

FUTURE SPACE TRANSPORTATION FLPP AUTUMN SESSION 2025



INSPOC-2

GMV CONSORTIUM

About the Consortium: Partners and roles:



Project leader, and provider of refilling interface



Provider of propellant storage & management components



Provider of refilling interface and satellite platform



Commercial and business analysis



Scientific consultant

IN-SPACE PROOF-OF-CONCEPT (INSPOC) PROJECT OVERVIEW

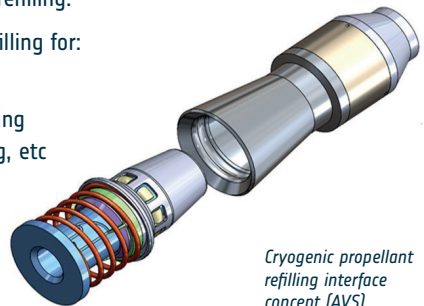
Project name: InSPoC-2: In-orbit cryogenic propellant storage & refilling

Project phase: Preparation Phase (~Phase 0/A)

Objective: To analyse, mature and achieve in-orbit demonstration of the key capabilities for in-space long-term cryogenic propellant storage and refilling.

Applications – Use cases – Cryogenic propellant refilling for:

- Orbital Propellant Depots
- Reusable Servicers for life extension through refilling
- Space tugs for active debris removal, orbit phasing, etc



*Cryogenic propellant
refilling interface
concept (AVS)*

GET IN TOUCH

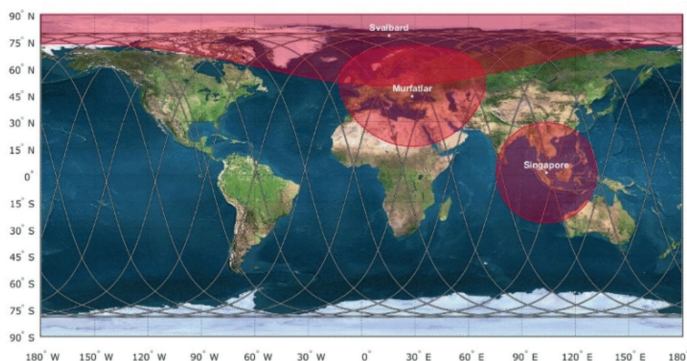
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ENABLING CAPABILITIES FOR IN-SPACE LOGISTICS

What we developed: Complete architecture for the demonstration of critical technologies for in-orbit refilling with cryogenic propellants.

Benefit for the ecosystem: Extended satellite lifetimes, improved space sustainability, reduced costs of in-orbit services.



In-orbit demonstration mission analysis

KEY RESULTS

- Identification/selection of critical technologies to be demonstrated, and definition of the development roadmap.
- Concept design of critical technologic building blocks: tanks, cryo-coolers, propellant pumps, refilling interfaces, etc.
- Concept design of the IOD mission: Demonstrator payload, spacecraft platform, concept of operations, test plan and mission analysis.

NEXT STEPS AND MARKET READINESS

- **Roadmap:**
 - On-ground demonstration 1 (LN₂): 2027.
 - On-ground demonstration 2 (LOX & LCH₄): 2028.
 - In-Orbit demonstration (LOX): 2030.
- **Opportunities:** Looking for system integrators and service providers needing in-orbit cryogenic storage and refilling technologies.
- **Target launch:** 2030 (In-Orbit Demonstration).