EU SPACE

Space R&I

Ad-hoc meeting of the Cluster 4 Programme Committee ‘Space’

12/06/2024

Horizon Europe,
a programme of the
European Union

Agenda

- 13:30-13:40 Introduction
- 13:40-13:55 STEP
- 13:55-14:35 Access to Space
- 14:35-15:15 Space Partnership
- *15:15-15:30 break*
- 15:30-16:30 ISOS
- 16:30-17:00 SST
- 17:00-17:30 Copernicus Services

Introduction

STEP

European Commission

Strategic Technologies for Europe Platform (STEP)

Boosting investment for innovation

STEP Task Force - June 2024

https://strategic-technologies.europa.eu

STEP
Challenges for EU industry and economy

What is at stake

- **Competitiveness** and **resilience**
- **Global race** for critical technologies
- **Investment needs** for transition
- **Private capital** not at scale
- Outward forces in the **Single Market**
- Constraints on **EU budget**
- Need for a **European response**

Industry feedback

- Fragmented/complex **offer of EU funding,** need for clear **timelines** and **success rates**
- Lack of **advisory** and **Support Services, mentorship programmes**
- Need for **user-friendly** portal
- Added-value **Seal**: helping securing financing

STEP
In a nutshell

- **Not a new fund:** pooling funding from 11 EU existing programmes, with a top-up of €1.5bn
- **Efficient:** use of existing networks/ processes
- **Articulation** direct/indirect/shared managed funds
- **Connecting with implementing partners** (EIB, EIF, NPBIs)
- **A service-oriented team** to support STEP sectors
- **User-centric portal**
- **In line with a new Competitiveness Deal**
- **Regulation entered into force on 1 March 2024**

STEP Scope*

STEP OBJECTIVES

Supporting the **development or manufacturing** of critical technologies or safeguarding and strengthening their respective **value chains**

Addressing shortages of **labour and skills**

STEP CONDITIONS

Bring an **innovative**, cutting-edge element with significant economic potential to the Single Market

OR

Contribute to **reduce or prevent strategic dependencies** of the Union

STEP SECTORS

(indicative & non-exhaustive) EXAMPLES

Digital and deep tech innovation → Artificial intelligence, quantum technologies, advanced connectivity

NZIA

Clean and resource efficient tech → Carbon capture and storage technologies, heat pumps

Bio tech → Molecular biotechnology, pharmaceuticals, crop biotechnology

CRMA

NZIA: Net-Zero industry Act
CRMA: Critical Raw Materials Act

***STEP Guidance note published on 13 May 2024**

STEP
Tools

Reprogramming
of EU funding with dedicated calls for STEP sectors.

STEP Seal
Label for high-quality STEP projects supporting them to access funding.

STEP Portal
that consolidates all funding opportunities for STEP sectors financed by the EU.

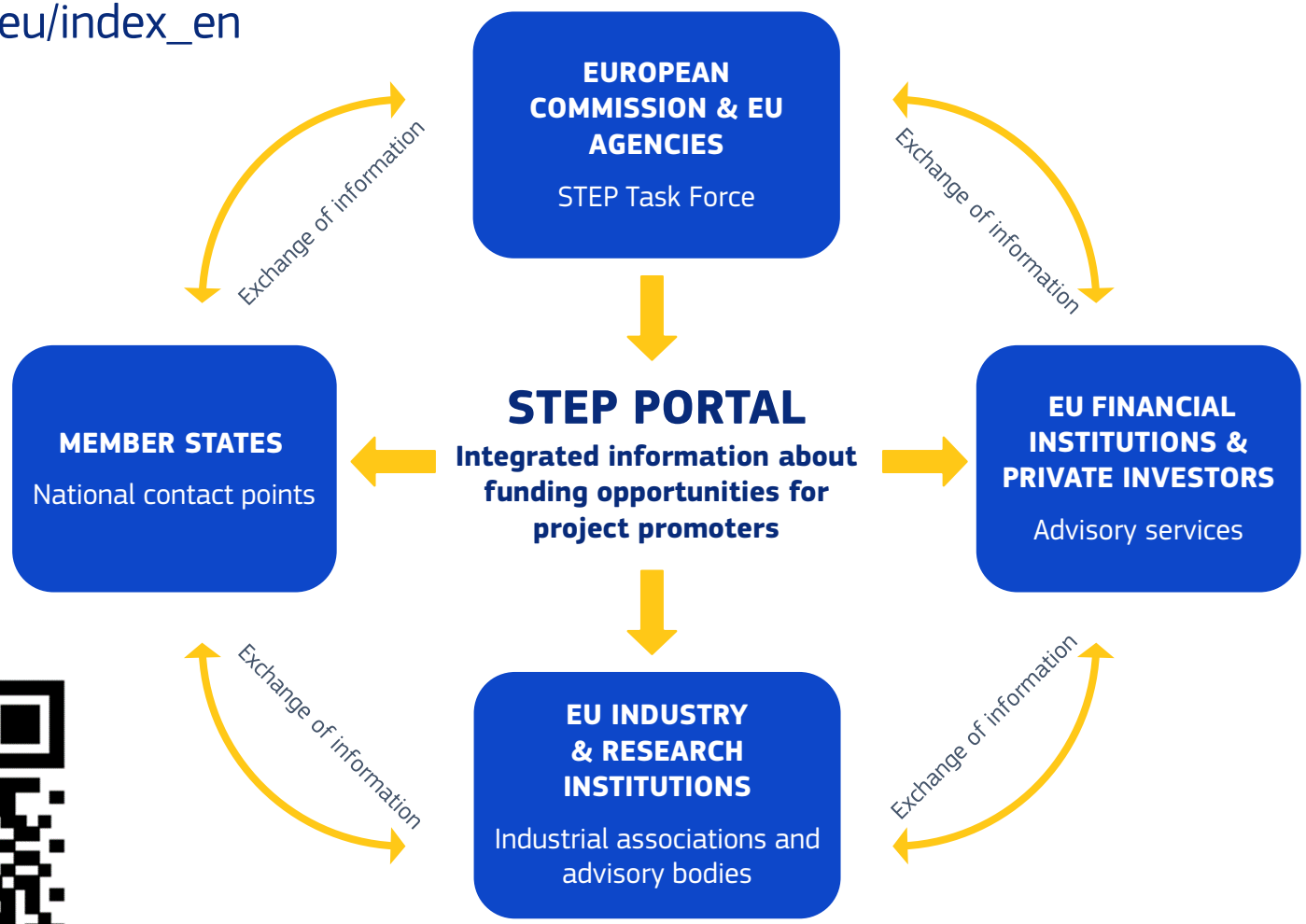
One-Stop Shop
The single-entry point for any contact/question on STEP for industry and managing authorities.

STEP

Portal for stakeholders

https://strategic-technologies.europa.eu/index_en

MAKING ACCESS TO EU FUNDING EASIER



European Commission

STEP
EU programmes supporting STEP

5 PROGRAMMES MANAGED IN DIRECT MANAGEMENT (1)

Horizon Europe	EU4 Health
Innovation Fund	European Defence Fund
Digital Europe Prog.	

Award of STEP Seal

PROJECTS' **FAST TRACK** TO OTHER FUNDING

6 OTHER PROGRAMMES (2)

European Regional Development Fund	Cohesion Fund
European Social Fund +	Just Transition Fund
Recovery & Resilience Facility (3)	InvestEU (4)

(1) Direct management: EU funding is managed directly by the Commission; shared management: the European Commission and national authorities jointly manage the funding; indirect management: funding is managed by partner organisations or other authorities inside or outside the EU

(2) Network of national contact points to oversee the implementation of STEP in each Member State – list to be displayed

(3) Performance based programme managed by the European Commission and implemented by the Member States

(4) Implemented through the EIB group & other implementing partners

STEP
The STEP Seal 1/2

PROGRAMMES CONCERNED

- **Digital Europe Programme**
- **European Defence Fund**
- **EU4Health**
- **Horizon Europe**
- **Innovation Fund**

CONDITIONS FOR ATTRIBUTION

Project complying with the minimum quality requirements

+

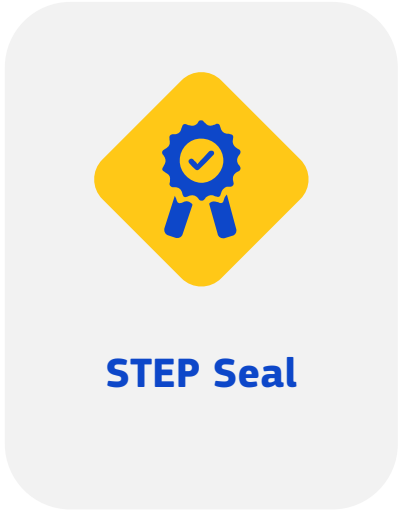
Contributing to STEP objectives

=

PUBLICATION ON STEP PORTAL

Award of STEP Seal

STEP
The STEP Seal 2/2

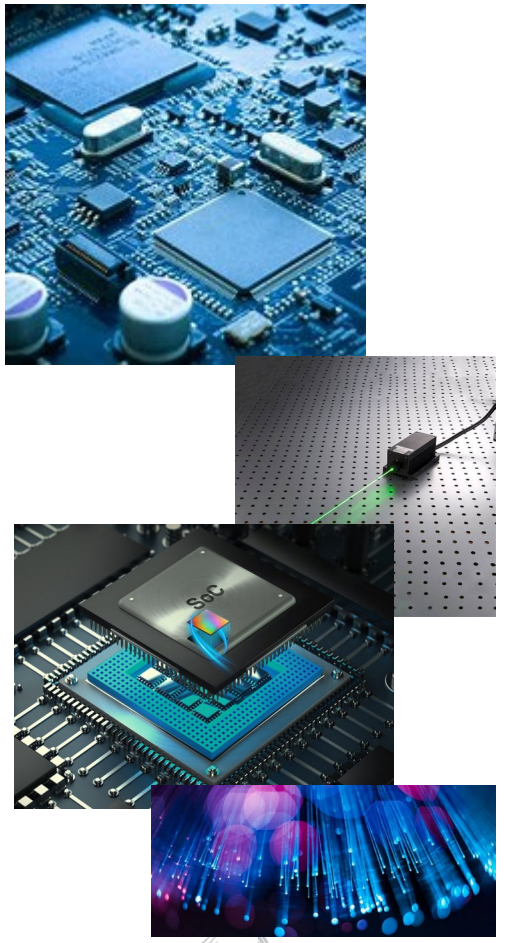


BENEFITS PER PROGRAMME

Cohesion policy funds (ERDF, CF, ESF+, JTF)	Possibility for Managing Authority to fast-track project and grant combined support
Recovery and Resilience Facility (RRF)	Project to be considered as a priority for funding under national Recovery and Resilience Plans
Modernisation Fund	Project may be considered as a priority for funding
InvestEU	To be taken into account by Commission in its 'policy check', and project to be examined by implementing partners
Other Union funds or programmes	Project could be granted (combined) support

Space technologies for European non-dependence and competitiveness (HE WP 2023-2024 - Cluster 4 – Destination 5)

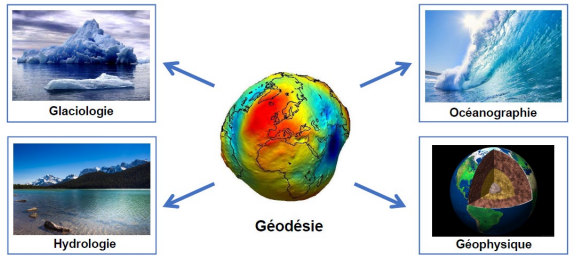
- **Objective:** **reduce strategic dependencies** from outside EU for the EU space programme components and other space applications;
- **Scope:** 7 technologies in the fields of **semiconductors, laser and photonics**
- **7 projects** (one per technology) expected to be funded (Budget 20,1 M€)
- **Timeline:** Call closed 21st March 2024 – **evaluation results end-June 2024**
- **Pilot call** to test the impact of granting the **STEP seal** to **collaborative projects** to facilitate access to funds from other funding instruments (e.g. Cohesion Policy Funds, RRF)
- Building potential synergies with other sectors (e.g. Semiconductors under Chips Act) for the manufacturing part

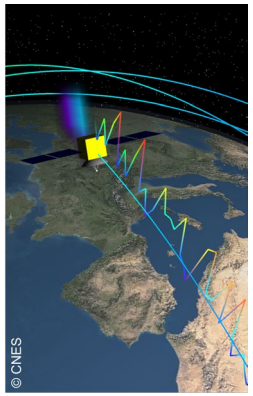


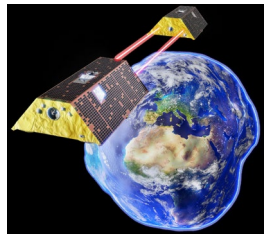
European Commission

Quantum Space Gravimetry (HE WP 2023-2024 - Cluster 4 – Destination 5)

- **Objective:** Ensure **EU sovereignty** and **non-dependence** for the development of capacities leading to the availability of **Quantum Space Gravimetry (QSG) in the field of Earth Observation**
- **Scope:** Preliminary Design Review for quantum space gravimetry (QSG) payload and satellite platform to prepare a **pathfinder mission (prototype) for Earth Observation**
- **1 project** expected to be funded (budget 14 M€)
- **Timeline:** Call closed 21st March 2024 – **evaluation results end-June 2024**
- **Pilot call** to test the impact of granting the **STEP seal** to **collaborative projects** to facilitate access to funds from other funding instruments (e.g. Cohesion Policy Funds, RRF).







European Commission

Thank you

Contact us at EC-STEP-INFO@ec.europa.eu

More info on STEP: strategic-technologies.europa.eu

European Commission

Access to Space

Access to Space
Vision for EU autonomous access to space

- **Support EU independent access to Space via actions building on the three pillars set in the EU Space Programme:**

  1. Aggregating European institutional demand;
  2. Boosting game-changing innovations for access to space;
  3. Support to critical ground infrastructure.

- **Until 2027**: seed-actions…

…that will prepare the ground for a **fully-fledged access to space component** in the next EU space programme (**next MFF**)

Access to Space
Roadmap and actions - 2024

- **Workshops with MS experts on the 3 pillars of the Vision**
  - 5 February on aggregation
  - 19 March on aggregation and Game-Changing innovation
  - 15 may on Game-Changing innovation
  - TBC 08 July (online) on Critical Infrastructure
- **EP Pilot Projects / Preparatory Action - Publications of Tenders by end 2024:**
  - **Pilot Project 'Vision on European Autonomous & Resilient Access to Space'** – call for studies on implementation of access to space vision.
  - **Preparatory Action on Game-Changing Innovations for European Launch Solutions** – contest for the award of up to 5 prizes.
  - **Pilot Project 'Mobile Responsive Launch Systems'** – call for a study to map security/ defence demand & requirements.

Access to Space
Roadmap and actions - 2024

- **Flight Ticket Initiative implementation.**
  - **Frame Contract signed with the following launch service providers:**
    - Arianespace (FR)
    - Isar Aerospace (DE)
    - Rocket Factory Augsburg (DE)
    - PLD Space (ES)
    - Orbital Express (UK)
  - **Work Orders under negotiation:**
    - 9 work orders for launch services with three launch service providers
    - 1 work order for spacecraft accommodation study with one launch service provider
  - **New needs:**
    - Analysis of the applications following the IOD/IOV May cut-off date
    - Next cut-off date on 2 September 2024

Access to Space
HE WP 2025

- **HORIZON-CL4-SPACE-2025-01-11 CSA to support interoperability of access to space launch facilities in Europe.**
  - EU Budget : € 1million grant – Max 1 project
  - Expected Outcome:
    - Facilitate access to European spaceports and increase their attractiveness for European launch systems through common regulatory practices, standards and guidelines.
  - Scope:
    - Assessing best practices, standards and guidelines for launch operations from European spaceports, taking into account experiences from worldwide existing spaceports.
    - Proposing a set of common regulatory practices and guidelines for European Spaceports and evaluating their impact on the launch operations.
    - Involving European stakeholders participating in the development of safety equipment with the aim to strengthen the spaceports interoperability with their technological solutions.
  - Eligibility:
    - Legal entities established in EU Member States and Associated Countries

Access to Space
HE WP 2025 – Partnership call topics

- **Digital solutions for autonomy for space transportation systems, design and simulation tools - Digital enablers and building blocks**

- **HORIZON-CL4-SPACE-2025-01-12**
  - EU Budget : €3million – Max 3 projects
  - Expected Outcome:
    - Focus on **eco-design** and the maturation of disruptive technologies related to digitalisation.
    - Activities are expected to achieve TRL 4-5
  - Scope: the following R&I must be addressed:
    - the maturation of eco-design software tools enhancing reconfigurability in orbit
    - the maturation of disruptive/game changing technologies related to digitalisation
  - Eligibility:
    - Legal entities established in EU Member States and Associated Countries

Access to Space
HE WP 2025 - Partnership call topics

- **Digital solutions for autonomy for space transportation systems, design and simulation tools - Digital enablers and building blocks**

- **HORIZON-CL4-SPACE-2025-01-13**
  - EU Budget : €7million – Max 2 projects
  - Expected Outcome:
    - Focus on **Structural Health monitoring elements** to prevent failures : remote detection of structural damages and thermo-mechanical monitoring.
    - Activities are expected to achieve TRL 7-8
  - Scope: the following R&I must be addressed:
    - R&I on advanced technologies and digital sensors for new space transportation, such as smart avionics with modularity and reusability drivers, health monitoring system and smart sensors, and structural health monitoring addressing thermo-mechanical monitoring and damage detection, ground and flight software for data management even by use of IA-algorithms.
    - The developments should aim at on-ground or in-orbit demonstration focusing on software and digital tools.
  - Eligibility:
    - Legal entities established in EU Member States and Associated Countries

Access to Space
EU launch service contest – phased approach

HE WP 2025:

- **Prize for launch service provider able to respond to EU launch service requirements and offer launch services as of 2028.**
  - EU Budget : €10million – max 3 winners
  - Challenge: to develop an innovative, cost-effective and commercially viable solution to launch satellites of the EU space programmes.
  - Eligibility: Article 22.5 application – participation limited to legal entities established in EU Member States

HE WP 2026:

- **Grants to support launch system test and/or Launch facilities (Vouchers)**
  - EU Budget : ~€20million – 1 winner

2027:

- **Launch service procurements (by EU space programmes).**

Complementarity and coherence with ESA "European Launch Challenge" TBD

Space Partnership

State of Play

- **SPACE aisbl** officially established
- **Governing SPACE aisbl Board meeting** on 13th June
- **Coordination with DG RTD on a signature date**
- **CSA grant agreement** signature will follow the MoU signature
- **Governing Space Partnership Board Meeting** marks the **official starting point of the Space Partnership's operational phase**

2nd Meeting of the States Representatives Group (SRG)

- **2nd SRG meeting took place on 10th June**
  - Partners proposed slight updates of Partnership topics considering Member States' comments
  - Additional comments and requests for clarifications were directly addressed during the meeting, including relevant to membership possibilities and communication channels
  - Partners presented estimate of related leverage brought through additional activities and HE actions

➢ Answers to related MS comments will be circulated within batch of all comments on HE CL4 Dest5

➢ Updates in the call text will be done based on what has been reviewed in the SRG context and discussed in the SRG meeting.

break

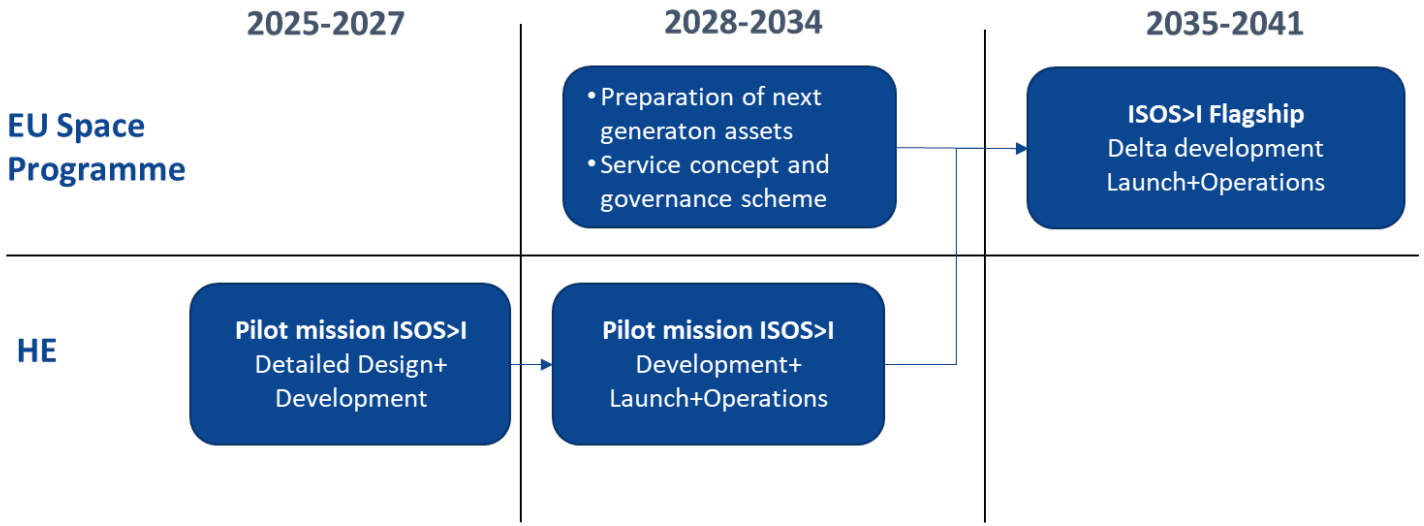
ISOS

Why Act in Space/ISOS?

1. **Geopolitical tensions make risks for our infrastructure real**
   - *MONITOR Space* capacity is not sufficient, *ACT in Space* capacity is also required
2. **Case of malfunction/defect of an asset**
   - *No services for rescue/repair*
   - *No services for active space debris removal*
3. **No sustainability and flexibility of the infrastructure**
   - *No repair, upgrade, payload exchange, reconfiguration or re-use of older assets*
   - *No life/mission extension or adaptivity possible*
4. **New in-space economy - international competition**
   - *EU technologies and services must be developed and demonstrated in space to promote EU competences and to be at the forefront of the market generation*
   - *Chances to set standards for ISOS*
   - *Other space fairing nations prepare next generation satellites for ISOS already*

Parallel actions

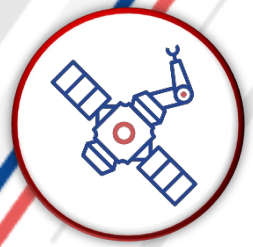
- **ISOS Pilot mission**
  - Making best use of EU-funding to accelerate time to mission and capacity deployment
- **R&I & Entrepreneurship**
  - Further technology and business development
- **EUSL and Standardisation**
  - Forward-looking consideration of ISOS in EUSL
  - Enhance international dialogue on guidelines and work on standards for ISOS
- **Next Space Regulation: preparations for ISOS**
  - Prepare next gen of EU Space assets for in-space services
  - Towards the ISOS>I flagship: develop service concept for EU flagships and governance scheme



ISOS Pilot Mission

- **Deploy pilot mission by 2030** to demonstrate key technologies and services
- Envisaged pilot mission aims at **operations and services for EU and Member States' assets such as inspection, maintenance, life extension, upgrade, or relocation in space** as well as for **extended IOD/V services**
- **Extendable and scalable mission concept** composed of four components: **SERVICING, HOST, LOGISTIC, satAPPS**
- **Member States with their stakeholders can jointly contribute to the mission**
- **Pilot mission**
  - builds on **previous R&I efforts and expertise from stakeholders**
  - fosters **maturation of key enabling technologies** required for in-space operations and services
  - has an operational **mission concept** with a concrete view to **commercial and governmental usage**
  - offers **manifold opportunities** for public and private EU actors incl. **NewSpace**
  - considers **dual-use potential** by offering concrete possible synergetic actions between EU programmes

Joining forces - towards a joint declaration between EU and interested Member States



- **Proposal: preparation of a joint declaration between European Commission and interested* MS to jointly contribute and demonstrate the ISOS>I pilot mission within next MFF**
  - Signaling our political ambition
  - Boosting the development of European sovereign solutions
  - Onboarding new space sector and considering governmental use cases
  - Inducing collaborative effort for implementing and demonstrating the pilot within the next MFF
- **The declaration represents an opportunity to identify concrete synergetic actions between EU and national programmes**

* EU Member States + Norway/Iceland that are actively collaborating and contributing to the pilot mission, either with additional in-kind contributions and/or direct financial support

Close collaboration between EU and interested Member States as of now: the ISOS Pilot Advisory Group

- **Objective**
  - Define high-level requirements for the ISOS pilot mission
  - Support coordination with stakeholders
  - Prepare the ground for a strategic flagship later building on CSA results

- **Membership**
  - 2 representatives per interested* MS
  - **Invitation to nominate up to 2 representatives by 28 June**
  - New Mailbox for the topic: DEFIS-B2-IN-SPACE-SERVICES@ec.europa.eu

- **Timeline**
  - **Advisory Group Kick-off meeting 3 July 2024**
  - Further meetings September-December 2024
    - Consolidation of the ISOS Pilot Mission High-Level-Requirements (annex to 2025 WP) starting from draft elements provided by the Commission
    - Possibility for targeted stakeholder consultation

* EU Member States + Norway/Iceland that are willing to actively collaborate and contribute to the pilot mission, either with additional in-kind contributions and/or direct financial support

WP2025 ISOS topics - Structure

Identified Beneficiary Action
ISOS Pilot Mission – Implementation and Coordination

- Industry-led consortium
- Composed of coordinators of mission components and others

HORIZON-CL4-SPACE-2025-01-21
ISOS Pilot Mission Detailed Design – Servicing component

HORIZON-CL4-SPACE-2025-01-22
ISOS Pilot Mission Detailed Design – HOST component

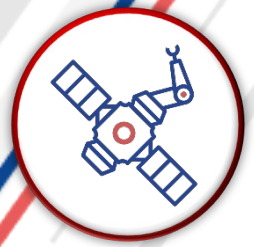
HORIZON-CL4-SPACE-2025-01-23
ISOS Pilot Mission Detailed Design – Logistic component

HORIZON-CL4-SPACE-2025-01-24
ISOS Pilot Mission Detailed Design – satAPPS component

Technical Annex to the call for the ISOS Pilot Mission

Advisory Board

Identified Beneficiary Action - CSA
ISOS Pilot Mission – Implementation and Coordination



Eligibility:

- Coordinators and selected beneficiaries of projects under -21,22,23,24

Expected Outcome

- Coordination of the implementation of the components identified in topics HORIZON-CL4-SPACE-2025
- Elaboration of the ISOS Pilot mission detailed architecture (based on Technical Annex)
- Support to the elaboration of key standards for future institutional and commercial missions

Scope

- Overall coordination of ISOS pilot mission preparation up to detailed design and elaboration of a detailed system architecture in close cooperation with the mission components and advisory group;
- Ensure compatibility between mission components/conflict resolution regime;
- Prepare implementation, deployment, funding plans and governance for the ISOS>I pilot mission;
- Dissemination and Communication activities on ISOS>I pilot mission;
- Create pilot mission evolution plan towards a flagship for commercial and governmental services, including elaboration of use cases for the servicing of EU Space Programme assets;
- Pilot Mission and Future Space Ecosystem Plug-in Specification.

WP2025 ISOS topics - Main MS comments

First responses

- **Mission architecture and HLR definition**
  - Advisory Group
- **Need for coordination mechanism among 4 components**
  - CSA (IBA WP2025) and Advisory Group
- **Openness and building on MS capacities for servicing component**
  - Aim for 2 projects for the servicing component, demonstrating complementarity and R&D maturation
- **Need to secure an early IOD by 2028 together with interested MS**
  - To be discussed with interested MS
- **Standardisation clarifications**
  - Projects (RIA+CSA) will contribute to standardisation activities
  - Important is an agreement on the interfaces between the mission components → Advisory Group and Technical Annex

SST

SST HE WP 2025 – Vision

- **EU industry and start-ups shall adapt to and benefit from new SST market opportunities appearing in a rapidly changing environment in and beyond Europe**

- **Consolidate European commercial SST capabilities**

- **Further develop SST capabilities by leveraging complementary contributions from European private and commercial initiatives.**

- To that end, **R&D activities shall be oriented towards the strengthening of the competitiveness of the Union space industry, including start-ups,** by increasing its capacity in designing, building, and operating its own SST systems

SST HE WP 2025 – Expected outcomes

- Prepare EU industry and start-ups to **capture global SST markets by proposing innovative and competitive services and cutting-edge detection capabilities.**

- Develop and/or improve existing commercially available assets and SST-related technologies **fostering competition and market development.**

- Reinforce European **strategic autonomy and resilience** in the SST domain by **leveraging commercial capacities while enhancing EU SST operational effectiveness.**

SST HE WP 2025 – MS Comments 1/4

- **Rationale supporting the scope of calls**
  - SST HE WP25 objective is to **prepare (low TRL) EU industry and start-ups** to be at the edge of detection capabilities and to propose innovative services **to compete worldwide** in commercial markets **while contributing to reinforce European strategic autonomy and resilience**
    - **Scheduling of industry sensors** contributing to EU SST will be managed by EU SST, nevertheless, to respond to private clients needs a given company might need to optimize the scheduling and tasking of its own network. Wording has been modify to clarify this point.
    - Resulting **commercial services will go beyond public services** delivered by EU SST. Nevertheless, EU SST could be in a position of acquiring, occasionally or regularly, some services developed by commercial entities. Wording has been modify to clarify this point.
    - On "Expansion or improvement of EU **industry proprietary space objects catalogue**": currently private companies around the world are assembling or upgrading their own catalogue based on (or independently from) public available ones. It is understood that **private catalogues are key assets for industry to deliver added-value services**. Selected industrial projects will have to demonstrate that the R&D HE support is employed to considerably improve proprietary catalogues.

SST HE WP 2025 – MS Comments 2/4

- **Grant Agreements set-up**
  - As for the past SST HE grants, both **WP25 grants will be awarded without competition**; the MS Constituting National Entities (CNE) creating the **EU SST Partnership are identified as beneficiaries**. Financial Support to Third Parties **(FSTP), also known as cascading grants, will be implemented through competitive calls for proposals** issued by CNEs.
  - Since the actual amounts of the FSTPs to be established in the grant will not be known in advance, **cost reimbursement model** (and not lump sum) will be used. It is then proposed to pursue the classical approach (i.e. Identified Beneficiary Action) for the SST grants.

SST HE WP 2025 – MS Comments 3/4

- **EU funding rates disparity on sensors**
  - The **different levels of EU financial support** of the **SST sensors** grants are subject to the **TRL level**.
  - **Space Regulation Grant** supports up to **45% the development of commercial sensors**. Industrial projects under these cascading grants **must reach TRL 9** by the end of the cascading grants
  - Likewise, **HE WP21-22 & WP23-24 grants** “SST Sensors and Processing” (Top4), contributing to ensure full and optimal capacity of EU SST Partnership’s **patrimonial assets** have EU **funding rate of 45%**. Developments under these HE actions **must reach TRL 9.** There's a continuity between the 2 WP Top4 grants
  - **HE WP25** will aim at supporting European industry **on novel sensor concepts and associated state-of-the-art technologies,** starting at least at TRL 2 and reaching at least TRL 5 by the end of the project. HE WP25 first objective is to prepare EU industry to be at the edge of detection capabilities to compete worldwide in commercial markets.
  - Considering the **riskier developments due to lower technological maturity** it is proposed to increase the HE WP25 financial support on the sensors call to **up to 70%**

SST HE WP 2025 – MS Comments 4/4

- Creating a holistic **European Space Weather (SWE) service** building on existing European assets and service systems
  - The SWE Service is **funded by the Space Programme** (and therefore mentioned in that WP) ; its development follows a specific process described in Article 60 of the Space Regulation, which will be instantiated by means of an implementing act.
  - As far as SWE R&D concerns, budget has already been committed in previous WP, and additional call for proposals are forseen in the short, mid-term.

- **Opening HE WP2025 calls to EFTA countries**
  - As per **Article 7 of the Space Regulation EFTA are excluded** from all activities related to the **SST sub component.**
  - HE WP25 actions target the development of new commercial sensors and services which **by extension will also benefit EU SST performance**.

Copernicus Services

Copernicus Services Evolution

- Build on progress achieved under WP21-22 and WP23-24
- Continue implementing the roadmap as agreed with MS
- Take into account recommendations from new Earth observation SRIA
- WP25 will focus on innovation and further enhancing the services:
  - Initial roadmap: Uptake of Sentinels and other satellites in future reanalyses, soil-vegetation-atmosphere modelling and wildfire risk forecasting and emissions, ocean data assimilation and ensemble prediction and synergies with digital twin ocean
  - New topic: support the digital transition to pave the way into Copernicus 3.0: AI/ML for automation, on-demand products, user interactivity, skill improvements, decision-making, etc
  - New topic: maritime litter detection and ship source pollution policies (funded by CL5)

Copernicus Services Evolution: topics

1. **[HORIZON-CL4-SPACE-2025-01-41]** Copernicus Climate Change Service (C3S): new and innovative processing and methods for future Sentinels and other satellites for reanalyses
2. **[HORIZON-CL4-SPACE-2025-01-42]** Copernicus Atmosphere Monitoring Service (CAMS): improved soil-vegetation-atmosphere modelling, data assimilation of volatile organic compounds, pollen emissions
3. **[HORIZON-CL4-SPACE-2025-01-43]** Copernicus Anthropogenic CO_2 Emissions Monitoring & Verification Support (CO2MVS) capacity: new and innovative methods to estimate the impact of fires on vegetation and related carbon fluxes
4. **[HORIZON-CL4-SPACE-2025-01-44]** Copernicus Marine Environment Monitoring Service (CMEMS): new and innovative ocean data assimilation and ensemble techniques and synergies with the Digital Twin Ocean
5. **[HORIZON-CL4-SPACE-2025-01-45]** Supporting the AI/ML (Artificial Intelligence/Machine Learning) digital transition of Copernicus Services across the value chain
6. **[HORIZON-CL4-SPACE-2025-01-46]** Innovative Earth observation services in support of maritime litter detection and ship source pollution policies

Copernicus: general considerations on WP25

- Budget: balance between topics is made across entire roadmap, not by WPs. It seems there is no margin for increase
- No CLMS specific call: see WP2024, initial roadmap and SRIA priorities
- Need for synergies and cooperation with Digital Europe and Destination Earth emphasized where applicable
- Reference measurements and cal/val: part of Copernicus ground segment activities but no specifics under WP25
- Added where relevant: emphasis on Copernicus Expansion and Next Generation
- Not added: specifics on certain missions, as it is up to proposers to deal with the ‘how’
- Single proposals: because of TRL level and limited budget, yet competition is fully open
- Demonstrations: to avoid science-only proposals, encourage exploitation and value-chain thinking, and address Court of Auditors remarks

Remarks: C3S-41

- Added: ‘Land’ under scope with ‘atmosphere, ocean and cryosphere’
- Added: ref to Copernicus Expansion and NG missions
- Reanalysis back extension to 1900’s: currently being explored, a precondition is to rescue more in-in-situ and EO data (this topic)
- Space agencies is general: includes ESA by definition

Remarks: CAMS-42

- The wording ‘atmospheric constituents’ is quite general and covers all air pollutants

Remarks: CO2 MVS-43

- Added: coordination across EEs emphasized
- Added: fires’ impact on air quality (beyond the emission focus)

Remarks: CMEMS-44

- Added: contribution to GEO Blue Planet
- Added: explicit reference to Copernicus Expansion and NG missions
- Added: synergies with Destination Earth

Remarks: AI/ML-45

- All subtopics were identified in the SRIA, all considered urgent by the implementing entities
- Added: need for coordination with Destination Earth
- Explainable and transparent AI: part of the scope (applies to all sub-topics)
- Single project: to maximize exchange of knowledge and benefits across service areas. Splitting across smaller projects would not ensure most/all subtopics are covered collectively

Remarks: Marine pollution-46

- Scope goes beyond litter (in the title): oil spills, sewage, garbage, emissions, other pollutants
- Added: increase confidence level, false alarms
- Added: Consideration on transfer to operations and coordination with EMSA
- Sensing methods: up to the proposers (can include drones, etc)

Remarks: [HORIZON-CL4-SPACE-2025-01-51] Downstream (EGNSS/Copernicus)

- Added: encourage, where relevant, interaction with Entrusted Entities
- Added: emphasize assessment of applicable framework
- Added: reference to DestinE

Remarks: [HORIZON-CL4-SPACE-2025-01-52] Downstream (EGNSS/Copernicus)

- Added: encourage, where relevant, interaction with Copernicus Entrusted Entities for Emergency and Security services


Thank you for your attention and participation!
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