

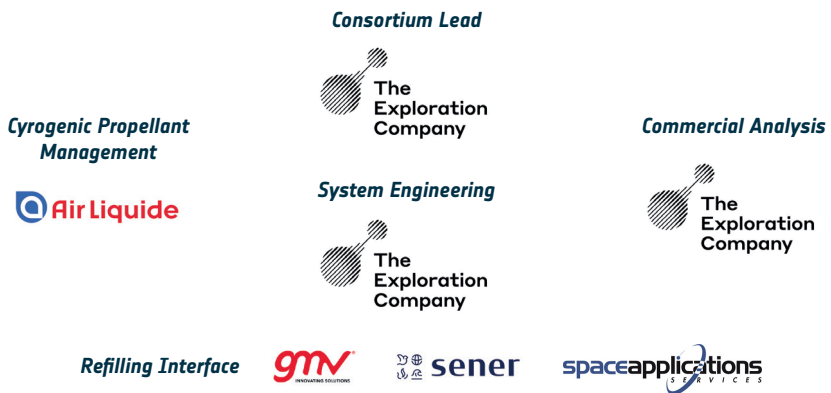
FUTURE SPACE TRANSPORTATION FLPP AUTUMN SESSION 2025



INSPOC-2

ABOUT THE CONSORTIUM

The companies in the project consortium, with their key roles and contributions.



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] – completed

Objective: InSPoC-2 designs and demonstrates cryogenic propellant storage and transfer technologies in orbit, including thermal management, transfer systems, and a cryogenic mating interface, enabling future in-orbit refilling and depot operations for reusable space transportation

Applications

- Deep-space missions to Moon and Mars – e.g. commercial lunar landers and cargo return vehicles
- Extended lifetime for spacecraft – reusable upper stages, space tugs

GET IN TOUCH

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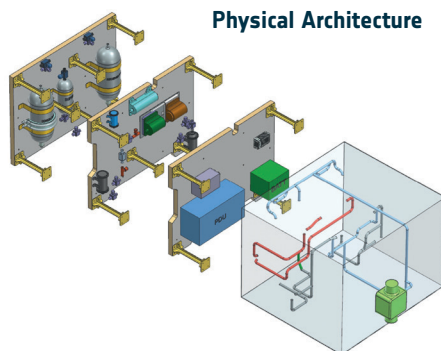
ENABLING CAPABILITIES FOR IN-SPACE LOGISTICS

What we developed:

- **Cryogenic propellant management:** Demonstrates long-duration storage of cryogenic propellants in orbit while minimizing boil-off and maintaining fluid stability
- **Cryogenic transfer demonstration:** Validates the safe and controlled transfer of cryogenic propellants under microgravity conditions
- **Cryogenic mating interface:** Develops and validates a dedicated cryogenic coupling system enabling leak-free, repeatable connections for propellant transfer between spacecraft

BENEFIT FOR THE ECOSYSTEM

- Cryogenic propellant management enables deep space mission to Moon and Mars and extended multi-mission applications
- Cryogenic transfer demonstration enables cryogenic refilling by de-risking the associated systems
- Cryogenic mating interface enables reliable and safe propellant transfer



KEY RESULTS

- The Concept Key Point has been reached, marking the final Milestone of Phase 0/A

NEXT STEPS AND MARKET READINESS

- **Roadmap:** Preliminary Design → Detailed Design Phase → Subsystem Prototyping → Subsystem Qualification → Ground Demonstrator → TRL 6 → AIT → Qualification → Launch
- **Opportunities:** Enabling deep-space and long duration missions (e.g. TEC's lunar landers and lunar cargo vehicles, propellant depots)
- **Target launch:** 2030