



Astroscale's ADR & IOS Services - European Service Update

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The Global In-Orbit Servicing Company



6 Offices



600+ Team



Influential Global Leadership



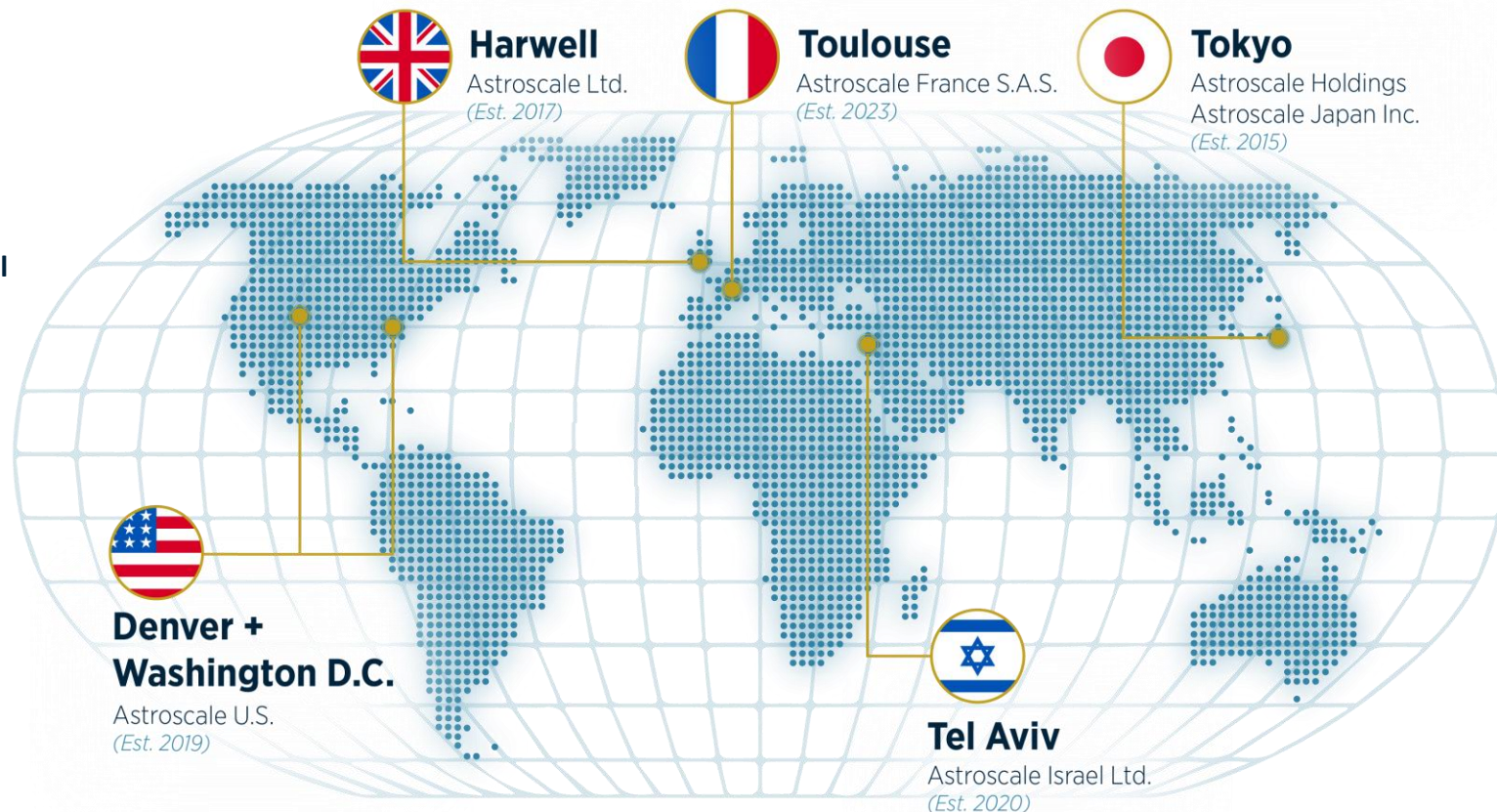
In-House Development & Operations



30+ Awards



\$383M Raised¹,
IPO June 2024



¹ Represents total amount of equity raised up to Series G, showing the amount as of November 2023.

World Leading Commercial Technology

A large satellite with a prominent vertical mast and multiple solar panel arrays, shown against a grey Earth background.

COSMIC

Cleaning up the Past

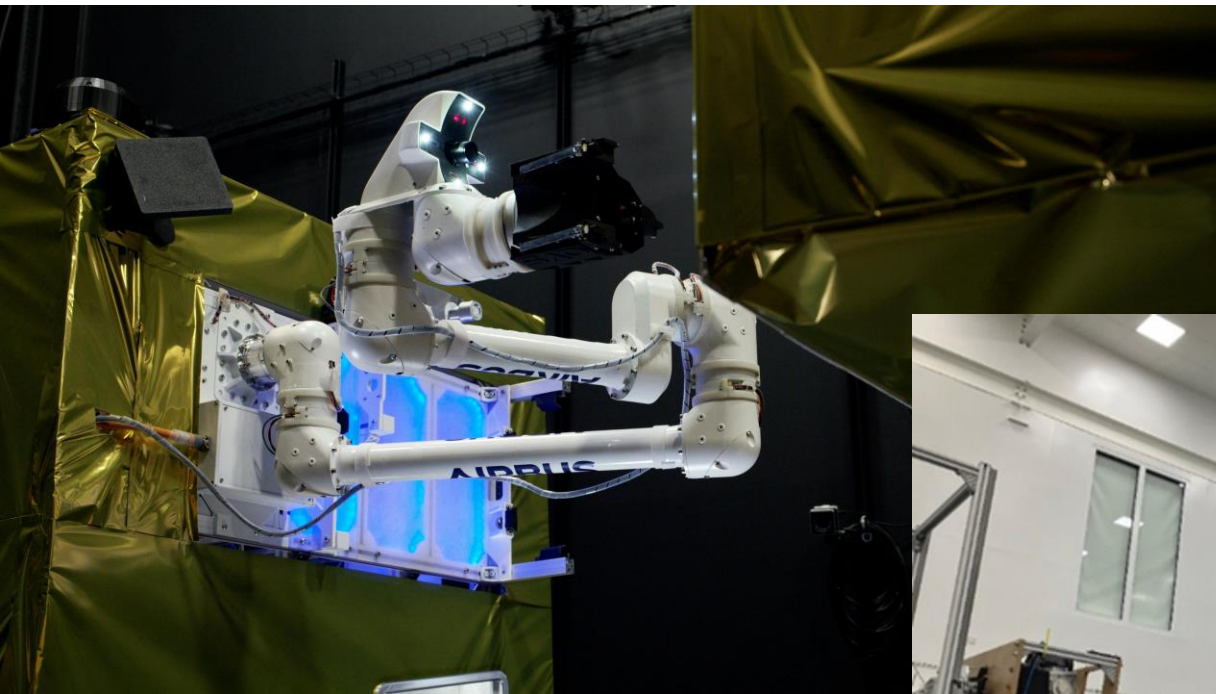
- World's first institutional multi-removal, Active Debris Removal (ADR) mission of unprepared objects
- Robotic technology to remove legacy unprepared objects
- Refuellable for future servicing

A satellite with a large solar panel array and a circular component, shown against a blue Earth background. An inset shows a small satellite with a QR code on its top surface.

ELSA-M

Preparing for the Future

- World's first End-of-Life (EOL) service of a full-sized commercial end customer
- Magnetic removal of prepared satellites
- Multi-client removal to achieve strong business case



Robotics testing in COSMIC Phase B
(courtesy Airbus)



ELSA-M SQM in
Astroscale Cleanroom

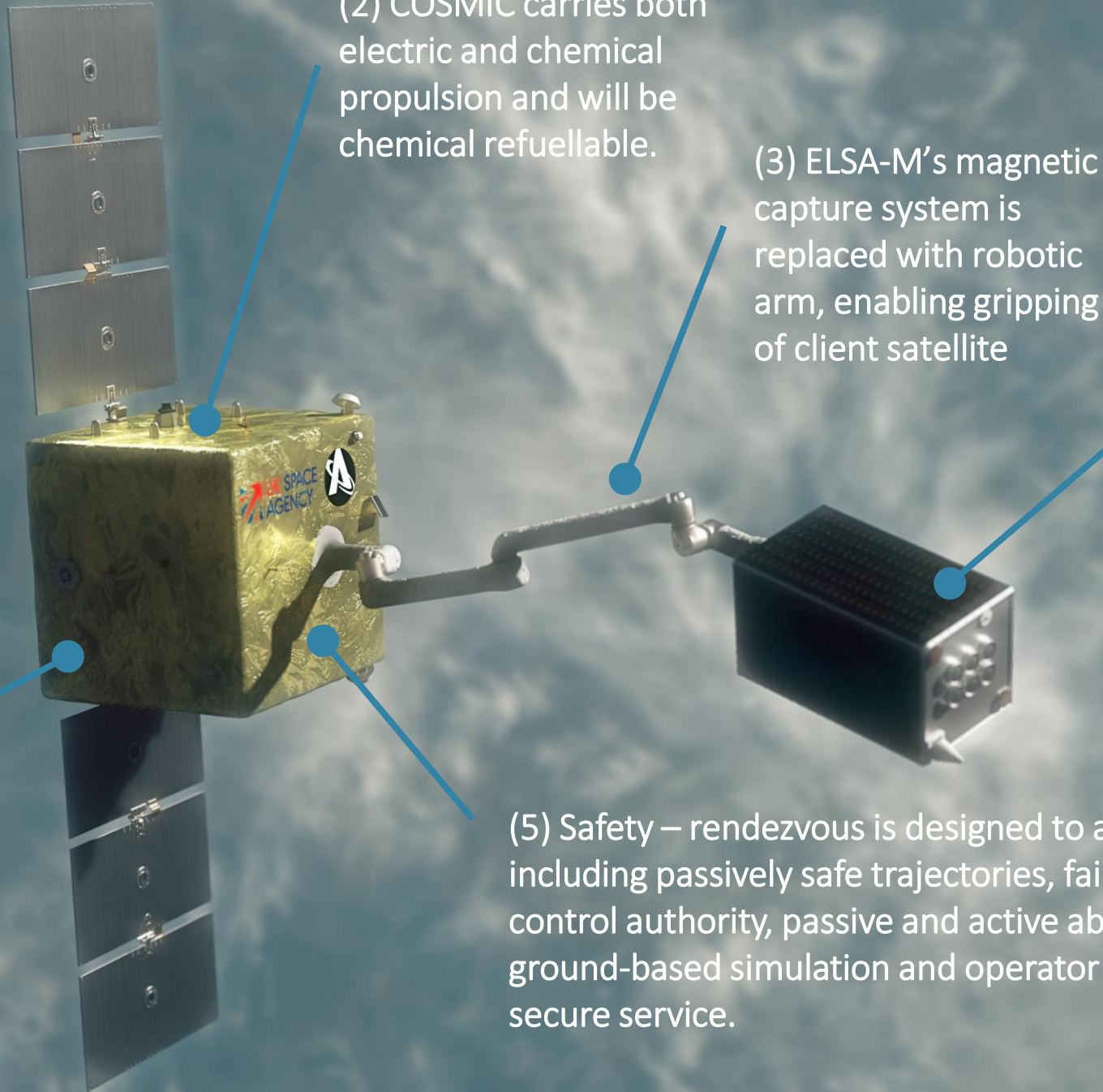


ELSA-M system and subsystems
testing with OneWeb Gen 1 Mock-up



Mission Summary:

- Objective to de-orbit two UK-owned pieces of debris.
- Currently at a Phase 2 (pre-CDR).
- Servicer must be refuellable (for follow-on missions).
- Mission tests detumbling with plume impingement.



(2) COSMIC carries both electric and chemical propulsion and will be chemical refuellable.

(3) ELSA-M's magnetic capture system is replaced with robotic arm, enabling gripping of client satellite

(4) Client Satellite: Existing UK-owned debris in the tens of kilograms class, mostly launched over 30 years ago

(1) An ELSA-M variant, COSMIC is designed with commercialisation in mind for future removal of existing in-space assets or robotic commercial removal.

(5) Safety – rendezvous is designed to assure client safety, including passively safe trajectories, fail-safe multi-level control authority, passive and active aborts, high-fidelity ground-based simulation and operator training, and a cyber-secure service.



IRUS Mission

- IRUS stands for In-orbit Refurbishment and Upgrading Service
- A variant of the COSMIC servicer with robotic arm.
- One of ESA's down-selected concepts for the ESA Circular Economy Missions which is at a study phase, and working towards building support for the mission at CMin 25.
- Concept: upgrading servicer swaps out parts from a modular customer bus e.g. OBC.
- Working together with 2 potential end customers on the concept. The client bus provider is planning on modularising their satellites to enable future upgrading.
- Planned launch ~2029 (estimate).



Questions?



#Space Sustainability

宇宙ゴミの大掃除、はじまる。  **Astroscale**