,00	~3,00	1	RIA	6	Lump sum	No

Expected Outcomes, at least three of the following:

- Automated characterisation of building height and building use through integration of different sensor types and/or open source non-EO data.
- Integration of new EO satellite data for early warning and active global fire detection and monitoring.
- Integration of high and very-high spatial resolution data and sensors for continuous multi-scale mapping and assessment of fuel structure and condition at pan-European level.
- Improvements of the hydrologic process representation in the continental and/or global scale hydrologic model of the flood and drought early warning component, including hydrological predictions for the flood.
- Methods for addressing limitations of Synthetic Aperture radar (SAR) based flood monitoring in specific scenarios and/or adverse meteorological conditions.
- Enhanced seamless sub-seasonal to seasonal predictions of severe-to-extreme hydrometeo events as droughts and associated multi-sectoral impacts.
- Optimised integration of different data sources and indexes characterising extreme meteorological events and related hazards, droughts.
- Integration of UAV along the full value-added chain in the emergency response.

Scope:

Innovative methods and technologies for emergency related applications addressing the needs of the Copernicus Emergency Management Service. Service evolution should be addressed by considering: enhancement of an existing element or component; new elements or components to the existing (core) service; new services complementing the core services and

5 - Copernicus Services

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-33: Copernicus in-situ component

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2,00	~2,00	1	RIA	5/6	Lump sum	No

Expected outcomes, two or more of the following:

- Optimal use of early observations: past observing methods, error analysis, quality control and bias adjustment
- Better use of Copernicus relevant observations and auxiliary data collected during R&I projects
- Enhanced availability and quality of in situ data critical for Copernicus products and data services
- Appropriate consideration of Copernicus Services' cross-cutting challenges and R&I priorities

Scope:

1. **Facilitation and demonstration of efficient, methodologically sound and sustainable reuse of in situ data** collected during field campaigns and experiments for validation of Copernicus data and information services.
2. **Development of innovative observation strategies and concepts** to improve the observational capacity in selected data sparse areas. In the marine context, the gathering and qualification of acoustic observations to characterize marine ecosystems (e.g., micronekton) is an identified priority;
3. **Synergistic use of complementary types of surface observations**;
4. **Application of machine learning technologies for the quality control** of historic and real-time meteorological and hydrological in-situ observations.

5 - Copernicus Services

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-34: Copernicus for Marine Environment Monitoring

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
5,00	~5,00	1	RIA	5/6	Lump sum	No

Expected Outcomes:

- Improved quality and efficiency of CMEMS to service policies, the Mission "restore our oceans" and the UN decade of ocean science
- Development of new innovative products tackling more volumes of data for the continuity of the service
- Development of new algorithms preparing the use of new types of missions (new sentinels, contributing missions) for enhanced continuity of the service in coastal areas

Scope:

- Services to address the coastal zones for policy implementation, conservation, resilience to climate change and sustainable blue economy
- Implement advanced and seamless monitoring and forecasting from regional to coastal scale high resolution and high temporal dynamics to constrain coastal applications and models at national to local scale
- Develop pan European satellite coastal observation products at high resolution and improve access and processing of including in-situ data
- Develop improved inputs of freshwater flows (incl. BGC) and methods to couple hydrological models with CMEMS and coastal models
- Develop coupling techniques between CMEMS and downstream coastal modelling systems, including impact assessment on key coastal applications and policies

5 - Copernicus Services

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
4,00	1,50 to 2,00	2	RIA	5/6	Lump sum	No

Expected outcomes:

- **Enhanced quality and efficiency of the Copernicus Land Monitoring service** to respond respectively to several Green Deal policy and/or user requirements.
- **Development of efficient and reliable new products chains,** calling for new paradigms in data fusion, data processing and data visualisation to handle more high-volume satellite data sets and product sets.
- **Development of efficient and reliable integrated products chains**, calling with a holistic approach for better land use planning and hydrological monitoring and forecasting, combining and assimilating the current Copernicus service products, and the potential development of new state of the art products complementing the existing ones.
- **Development of a common leading-edge approach across services**, and in the area of hydrological modelling serving the interests of various applications. The development should consider cross services approaches.
- **Development of new algorithms and processing chains** preparing the use of the new types of space observation data (being from new Sentinels or other contributing missions) in order to allow development of new products or the improvement of existing products.

Scope:

1. **Innovative methods** to integrate the current land products into land surface, land use and cover change
2. **Integrated product provision system** using innovative methods and observations (e.g.; SWOT mission) to improve the portfolio of the current inland and coastal/shore hydrological satellite observation products

5 - Copernicus Services

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
8,00	~4,00	2	RIA	5/6	Lump sum	Yes

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.
- Significant technological enhancement in detection capabilities, timely access to data or delivery of information, narrowing the gap between capabilities and the more stringent security observation requirements.
- Significant improvement in integration of non-space data along end-user intelligence supply chains, bringing added value at operational level also at regional at local levels, or in support to field campaigns.
- Development of processing chain(s) to handle an increasing volume of satellite data, keeping abreast with technology developments and include new paradigms in data fusion, processing, automation, as well as added-value information access and visualisation.
- Integration of the Geospatial Artificial Intelligence (GeoAI) and Earth Observation data analytics with a variety of other application-specific data sources like data from remote sensors accessed through IOT, as well as crow-sourced data, high velocity transnational data and social media posts.

Scope:

1. Innovative methods and technologies to explore new and enlarged data sets and the development of applications addressing requirements not currently tackled by the current services.
2. Actions in support to the evolution and scope of the security services, namely increasing user reach, responding to specific regional needs and increasing service added value in user operational scenarios.

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

- HORIZON-EUSPA-2023-SPACE-01-41: Transition toward a green, smart and more secure post-pandemic society
- HORIZON-EUSPA-2023-SPACE-01-42: Closing the gaps in mature, regulated and long lead markets
- HORIZON-EUSPA-2023-SPACE-01-43: Copernicus-based applications for businesses and policy makers
- HORIZON-EUSPA-2023-SPACE-01-46: Designing space-based downstream applications with international partners
- HORIZON-EUSPA-2023-SPACE-01-44: The Galileo PRS Service for governmental-authorised use cases
- HORIZON-EUSPA-2023-SPACE-01-45: Joint test activities for PRS
- HORIZON-EUSPA-2023-SPACE-01-61 - EU GOVSATCOM for a safer and more secure EU

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
3,5	1,5 to 2,5	2	Delegated to EUSPA - IA	7/9	N/A	No

Expected outcomes:

- Stimulate the development, validation and use of commercial downstream solutions based on synergies between the different space programme components Galileo, including its differentiators, EGNOS, Copernicus (if relevant), combined with connectivity/5G and SATCOM and cutting-edge digital technology;
- Foster the development and validation of integrated synergistic space technologies that improve the quality of life in Europe, toward environmentally-friendly and energetically-efficient communities;
- Exploit the increasing digitalisation paradigm and the adaptation of business processes in the post-pandemic environment to create new space-based commercial opportunities improving the prospects of businesses and the life of citizens.

Scope:

1. **Development of downstream commercial applications**, which foster the creation of cities built around its citizens, developed on efficient mobility solutions, environmentally-friendly and energetically-efficient.
2. **Development of downstream solutions based on Galileo, EGNOS and Copernicus** (if relevant), **combined with connectivity/5G and SATCOM and cutting-edge digital technology** to enable more efficient and resilient solutions.

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6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
8	1,5 to 2,5	4	Delegated to EUSPA - IA	7/9	Lump sum	No

Expected outcomes:

- **Broaden the reach of EGNSS**, by supporting its adoption in mature, regulated long lead markets, including rail, maritime inland waterways, fisheries and aquaculture, road and automotive, aviation;
- **Development of industry-accepted certification and standardization schemes that exploit the use of EGNSS** and its differentiators for operational services.

Scope:

1. Closing the related standardization and certification gaps for rail safety critical applications.
2. EGNSS-supported safe and efficient operations in coastal areas, harbour areas and other maritime areas (including for energy production e.g. off-shore wind farms), inland waterways, fisheries and aquaculture.
3. Addressing potential standardization and certification bottlenecks for the use of EGNSS for road and automotive market safety-related applications.
4. Applications for the aviation market that require further consolidation.

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
7	1 to 2	5	Delegated to EUSPA - RIA	2	Lump sum	No

Expected outcomes:

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

Scope: **Projects should address only one area that should be clearly indicated**

1. Applications downstream of the Copernicus Emergency service
2. Applications downstream of the Copernicus Security service
3. Applications downstream of the Marine service
4. Applications downstream of the Copernicus Land service
5. Applications downstream of the Copernicus Climate Change Service
6. Applications downstream of the Copernicus Atmosphere Monitoring Service

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
9	1 to 2	5	Delegated to EUSPA - IA	5/7	Lump sum	Yes

Expected outcomes:

- **Develop the use cases for authorised 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 authorised PRS applications;

Scope:

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

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
3	1,5 to 3	2	Delegated to EUSPA - IA	6/7	Lump sum	Yes

Expected 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.

Scope:

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

Not yet adopted and published – draft information only

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
6	0,8 to 1	7	Delegated to EUSPA - RIA	3/4	Lump sum	Yes

Expected outcomes:

- The **use of EGNSS and sharing of expertise with public and/or private entities** to introduce EU space-based applications/solutions, leveraging their innovative, unique features, in particular Galileo differentiators and European know-how.
- The **use of Copernicus data**, to develop jointly algorithms, services and/or products.
- The **combined use of EGNSS and Copernicus** to develop innovative downstream applications.

Scope: Proposals should target one or more of the three expected outcomes. Proposal can also include the use of other space-based or non-spaced based assets and services, with a preference given to those based in the EU and in the international cooperation partners countries applying to this topic.

Legal entities established in countries that have signed an administrative cooperation arrangement on Copernicus data access and Earth observation data exchange are exceptionally eligible for Union funding.

6 – EGNSS & Copernicus applications + PRS uses + GOVSATCOM uses

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
10	3 to 4	3	Delegated to EUSPA - IA	7/9	N/A	Yes

Expected outcomes:

- Identification, assessment and development of one or more suitable use case in the area of surveillance, crisis management and key infrastructure;
- After identification of technical specifications agreed with the contracting authority, support the development and/or improvement of GOVSATCOM demonstration terminals;
- Stimulate the definition of the validation strategy of the early developed GOVSATCOM services;
- 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);
- Perform extensive in-field activities and a final demonstration aimed at verifying the suitability of the solution,
- Elaborate the definition of the validation strategy and a user engagement plan and gather users' feedback.

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

7 - Quantum

- HORIZON-CL4-2023-SPACE-01-62: Quantum Communication Technologies for space systems
- HORIZON-CL4-2023-SPACE-01-63: Quantum Space Gravimetry Phase-A Study
- HORIZON-CL4-2024-SPACE-01-64: Quantum Space Gravimetry Phase-B study & Technology Maturation

7 - Quantum

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-62: Quantum Communication Technologies for space systems

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
5,00	2,00 to 2,50	2	RIA	5/6	Lump sum	Yes

Expected outcomes:

- Support the EU space policy and the EU initiative to establish the Union Secure Connectivity Programme and foster the development of ultra-secure EU services based on or using space systems
- Ensure the EU sovereignty and non-dependence for the development of capacities leading to the availability of ultra-secure services based on Quantum Key Distribution (QKD).
- Enhance the TRL of the critical components necessary to build QKD space systems and foster the development of the associated QKD standards.

Scope:

The development of the critical components and technologies necessary to build a space quantum key distribution system. The topic covers all the critical hardware and software components necessary for the quantum key distribution function to be implemented via a satellite payload, as well as the corresponding optical ground station. In addition, proposals should address the issue of standardisation for QKD space systems.

7 - Quantum

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-63: Quantum Space Gravimetry Phase-A Study

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
3	1,00 to 1,50	2	RIA	3	Lump sum	Yes

Expected outcomes:

- Support the EU space policy and the EU Green Deal by assessing the feasibility of a quantum space gravimetry pathfinder mission
- Propose a mission, system and operation concept for the Quantum Space Gravimetry pathfinder mission
- Establish the list of critical components for a Quantum Space Gravimetry mission

These outcomes will contribute to securing the EU autonomy of supply for critical technologies and equipment, and foster the EU's space sector competitiveness, in line with the Expected Impact of the destination.

Scope:

The final objective of this call is the selection of a Quantum Space Gravimetry pathfinder mission. To achieve this objective, **two phase-A proposals for a feasibility study, as specified in ECSS-M-ST-10C, will be selected**.

The scope of this topic covers in particular the system and operations concept of the pathfinder mission leading to a technical solution deployable before the end of the decade. A particular attention will be drawn on the analysis of the critical technologies and components necessary to deploy this mission, and proposals shall address the technological maturation necessary to meet this objective, based on EU solutions.

7 - Quantum

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
14,20	~14,00	1	RIA	6/7	N/A	Yes

Expected outcomes :

- Support the EU space policy and the EU Green Deal by assessing the feasibility of a quantum space gravimetry pathfinder mission.
- Ensure 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 Up to two phase-A study proposals will be selected under this call, and their outcomes will contribute to the selection of a Quantum Space Gravimetry pathfinder mission.

Scope: The final objective of this call is to **prepare the next phases of the implementation of a Quantum Space Gravimetry pathfinder mission**. To achieve this objective, **one proposal for a phase B study** (Up to PDR), as specified in ECSS-M-ST-10C, leading to a preliminary definition of a quantum space gravimetry pathfinder mission, will be selected.

This activity will cover both the quantum space gravimetry payload and satellite platform. This activity will also include the implementation measures that will enhance the technological readiness of the critical components.

8 – Space Entrepreneurship

- Support to New Space - CASSINI Business Accelerator
- Support to New Space - CASSINI Hackathons & Mentoring
- Support to New Space - CASSINI myEUspace

8 – Space Entrepreneurship

EU SPACE

❑ Other Actions: CASSINI myEUSpace

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2023 - 1	~1	1	Delegated to EUSPA - Public procurement	N/A	N/A	N/A

- Procurement through an existing FWC for a 2-year specific contract to be signed in Q2 2023.
- The action will start in Q3 2023 and will end in Q3 2025.

Expected Outcomes:

- To stimulate the spur-of-the-moment development of innovative commercial solutions based on data and information coming from Copernicus satellite images and Galileo positioning signals and services.
- To develop prototypes further into viable business propositions.
- To support commercialization and scale up of final products.
- To provide training opportunities on how to access and use data from Copernicus and Galileo with data analytics tools and artificial intelligence.
- To promote the EU's space programmes Copernicus and Galileo to a broader audience.
- The tasks to be outsourced will enable a more efficient implementation of the action by having a contractor to run promotional activities and scouting participants, management of the application platform, preparation of communication material, and organisation of the contest finals.

8 – Space Entrepreneurship

EU SPACE

❑ Other Actions: CASSINI Business Accelerator

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2024 – 8,5	~8,5	1	Delegated to EUSPA - Public procurement	N/A	N/A	No

- Extension of 2 years of an existing contract

Expected Outcomes:

- The aims are to **promote commercial use cases for the EU's space programme and the commercialisation** of the products of New Space companies, by providing qualified business development support. The objective is to increase the number of space-based companies that achieve high revenue growth. This will allow the companies to attract investments and capture new market shares.
- The expected economic benefits include an increase in the number of successful start-ups and scale-ups using space data and space technology, through an increase in sales, market share growth and staff hiring. These outcomes will allow the companies to attract larger amounts of financing through bank loans and equity investments.

8 – Space Entrepreneurship

EU SPACE

❑ Other Actions: CASSINI Hackathons & Mentoring

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
2024 – 4,8	TBD	TBD	Delegated to EUSPA - Public procurement	N/A	N/A	No

Implemented through a call for a 4 year contract (2024-2027)

Expected Outcomes:

- To stimulate the spur-of-the-moment development of innovative applications based on data and information coming from Copernicus satellite images and EGNOS and Galileo positioning signals and services.
- To develop prototypes further into viable business propositions.
- To provide training opportunities on how to access and use data from Copernicus and EGNOS/Galileo with data analytics tools and artificial intelligence.
- To promote the EU's space programmes Copernicus and EGNOS/Galileo to a broader audience.

9 – IOD/IOV Service

EU SPACE

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
(2023 & 2024)	N/A	N/A	Delegated to ESA	N/A	N/A	No

Expected 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.

Scope:

- The IOD/IOV activities intend to provide a regular and cost-effective service and solution for common flight ticket actions (management, 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.

10 – Technological non-dependence

EU SPACE

- HORIZON-CL4-2023-SPACE-01-72: Space technologies for European non-dependence and competitiveness

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
20,00	2,00 o 3,00	7	RIA	5/8	Lump sum	Yes

Expected outcomes:

- To reduce the dependence on critical technologies and capabilities from outside EU for the EU space programme components (i.e. Galileo/EGNOS, Copernicus, Govsatcom and SSA) and other space applications;
- To develop or regain in the mid-term the European capacity to operate independently in space and enhancing competitiveness by developing products/technical capabilities reaching equivalent or superior performance level than critical technologies and capabilities from outside EU;
- To open new competition opportunities for European manufacturers by reducing dependency on export restricted technologies that are of strategic importance to future European space efforts.

Scope :

- **High speed DAC-ADC** based on European Technology
- Space qualified **carbon fibre pre-impregnated material** sources for launcher and satellite subsystems
- Enhanced performance and space qualified **detectors – IR range**
- Mid-power range (up to 5kW) electric propulsion thruster technology: Qualification of **electrical propulsion thrusters and PPUs**
- Mid-power range electric propulsion thruster technology: Development of **new generation of thrusters based on non-dependent propellants** (i.e. not Xe or Kr)
- **Replacement solutions for metallic lead** (Pb)
- High performance, cost effective **multi - junction solar cells** for spa

Not yet adopted and published – draft information only

10 – Technological non-dependence

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
20,10	2,00 to 3,00	7	RIA	5/8	Lump sum	Yes

Expected outcomes:

- To reduce the dependence on critical technologies and capabilities from outside EU for the EU space programme components (i.e. Galileo/EGNOS, Copernicus, Govsatcom and SSA) and other space applications;
- To develop or regain in the mid-term the European capacity to operate independently in space and enhancing competitiveness by developing products/technical capabilities reaching equivalent or superior performance level than critical technologies and capabilities from outside EU;
- To open new competition opportunities for European manufacturers by reducing dependency on export restricted technologies that are of strategic importance to future European space efforts.

Scope :

- Low shock Non-Explosive **Actuators (NEA) for smallsats**
- **High data rate** (12.5 to 28 Gbps or higher 56 Gbps), **low consumption, short range links**
- **Power laser sources** in the eye-safe region
- Enhanced performance and space qualified **detectors – visible range**
- **Ultra Deep Submicron technology** for next generation space integrated circuits: ASICS, FPGA and microprocessors
- **Discrete power devices** (200V normally off GaN)

Not yet adopted and published – draft information only

11 - Space Science

EU SPACE

❑ HORIZON-CL4-2023-SPACE-01-71: Scientific exploitation of space data

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
10,70	1,00 to 1,50	8	RIA	3/4	N/A	No

Expected outcomes:

- Support the data exploitation of European missions and instruments, in conjunction, when relevant, with international missions.
- A higher number of scientific publications based on Europe's space data, high-level data products made available through appropriate archives, and tools and methods developed for the advanced processing of data. Projects are also expected to add value to existing activities on European and international levels, and to enhance and broaden research partnerships.
- Increased collaboration of scientific teams both within and outside Europe across different domains.
- To strengthen European scientific excellence and support the development of leading-edge scientific research in Europe

Scope: Exploitation of all acquired and available data provided by space missions in their operative, post-operative or data exploitation phase ensuring complementarity with activities already supported by ESA or national agencies during development phases.

Projects may rely on data available through Copernicus DIAS (Data and Information Access Services), ESA Space Science Archives when possible or other means (e.g. instrumentation teams). Combination and correlation of this data with international scientific mission data, as well as with relevant data produced by ground-based infrastructures all over the world, is encouraged to further increase the scientific return and to enable new research activities using existing data sets.

These activities shall add scientific value through analysis of the data, leading to scientific publications and higher-level data products, tools and methods. Resulting analyses should help preparing future European and international missions.

International cooperation is encouraged in particular with countries active in space exploration and space science.

12 - SST

- HORIZON-CL4-2024-SSA-SST-MS - New & improved EUSST Missions and Services
- HORIZON-CL4-2024-SSA-SST-AE - SST & STM system architecture and evolutions
- HORIZON-CL4-2024-SSA-SST-SB - Space-based SST (mission, system and sensors network)
- HORIZON-CL4-2024-SSA-SST-SP - SST Sensors and Processing
- HORIZON-CL4-2024-SSA-SST-SD - SST Networking, Security & Data sharing

12 - SST

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
6,00	TBD	TBD	RIA	6/7 TBD	N/A	Yes

Expected 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.

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 EUSST Service Provision Portal in line with the evolution of existing services (CA, RE, FG) and the inclusion of new ones.

This Space Surveillance and Tracking (SST) 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.

Not yet adopted and published – draft information only

12 - SST

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
6,00	TBD	TBD	RIA	6/7 TBD	N/A	Yes

Expected 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.

Scope: R&I activities include:

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

This Space Surveillance and Tracking (SST) 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.

12 - SST

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
10,00	TBD	TBD	RIA	6/7 TBD	N/A	Yes

Expected 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 (SBSS) 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.

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.

This Space Surveillance and Tracking (SST) 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.

12 - SST

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
27,50	TBD	TBD	IA (45%)	6/7 TBD	N/A	Yes

Expected outcomes: Supporting the upgrade and development of on-ground assets, in particular radars and telescopes as well as data processing.

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

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-CL4-2024-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.
- Other, please refer to WP text.

This Space Surveillance and Tracking (SST) 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.

12 - SST

EU SPACE

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

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
7,00	TBD	TBD	RIA	6/7 TBD	N/A	Yes

Expected 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 operations centres 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

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.

This Space Surveillance and Tracking (SST) 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.

13 – SW & NEO

EU SPACE

❑ Space Weather and Near-Earth Objects

Budget - € million	Per project - € million	# of projects	Type of action	TRL by end of project	Financial set-up	Country restriction
5,70	TBD	TBD	Delegated to ESA	TBD	N/A	No

Space Weather:

- Research and innovation activities will deal with "**development of certain technology elements for promising precursor services including development, testing and validation of physics-based space weather models**" and "**exploratory space weather payloads studies**". They shall be complementarity to Space Weather services developed through the Space Situational Awareness component of the EU Space Programme.

Near Earth Objects:

- Research and innovation activities will study "**precursor services / European hot-redundant Minor Planet Centre backup**" and "**Increase networking of national assets**".

Not yet adopted and published – draft information only

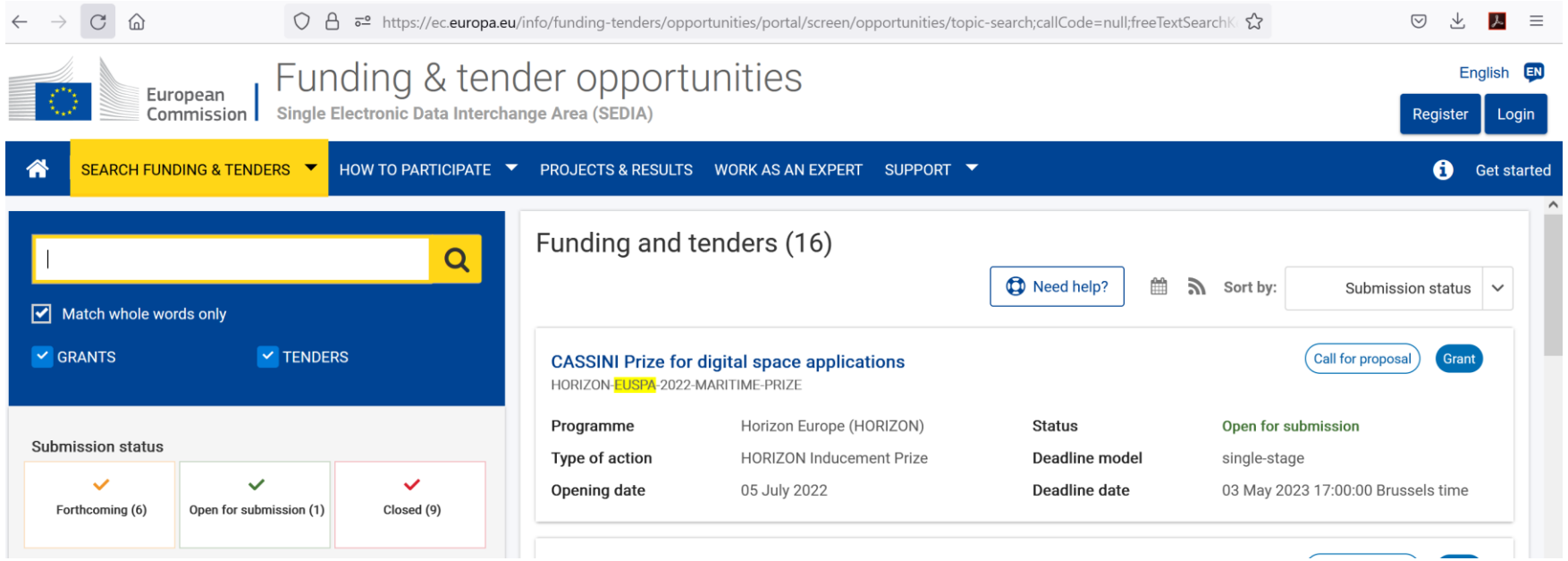
Financing & Application

EU SPACE

❑ Financing:

- Research and Innovation Actions (RIA): 100%
- Innovation Actions (IA): up to 70%
- Coordination and Support Actions (CSA): 100%

❑ Application: EU Funding & Tender Portal



EU SPACE

Information
on Associated Countries

https://research-and-innovation.ec.europa.eu/news/all-research-and-innovation-news/updates-association-third-countries-horizon-europe-2021-12-21_en

EU SPACE

Consultation
for EU-funded Space R&I

The EU is setting up a new consultation framework for developing a comprehensive Strategy for EU Space R&I and invites interested stakeholders to participate

- ✓ Take part in workshops organised on various space R&I domains and cross-cutting activities
- ✓ Provide your insights and perspectives on future focus areas and the way forward

Fill out the survey today!

[Closes 30/11/2022]

EU SPACE

Many thanks for your attention!