

# An Update on the UK Space Agency's Active Debris Removal Activities

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# UK Commitment to Space Sustainability



## National Space Strategy Ten Point Plan

**Point 6:** *“Lead the global effort to make space more sustainable”*



## Corporate Plan Value Proposition

**Sustainability Priority:** *“Deliver capabilities to track objects in orbit and reduce and remove debris; lead global regulation and standard-setting to make space activities more sustainable”*



## UK Leadership in Space Sustainability

*“Position the UK as a global leader in space sustainability”*



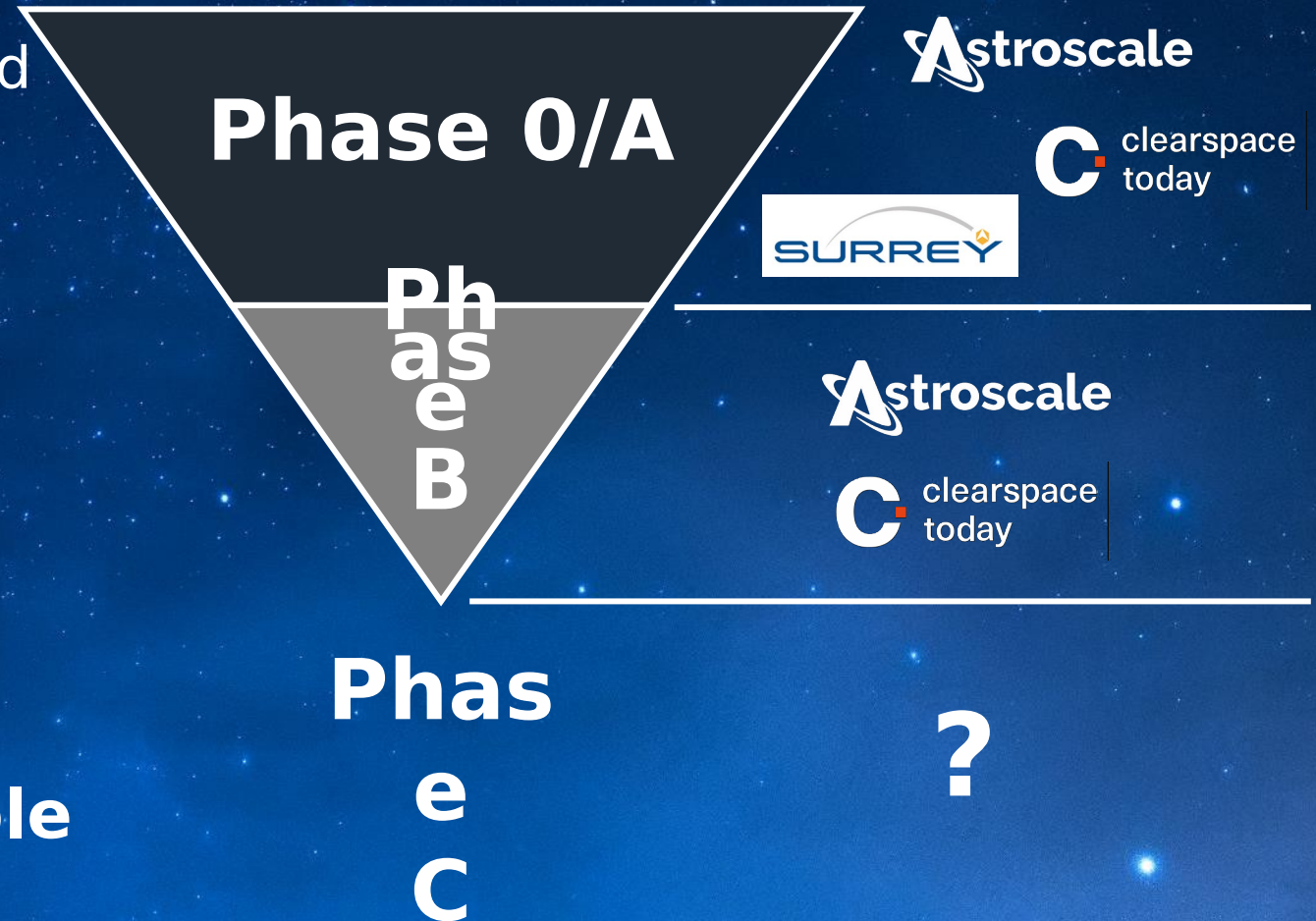
## ARTEMIS Accords

Section 12 covers orbital debris



# Overview of UK ADR

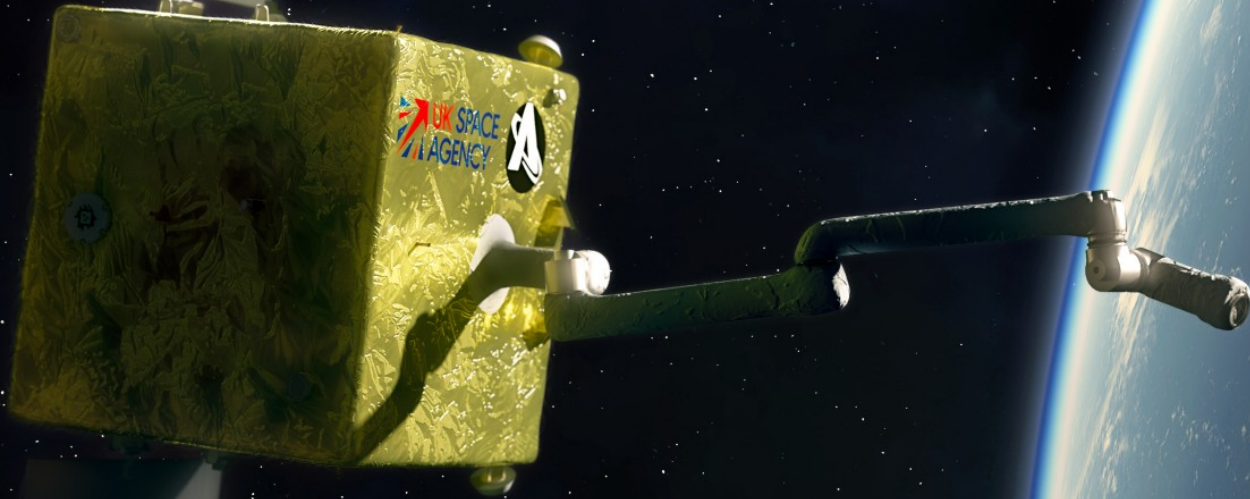
- 2** Removal of **≥two** UK-licensed satellites from LEO
- Clients must be **defunct** & **unprepared** for capture
- 2026** launch
- Compliant with **IADC guidelines**
- Servicer to be **refurbishable**





# COSMIC

Cleaning Outer Space Mission through Innovative Capture



Astroscale

MDA

ThalesAlenia Space  
a Thales / Leonardo company

gmv  
INNOVATING SOLUTIONS

nammo

GOONHILLY  
EARTH STATION

Raytheon  
NORSS

CATAPULT  
Satellite Applications

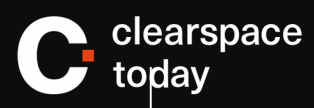
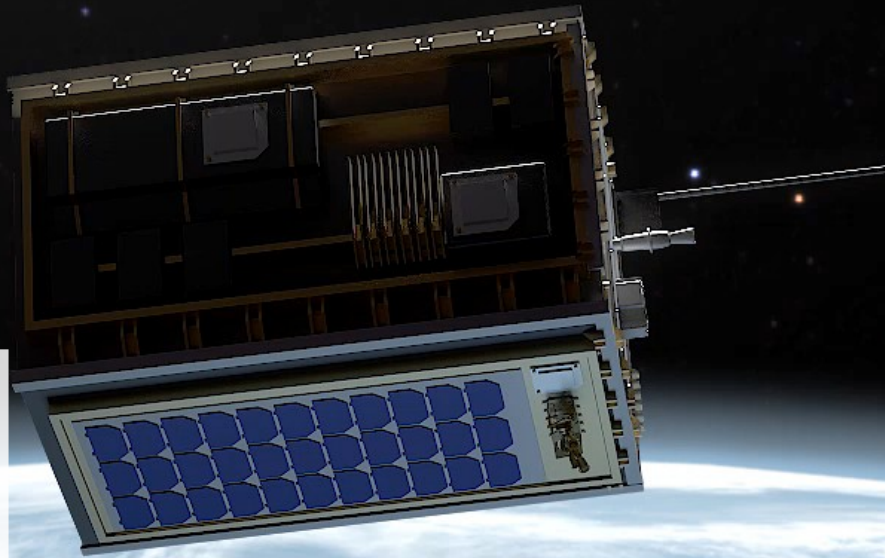
Willis  
Towers  
Watson



# CLEAR

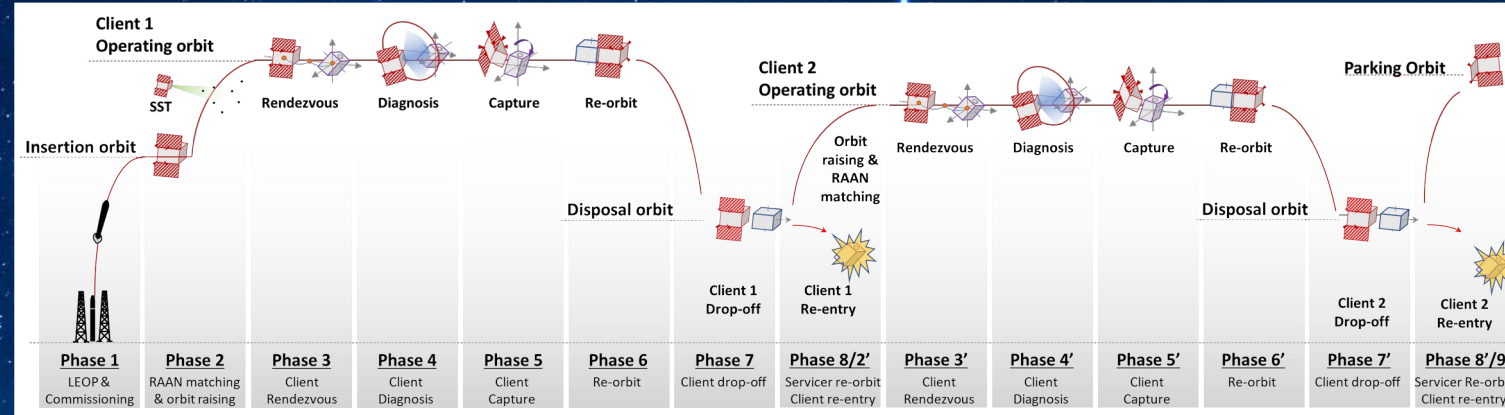
Clearing the LEO Environment with Active Removal

• b

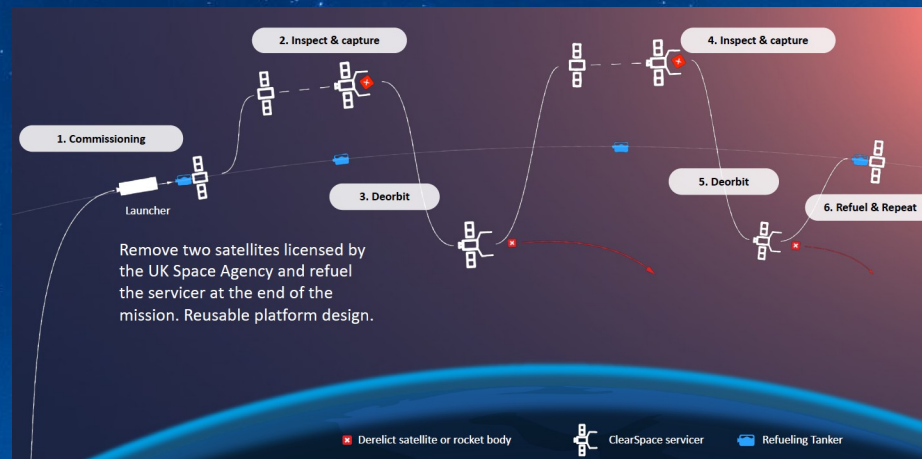
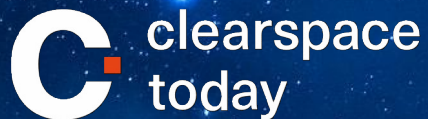




# Top-Level Concept of Operations



COSMIC Concept of Operations (CONOPS) [1]



CLEAR Concept of Operations (CONOPS)

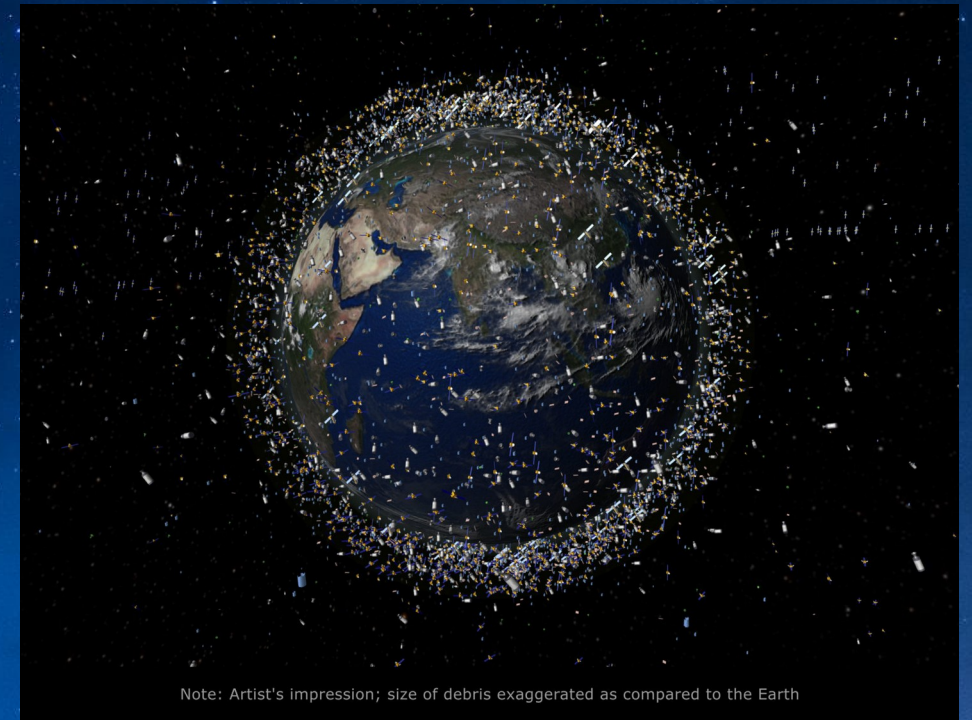
# Conclusion

**3 x Phase 0/A feasibility studies successfully delivered**

**Phase B progressing well**

- Both System Requirements Reviews (SRRs) successfully passed
- Breadboards developed and TRL raising activities undertaken
- PDRs due in early 2024

**The UK is funding addition related technology and study research and development to support ADR**





# Thank you

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AstroScale's COSMIC: A UK Mission to Help Clean Up Space [2]



IN-ORBIT SERVICES TO SHAPE THE FUTURE OF SUSTAINABLE SPACE OPERATIONS [3]



AstroScale



clearspace today



# References

- [1] J. Forshaw, E. McKenna, J. Stuck, S. Cawley, S. Wokes, N. Shave, M. Lindsay and N. Okada, "COSMIC (UK ADR) - Towards the Removal of 2 UK-Owned Defunct Satellites," in *IAC-23,A6,5,2,x78875, 74th International Astronautical Congress (IAC)*, Baku, Azerbaijan, 2023.
- [2] Astroscale, "COSMIC - Cleaning Outer Space Mission through Innovative Capture," 07 03 2023. [Online]. Available: <https://www.youtube.com/watch?v=86w8jpbm8Uk>. [Accessed 20 11 2023].
- [3] ClearSpace, "IN-ORBIT SERVICES TO SHAPE THE FUTURE OF SUSTAINABLE SPACE OPERATIONS," 30 06 2022. [Online]. Available: <https://www.youtube.com/watch?v=luZ4KBsH6gs>. [Accessed 20 11 2023].