

Project Background

The space sector is quickly evolving towards a model favoring agility, innovation, and larger involvement of SMEs, known as "New Space". Therefore, accessing space is becoming easier and more affordable, opening many commercial opportunities. Recent in-orbit demonstration and validation activities comforted the technical feasibility and soundness of dedicated servicer satellites, able to remove debris, refuel and deliver payloads to a client satellite for upgrade and life extension purposes.

Currently limited to a single mission with a non-extendable lifetime, these servicer satellites could be reused if supplied and maintained in orbit. Their payloads may potentially be recycled and stored to be reused later on.

To concretize these operation and service perspectives in space in a commercially viable, sustainable and robust manner in the near future, the matter of in-space storage and handling of required items and resources is an essential piece of the puzzle.

Project Objectives

STARFAB ambitions to fill a critical gap in the Future Space Ecosystem, by proposing a novel concept of orbital automated warehouse as a backbone and enabler for a sustainable commercial in space operation and service hub including, but not limited to, storage, maintenance, inspection, refuel, testing, recycling, assembly and manufacturing.

For these purposes, the STARFAB activities are:

- Elaborating a viable concept of In-Space automated warehouse facility supporting Servicing, Assembly & Manufacturing applications (ISAM),
- Exploring relevance of robotic & automation technologies in such a facility,
- Defining a roadmap and exploitation prospects in the future ISOS ecosystem,
- Developing and building a partially representative ground demonstrator (TRL4) for validating concept and technologies.
- Maturation of robotic actuators (TRL6) leveraging previous H2020 Space Robotics heritage.

Our Role

Space Applications Services is the coordinator of the STARFAB consortium and contributes to the STARFAB project with:

- Project Management, system engineering and technical lead,
- Flight model robotic component design (hardware and software),
- Robotic demonstrators and ground segment breadboard end-to-end development,
- Test and validation lead,
- Exploitation, dissemination and outreach.



Project Details

Period:

January 2024 to June 2026.

Techniques / Key words:

New Space, OOS, OSAM, ISOS, Space logistics, Space robotics

Contact:

Mathieu Deremetz, Ph.D.
Project Coordinator
starfab@spaceapplications.com

Acknowledgment:



Co-funded by
the European Union

STARFAB is a project co-funded by the European Union in the framework of the HORIZON EUROPE Research Programme "Future Space Ecosystem and Enabling Technologies" (Project No. 101135507) entitled "A Space Warehouse Concept and Ecosystem to Energize European ISAM".

Visit us at horizon-starfab.space

