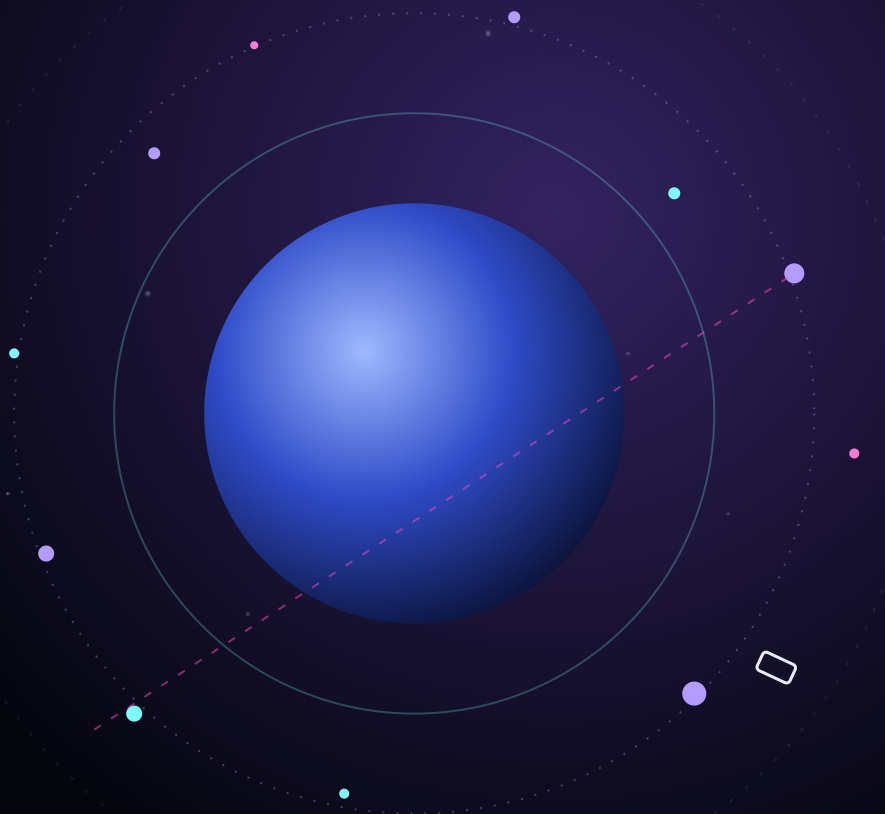
MOD-01 · SOS PROGRAM

Space Debris Management

A blockchain platform that lets space agencies, researchers and the public track orbital debris together — in one shared, transparent ledger.



// 01 — THE PROBLEM

A crowded, dangerous orbit

Human-made debris orbits Earth at such speed that even a small fragment can disable a satellite or damage a crewed spacecraft.

22,000
objects ≥ 10 cm (softball)

500,000
objects ≥ 1 cm (marble)

100M
objects ≥ 1 mm (pen tip)

6,300 t
total mass · 2,700 t in LEO

Impact on spacecraft

- The ISS cupola window was struck by debris on 10 June 2012
- 45 shuttle window impacts were severe enough to require replacement
- A Hubble panel returned to Earth showed more than 70 impacts
- ~170 million particles are too small to be tracked at all

Collision log

1996	French satellite hit by fragments of a rocket that exploded a decade earlier
2007	Anti-satellite test on Fengyun-1C adds 3,000+ trackable pieces
2009	Defunct Russian satellite destroys an active Iridium satellite — 2,000+ new pieces
2012	ISS cupola window strike

// 02 — TRACKED IN SILOS

Many watchers, no shared view

Debris is monitored by agencies around the world, each with its own sensors and records. Data moves slowly between them — and collisions keep creating new fragments.

Who tracks debris today

NASA ODPO · US DoD · NORAD · UK DERA · ESA · ESOC · TIRA · Goldstone · Haystack · EISCAT · Cobra Dane · IADC · UN COPUOS · UNOOSA

IADC members include NASA, ESA, JAXA, Roscosmos, CNSA, CSA, KARI, ISRO and NSAU.

Why cleanup is hard

- Destroying debris only creates more debris
- Nets fail at such high relative velocities
- Large objects like rocket stages need propulsion to be moved
- Removal missions (CleanSpaceOne, ESA e.Deorbit) still face unsolved capture problems — tentacles, nets, harpoons and robot arms are all on the table
- Every collision multiplies the number of fragments

INSIGHT Before debris can be removed, it has to be seen — by everyone, from one source of truth.

// 03 — THE SOLUTION

One ledger for every object in orbit

01

Debris dashboard

Every tracked particle listed in one place, from 10 cm down to 1 mm.

02

Debris explorer

Click any object to see its path and trajectory.

03

Multi-agency input

Agencies contribute their own tracking data to a common record.

04

Selective privacy

Each entity chooses what to share and what to keep private.

05

Open to the public

Anyone can view the data — and contribute observations.

06

Smart-contract alerts

Agencies warn each other automatically of collision risks.

MARKET OPPORTUNITY

$2.7B

space debris removal industry

Benefits

- ✓ A single platform for all agencies
- ✓ Public tracking, anytime
- ✓ Transparency across agencies
- ✓ Faster access to information
- ✓ Debris records digitised on-chain
- ✓ Consolidated research and effort