Proposal Evaluation Form

EUROPEAN COMMISSION

Horizon Europe (HORIZON)

Evaluation Summary Report - Research and innovation actions

Call: HORIZON-SESAR-2025-DES-IR-02

Type of action: HORIZON-JU-RIA

Proposal number: 101288550

Proposal acronym: SCAN

Duration (months): 36

Proposal title: SCAN: Reviewing, Adapting and Developing CNS Infrastructure and Services to Ensure the Safe Integration of HAO And STO Vehicles

Activity: IR-02-WA3-2

N.	Proposer name	Country	Total eligible costs	%	Grant Requested	%
1	EUROCONTROL - EUROPEAN ORGANISATION FOR THE SAFETY OF AIR NAVIGATION	BE	0	0.00%	0	0.00%
2	DFS DEUTSCHE FLUGSICHERUNG GMBH	DE	137,681.25	1.42%	137,681.25	1.42%
3	LUFTFARTSVERKET	SE	254,709.88	2.63%	254,709.88	2.63%
4	EUROPEAN SATELLITE SERVICES PROVIDER SAS	FR	95,988.2	0.99%	95,988.2	0.99%
5	NATS (EN ROUTE) PUBLIC LIMITED COMPANY	UK	56,147.79	0.58%	56,147.79	0.58%
6	DIRECTION DES SERVICES DE LA NAVIGATION AERIENNE	FR	182,656.25	1.89%	182,656.25	1.89%
7	SkyNav Europe	BE	561,397.73	5.80%	561,397.73	5.80%
8	ECOLE NATIONALE DE L AVIATION CIVILE	FR	124,162.5	1.28%	124,162.5	1.28%
9	LINKOPINGS UNIVERSITET	SE	99,225	1.02%	99,225	1.02%
10	C.I.R.A. CENTRO ITALIANO RICERCHE AEROSPAZIALI SCPA	IT	178,190.46	1.84%	178,190.46	1.84%
11	SCEYE SPAIN S.L.	ES	3,586,975	37.03%	3,586,975	37.03%
12	SKYDWELLER CANARIAS SL	ES	1,339,800	13.83%	1,339,800	13.83%
13	SKYDWELLER SL	ES	0	0.00%	0	0.00%
14	PARQUE TECNOLOGICO DE FUERTEVENTURASA MP	ES	164,281.25	1.70%	164,281.25	1.70%
15	Elson Space España S.L.	ES	911,562.75	9.41%	911,562.75	9.41%
16	DEUTSCHES ZENTRUM FUR LUFT - UND RAUMFAHRT EV	DE	687,225.88	7.09%	687,225.88	7.09%
17	PILDO CONSULTING SL	ES	233,187.5	2.41%	233,187.5	2.41%
18	ENAIRE	ES	322,866.25	3.33%	322,866.25	3.33%
19	OpenUTM Ltd.	IE	81,279.63	0.84%	81,279.63	0.84%
20	ANRA TECHNOLOGIES UK LTD	UK	193,909.63	2.00%	193,909.63	2.00%
21	SKYPUZZLER APS	DK	475,343.75	4.91%	475,343.75	4.91%
22	HAPS Alliance	US	0	0.00%	0	0.00%
	Total:		9,686,590.7		9,686,590.7	

Abstract:

In the context of integrating Space and Higher Altitude Operations in European ATM, there is a need to evaluate and mitigate the potential performance gap between current CNS and HAO specific requirements. Moreover, it has been established that altimetry solutions based on barometric measurements are not reliable for safe operations above FL 600. It is therefore needed to identify non-barometric altimetry solutions compatible with HAO.

SCAN will build on the outcome of CNS infrastructure studies and flight trials currently ongoing in the ECHO2 project and will move forward with the ambition to:
a. Propose a set of feasible technical components and services to serve the CNS needs for diverse vehicles operating in the higher airspace within Europe and beyond;
b. Engage with airspace users (conventional aviation and HAO operators), ANSPs, industry and aviation authorities to align expectations on benefits and operational acceptability of the proposed CNS solutions or new paradigms for air traffic management.
c. Support a clear path forward for future CNS developments, including standardisation and regulatory framework evolution to support the European pioneer initiatives on HAO.

Evaluation Summary Report

Evaluation Result

Total score: 14.76 (Threshold: 10)

Criterion 1 - Excellence - weight 40%

Score: **4.90** (Threshold: 3 / 5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:
- Clarity and pertinence of the project's objectives: degree to which the objectives and scope are compliant with the call material, well understood and fully addressed.
- Soundness of the proposed methodology for developing the SESAR solutions from their initial to their target maturity level, including the underlying concepts, models, assumptions and interdisciplinary approaches. This criterion also includes appropriate consideration of the integration of a gender dimension into R&I content and the quality of open science practices, including sharing and management of research outputs and engagement of citizens, civil society and end users where appropriate.
- Level of awareness of the state of the art: degree to which the proposal demonstrates knowledge of current operations and relevant previous R&D work (both within and outside SESAR), explains how the proposed work will go beyond the state of the art and demonstrates breakthrough innovation potential.

Proposal's objectives are in scope of the call addressing R&I needs for IR-3-01 CNSaaS specific to HAO and IR-3-09 CNS for more robust ATM system.

The proposal is delivering one Solution "CNS means to serve HAO" with several clearly stated objectives around the CNS for Higher Airspace Operations (HAO) including technological, financial, operational and regulatory and standardization goals, including flight trails of HAPs and a rocket launch, which is line with the Call specification. The objectives are very clear and pertinent to the work program and the Call specification. The high level objective to identify the best CNS means to serve HAO is highly relevant.

The proposal starts with TRL 2 and aims to reach TRL 6, in line with the call conditions. The proposal intends to complete TRL 6 based on validation in operational environments with flights of different vehicles, which is adequate.

The objective to use the geometric altimetry in the higher airspace to deal with current limitations of barometric altimetry due to very low air density is relevant.

The combination of flight trials to collect CNS performance data in higher airspace, with a gap analysis and feasibility study of new CNS technologies is useful.

The methods used are straight forward and use mainly using legacy CNS technologies to be tested in HAO. A big number of technologies will be assessed using different platforms, which is a plus.

The focus on quantitative assessment of key performance indicators (KPIs) using flight trials (in upper airspace) is an effective way to select CNS technologies for HAO.

Although the diversity is critical for testing the CNS solutions in varied operational environments, it is noted that the Skydweller operates up to FL500, while the targeted environment is above FL500. The inclusion of this vehicle is insufficiently justified. However, as other vehicles are also included that operate above FL500. This is a minor shortcoming.

The inclusion of a CBA per technology is a useful consideration when selecting CNS technologies for HAO.

A list of CNS technologies to be assessed has been provided and it is sufficiently complete.

Although the notion of non-cooperating traffic is mentioned, a consideration is missing on the fact that for some HAO the control center may be on the ground with no need for A/G communication. This is a minor shortcoming.

The concepts, models and assumptions are clear and sound. The validation activities with different flying platforms are described in a very detailed, comprehensive and credible way. The use of special directional antennas to avoid jamming and interference is strong.

The project adequately builds on the previous SESAR projects ECHO and ECHO2. An explanation of where the boundaries lie between ECHO2 and SCAN is provided. The relation to the Concept of Operations developed by the ECHO project is sufficiently explained.
It is expanding the maturity of the current R&D towards feasible technical components and services in CNS for HAO.

There are a lot of ground breaking research items, especially the end-to-end layered approach that integrates all enablers, e.g. NAV, telemetry, data fusion and distribution to authorized stakeholders in a novel approach.

The project's methodology supports open science principles. Non-sensitive datasets, interface definitions, and technical documentation will be made openly available, enabling other research and operational projects to build on SCAN's outputs. The research data management activity is dealt with a Data Management Plan (WP2) , maintained with update iterations during the length of the project.

The use of AI is not considered.

The topic does not aim at increasing automation to level 4 and it does not explain how the concept can operate in a level 4 environment. This is a shortcoming.

Criterion 2 - Impact - weight 40%

Score: **5.00** (Threshold: 3 / 5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:
- Credibility of the pathways to achieve the expected outcomes and impacts specified in the call material.
- Appropriateness of the contribution to standardisation and regulation: the extent to which the proposal demonstrates that the project will contribute appropriately to the relevant standardisation and regulatory activities.
- Suitability and quality of the measures in terms of maximising expected outcomes and impacts, as set out in the dissemination and exploitation (D&E) plan, including communication activities.

The proposal is declaring in a clear and traceable manner the impact of its results.
The concepts and technologies supporting operations in high altitude airspace are not covered today. The proposal will assess CNS technologies with real flight trials with various vehicles, hence various trajectories. This is essential for the further development of future High Altitude Operations (HAO).

The contribution of the project towards the expected outcomes of the topic in terms of KPA/KPI and the wider impacts (ATM Master Plan 2025), in the longer term towards 2030 and 2045 are explained very well, are credible but they are not quantified. This is a minor shortcoming.

There is one WP dedicated to the development of CNS as a Service, which is in line with the New Service Delivery Model.

The relevance of HAO for telecommunications, disaster relief, antenna relay, earth observation and scientific exploration is explained adequately.

Standards and regulations issues are addressed very well and all related regulatory and standardization organizations e.g. ICAO, EUROCAE, EASA are identified. The process of interacting with these organizations including the proper deliverables and processes are also very well explained.

The proposal convincingly justifies the clear and pressing need for updated standards and regulations across multiple domains, including ATM, UTM, CNS tracking, deconfliction, and the Specific Operations Risk Assessment (SORA) framework. This requirement is thoroughly addressed, with all relevant regulatory bodies and standardization organizations (e.g. EUROCAE) listed.

This is done by contributing validated evidence and operational concepts from European HAO trials to EUROCAE and JARUS, facilitating recognition as global standards at ICAO level.
Moreover, the procedures for engaging with these organizations, along with the expected deliverables, are articulated with clarity and precision.

The communication, dissemination and exploitation (CDE) plan will consider the relevant measures that are introduced in the proposal. Target groups are identified very well and grouped according to Communication and Dissemination activities. Target group(s) are also very well addressed (e.g. scientific community, end users, military financial actors, public at large).

Exploitation is specifically mentioned but only at high level. This is a minor shortcoming.
IP aspects are briefly but sufficiently explained referring to the to-be signed Consortium Agreement (CA).

The results of the proposal will be shared with stakeholders and the society according to the content excluding those deliverables with security critical or sensitive information.

All deliverables listed are of public (PU) nature.

Criterion 3 - Quality and efficiency of the implementation - weight 20%

Score: **4.80** (Threshold: 3 / 5.00 , Weight: -)

The following aspects will be taken into account, to the extent that the proposed work corresponds to the description in the work programme:
- Quality and effectiveness of the work plan and assessment of risks, and appropriateness of the effort assigned to work packages, and the resources overall.
- Capacity and role of each participant, and the extent to which the consortium as a whole brings together the necessary expertise.

WP tasks are aligned with allocated resources.
The work breakdown is clear and consistent with the needs of the project, distinguishing conceptual and analytical foundations from the validation exercises. The proposal provides an extensive list of clear activities and milestones with adequate target dates as well as the Exit Maturity gate planned in line with the project handbook requirements.

All technical deliverables are identified in accordance with the Handbook
Milestones including the Exit Maturity Gate milestone/date per SESAR Solution are identified
The final technical deliverables are planned for M34, while it should be M32 according to the project handbook. This is a minor shortcoming.
The proposed work break down structure is compliant with the handbook.
The lump sum approach is applied. The allocated resources are adequate for the identified WP tasks. However, sub-WPs are defined but not the partners who are working in the specific sub-WPs. Only for the flight trails of the different vehicle provides is clear who of the partners are the main contributors. In general, the missing association of partner in the SOWs can lead to uncertainties within the partnership and worst case to duplication of work or no one doing the work needed. This is a shortcoming.

A comprehensive risk assessment is provided with severities and impacts well defined. Also, several valid mitigation options are provided and are sufficiently practical.

Although the budget seems very high for the development of a roadmap, it is actually justified by the need to work with single-use HAPS, including a sounding rocket.

There are two partners with around 1% share of the efforts, another with less than 1% of the workshare (and significantly high rates), representing ANSPs. There are other ANSPs in the consortium with more effort. There is not enough evidence provided where the two small partners are contributing. It cannot be expected that there is specific know-how available from these ANSPs than from the other ANSPs involved. This is a minor shortcoming.

The consortium looks very complete and fit to do the job. The consortium would operate under the lead of ECTL (that has been leading ECHO and ECHO2 already), with participation from Original Equipment Manufacturer (OEM) for High Altitude Platforms (HAPS) and Operators, ANSPs, U-space in dustry, research institutes.

The individual partners are insufficiently providing evidence of their capabilities in similar activities. This is a minor shortcoming.

However given the nature of those companies developing HAPS, there is a high risk that these partners will get into financial issues and might drop out . There is a risk associated that cannot be neglected. In the risk assessment this risk is not mentioned. This is a minor shortcoming.

Scope of the application

Status: **Yes**

Comments (in case the proposal is out of scope)

Not provided

Exceptional funding

A third country participant/international organisation not listed in the General Annex to the Main Work Programme may exceptionally receive funding if their participation is essential for carrying out the project (for instance due to outstanding expertise, access to unique know-how, access to research infrastructure, access to particular geographical environments, possibility to involve key partners in emerging markets, access to data, etc.). (For more information, see the HE programme guide)

Please list the concerned applicants and requested grant amount and explain the reasons why.

Based on the information provided, the following participants should receive exceptional funding:

Not provided

Based on the information provided, the following participants should NOT receive exceptional funding:

Not provided

Use of human embryonic stem cells (hESC)

Status: **No**

If YES, please state whether the use of hESC is, or is not, in your opinion, necessary to achieve the scientific objectives of the proposal and the reasons why. Alternatively, please state if it cannot be assessed whether the use of hESC is necessary or not, because of a lack of information.

Not provided

Use of human embryos

Status: **No**

If YES, please explain how the human embryos will be used in the project.

Not provided

Activities excluded from funding

Status: **No**

If YES, please explain.

Not provided

Do no significant harm principle

Status: **Yes**

If Partially/No/Cannot be assessed please explain

Not provided

Exclusive focus on civil applications

Status: **Yes**

If NO, please explain.

Not provided

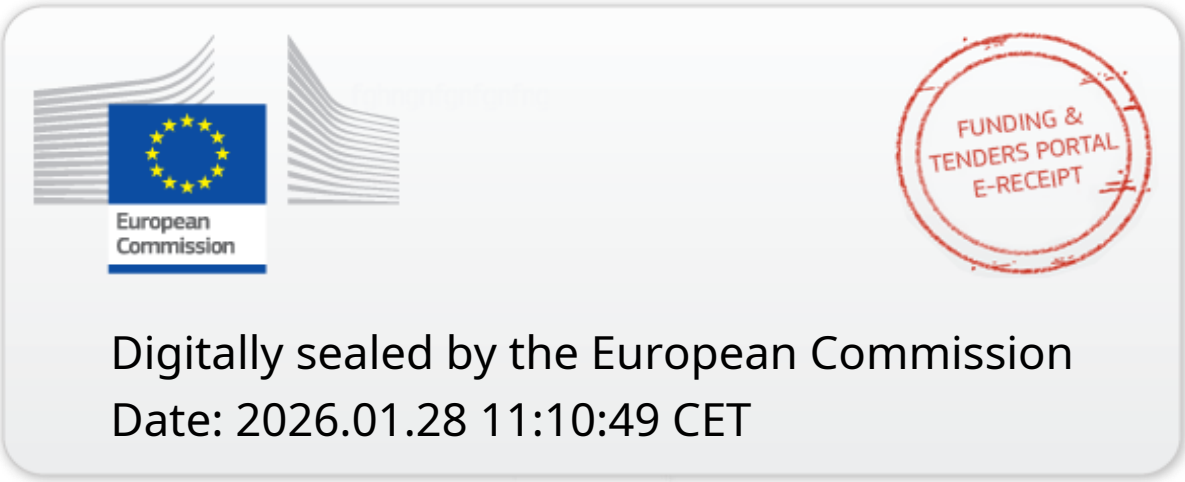
Artificial Intelligence

Status: **No**

If YES, the technical robustness of the proposed system must be evaluated under the appropriate criterion.

Overall comments

The subcontracting costs of SCEYE for external software and cybersecurity support and Elson Space cost for performance degradation of solar arrays would benefit of further clarification.



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