Statement of Interest

Template

Danish space technology call 2025 under

The European Space Agency's

General Support Technology Programme (GSTP) - Element 1 Compendia activities

March 2025

Danish Agency for Higher Education and Science

Statement of Interest 2025 for the 2025 GSTP call

This document is the Statement of Interest template for the Danish space technology call 2025 for GSTP. Please fill out one template pr. activity and send to the Agency for higher Education and Science (UFS). If you send more than one Statement of Interest, please also fill out the "Priority List".

If you have any questions concerning the Statement of Interest template please contact:

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When completed, please send the Statement of interest in **pdf format** to:

- Ann-Sofie Bak Nielsen, asban@ufm.dk
- Please copy in UFS-FVI-RUM@ufm.dk

Include following in e-mail subject field: "**Statement of Interest 2025**"

1	GSTP reference number (e.g. GXXX-XXX)	GT17-675GS
2	Activity title	Disruption Tolerant Networking (DTN) network management
3	Activity budget	900.000 EUR
4	Amount of funding requested	200.000 EUR
5	TRL Start level (please select one only)	☑ 3 ☐ 4 ☐ 5 ☐ 6 ☐ 7 ☐ 8 ☐ 9
6	TRL End level (Please select one only)	☐ 3 ☐ 4 ☐ 5 ☑ 6 ☐ 7 ☐ 8 ☐ 9
7	ESA Element 1 Compendia (Please select one only)	☑ Generic Technologies ☐ Artificial Intelligence ☐ Digitalisation ☐ Quantum Technologies ☐ Cybersecurity
8	ESA Competence Domain (Please select one only)	☐ CD1 - EEE Components, Photonic, MEMS ☐ CD2 - Structures, Mechanisms, Materials, Thermal ☐ CD3 - Avionic System ☐ CD4 - Electric Architecture, Power and Energy, EMC ☐ CD5 - Radiofrequency & Optical System and Products ☐ CD6 - Life & Physical Science Payloads, Life support, Robotics & Automation ☐ CD7 - Propulsion, Space Transportation and Re-entry Vehicles ☐ CD8 - Ground Systems and Mission Operations ☑ CD9 - Digital Engineering ☐ CD10 - Astrodynamics, Space Debris and Space Environment
9	Collaboration?	☑ No ☐ Yes (DK) ☐ Yes (Other ESA member state(s)) ☐ Yes (Other DK and ESA member state(s))
10	Which role do you expect to take on?	☑ Lead ☐ Sub - Contractor ☐ Other, please define:
11	If lead (see 10), is a sub-co expected?	☐ Yes ☑ No
12	If yes to 11, where is the sub-co expected to be from	☐ Denmark ☐ Other, please define:

13	If sub-co (see 10), which country is lead expected to be from?	
14	If yes to collaborator, what is the funding level expected for each company/organization?	
15	Company/Entity name	AstraLink Aps
16	Contact name	Jens Moeslund Larsen
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19	Phone number	+45 50 44 55 96
20	Date of submission (DD/MM/YYYY)	21/04/2025

21. Outline the technology this activity addresses including the technical work to be undertaken. Briefly indicate the implementation schedule and requested budget.
This activity addresses the advancement of Disruption Tolerant Networking (DTN) for next-generation space communication. The main problem addressed by DTN solutions are the intermittent connectivity and long delays in space communication. The current downlink model for small to medium satellites in Low Earth Orbit (LEO) is limited by ground station availability, making the use of solutions like Bundle Protocol (BP) necessary to ensure data delivery. We propose to use existing LEO infrastructure, such as OneWeb, Iridium, and Iris² to minimize the disruptions, both in amount and time. A more detailed explanation of the technology can be found in Annex 2. The goal is to create a de-facto standard for downlink in small to medium LEO missions, and to enable seamless, resilient, and high-throughput internet in space. The proposed architecture is a connectivity management module that will be integrated into the satellite's communication stack. The module will be responsible for intelligently selecting and establishing links to relevant available Space Internet Providers (SIP), ensuring stable and reliable data transfer. The module will interface with the [STANDARD RADIO INTERFACE] of the satellite radio module, and will receive data from the satellite's payload. The project will span over 24 months, with a budget of 200,000 EUR.

22. Why is the development of this technology a priority to you company/organization? How will you develop this opportunity during and after the activity? What happens next (please include a timeline)?

We are a startup dedicated to revolutionizing connectivity for small and medium satellites in LEO by lowering the barriers to entry for satellite communications and enabling always-on connectivity in space. The current model forces standalone satellite operators to invest heavily in ground station infrastructure, a costly and inefficient requirement.
Our innovative product eliminates the need for extensive ground station management, streamlines the downlink design process, and facilitates real-time data services for LEO operators.

To achieve these goals, we are applying to the GSTP program to develop a Disruption Tolerant Networking (DTN) solution, as we believe that our solution plays a key role in the future solar system internet. In the near term, our focus will be on collaborating with prominent European mega-constellations and Danish satellite manufacturers for seamless integration in upcoming missions. This project marks the initial phase of our strategic roadmap, which ultimately aims to establish a seamless, resilient, and high-throughput communication network in space, thereby significantly lowering entry barriers and bolstering Europe's competitive stance in the space sector.

[TIMELINE IS NOT FINAL]
Our development will follow a structured timeline: the first 6 months will focus on system architecture, design specification, and partner onboarding. The subsequent 12 months will cover subsystem development, iterative testing, and integration with simulated mission environments. By month 24, we aim to be fully ready for pilot integrations with early adopters, setting the stage for real-world validation and operational scaling beyond the project's formal end.

23. Detail the strategic, economic, social, etc. benefit this activity has to you company?

This funding is critical to accelerating our development roadmap. It will enable us to bring our core technology to market faster and more efficiently, creating a competitive edge against established companies. By reducing time-to-market, we can secure vital partnerships, enhance our intellectual property portfolio, and better position ourselves within a rapidly evolving global landscape.

Economically, the accelerated development brought by this grant will lower entry barriers in a market that has long been dominated by larger players. The improved efficiency and faster realization of revenue streams will allow us to reinvest in further research and development, laying the foundation for sustained long-term growth.

Accelerating this technology not only benefits our company but also boosts the global competitiveness of European mega-constellations. By enhancing our capabilities, we support a collaborative ecosystem that strengthens both individual market positions and Europe's overall presence in the space sector.

Socially, the project promises substantial positive impacts. Improved technology can lead to better weather forecasting and increased security, delivering significant benefits to a range of sectors, including farming, defense, environmental monitoring, and disaster management. Additionally, advancing this technology will contribute to European autonomy.

24. Describe the financial commitment required for this activity. Include a breakdown by company/organization, showing member state, work packages etc. where appropriate.
The project begins with Work Package 1 (WP 1), a [X-month] effort funded at [Salary × X], which focuses on integrating core technologies into a simulation environment to evaluate the performance, scalability, and interoperability of the proposed architecture. Key deliverables include a functional simulation framework with integrated components. Building on this, Work Package 2 (WP 2) spans [Y months] with a budget of [Salary × Y], dedicated to advancing core technology development and prototyping. This phase includes iterative design and creation of intellectual property (IP). The primary outcome will be a functional prototype demonstrating the feasibility of the proposed technologies. Work Package 3 (WP 3), allocated [Z months] and [Salary × Z], includes rigorous analysis and validation of the architecture within Delay-Tolerant Networking (DTN) scenarios. Activities include comparative performance assessments between legacy systems and the new architecture, and simulations of multi-satellite networks leveraging multiple constellations. Deliverables here encompass a detailed performance comparison report, and simulation results highlighting network cohesion across constellations. [Unsure of this one] Finally, Work Package 4 (WP 4) ([V months]; [Salary × V]) integrates the sstem with physical hardware to enable Hardware-in-the-Loop (HIL) simulations, ensuring real-world validation of performance. This phase produces documentation for the HIL testbed setup and a validation report derived from hardware-integrated testing.