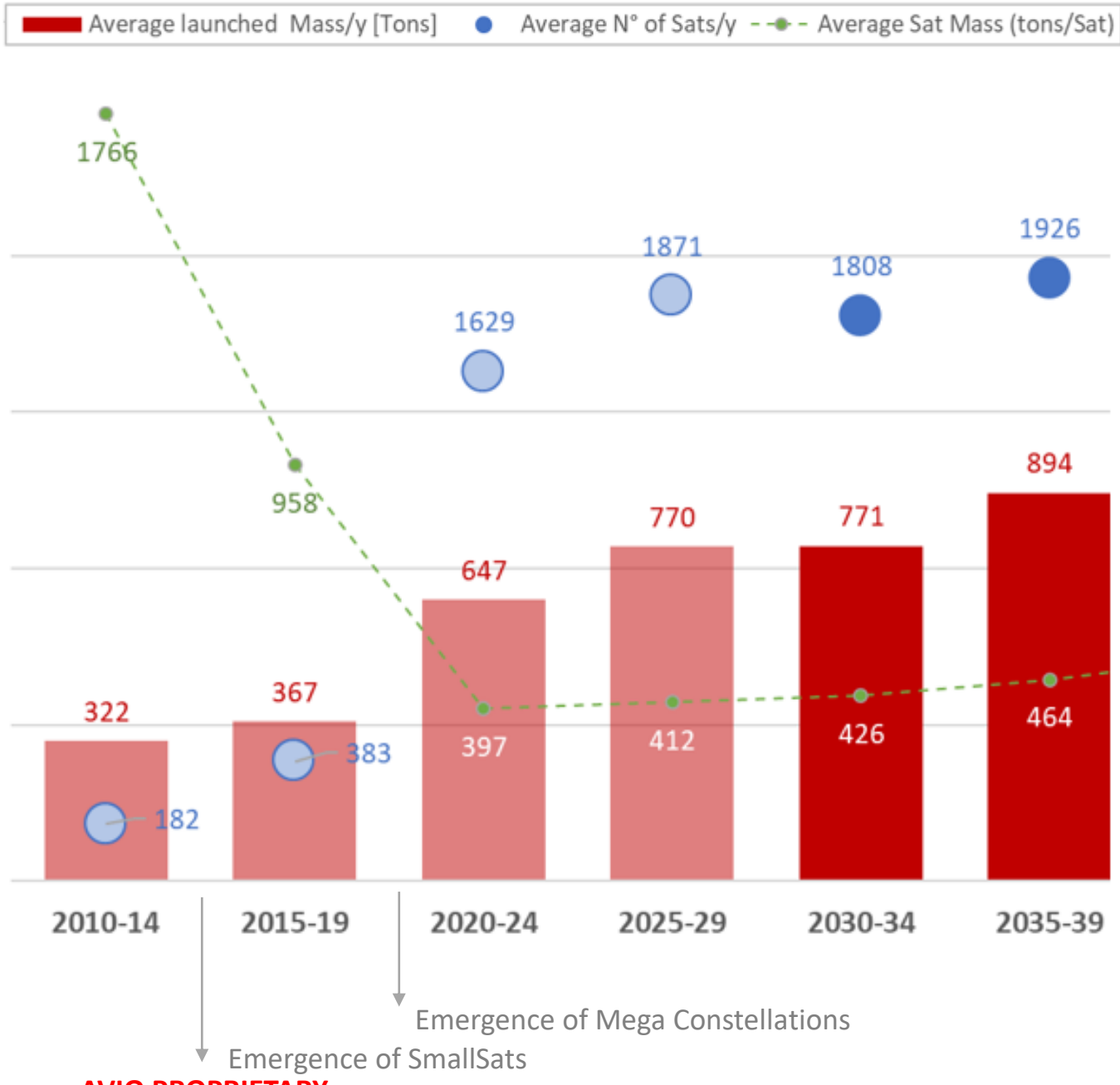
SEPTEMBER 21ST, 2021

In-Orbit Services: AVIO Vision

Sats are increasing in number and decreasing in size… It looks like only good news for Space Community, doesn't it?



But… **How will LEO risk to look like** in a decade from now?

Orbital Congestion and Space Debris

Risk for existing and new spacecrafts

There is a need for an «Highway Code»

Last mile logistic orbital services…

Distribution of space debris in orbit around Earth

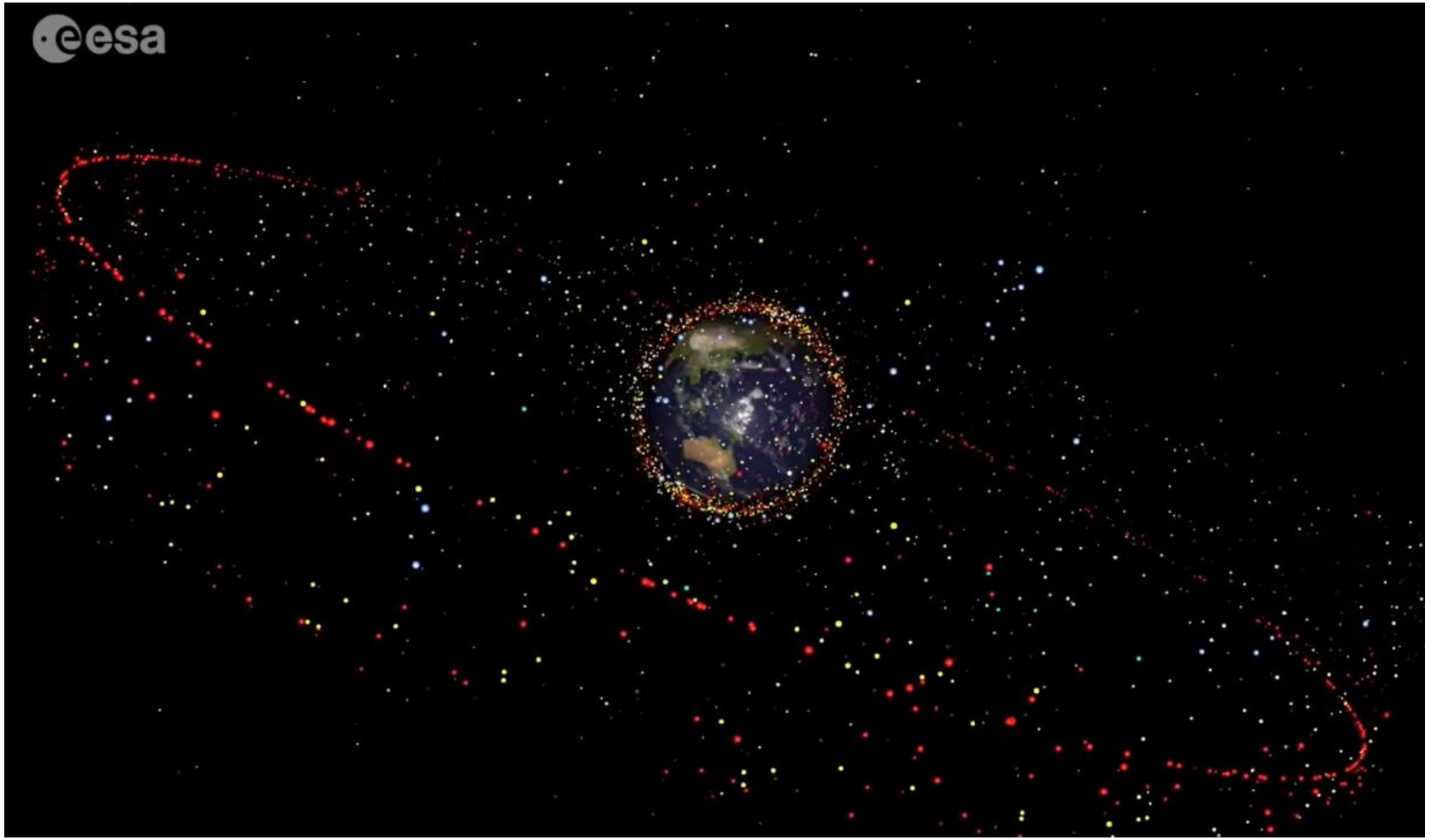
Number of space debris objects in orbit:

> 1m: 5.4 k objects

> 10 cm: 34 k objects (among them are only 2 k active satellites)

> 1cm: 900 k objects

> 1mm: 130 M objects



ESA credits - 2019 data

Every challenge is an **opportunity**, just like as every opportunity comes along with some **challenges**…

The solution should be conceived as completely integrated in the Space Value Chain

Sustainable

Commercially Viable

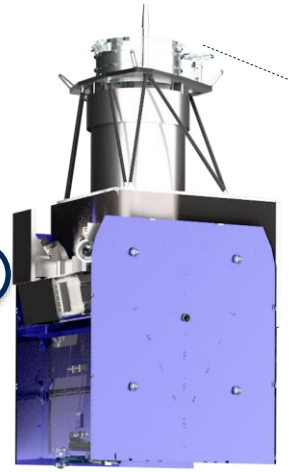
Modular, minimizing risks

There’s no chance to have dedicated solutions for each need

AVIO IoS product vision: to cover the whole spectrum of services, including SDR!

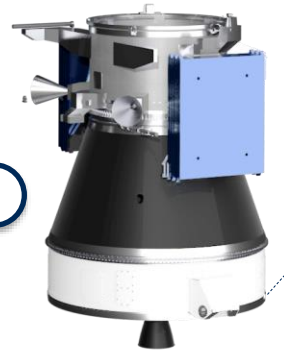
Vega In-orbit Services (VIS)

Payload (PL)
Released before IOS Mission



Service Module (SM)
Sensors and effectors for Rendezvous and Capture (GNC, Proximity Avionics, robotics…)

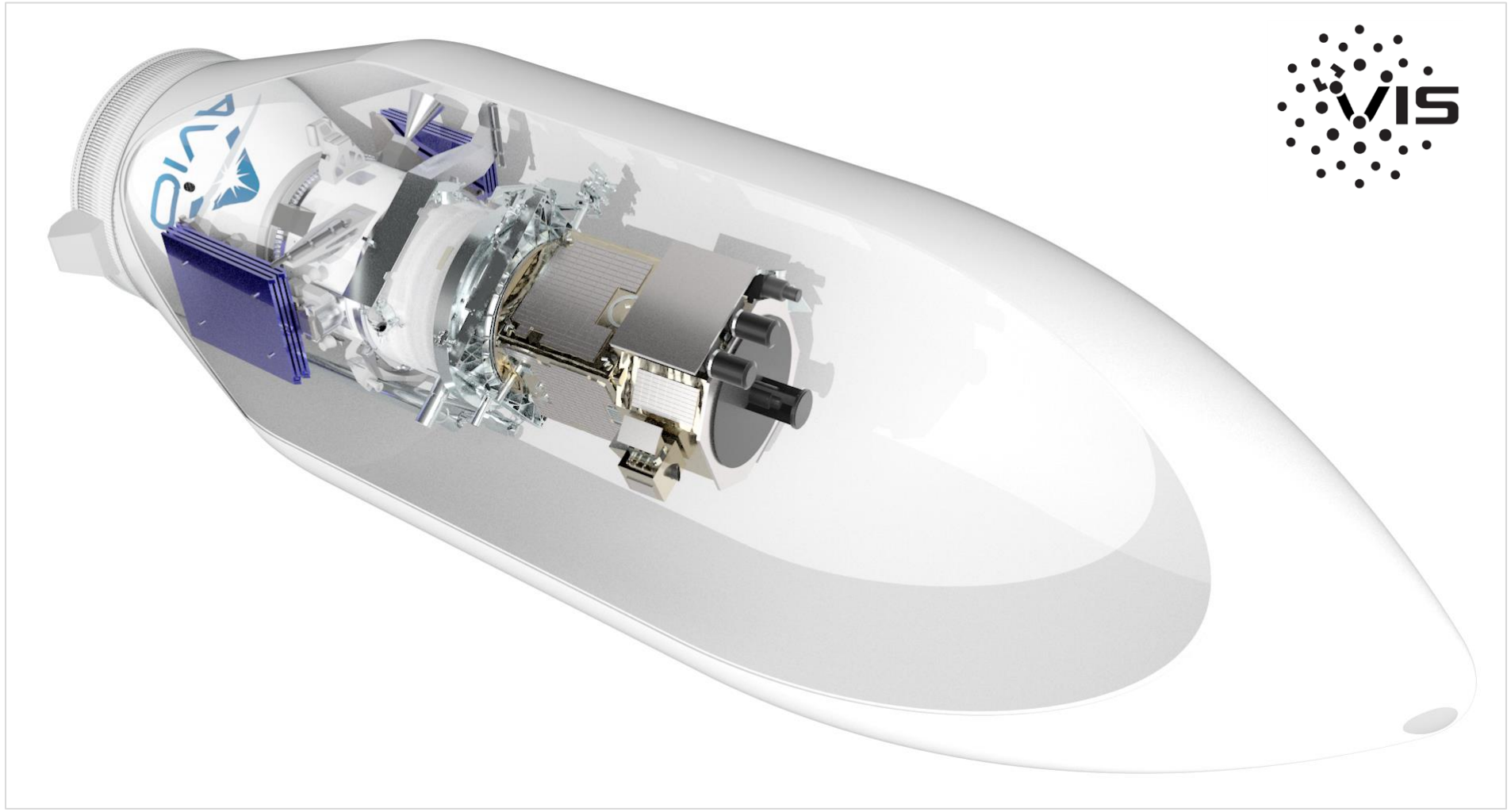
Avum Orbital Module (AOM)
Provides «Smart» Propulsion, Power, Avionics



Vega C
Launch System

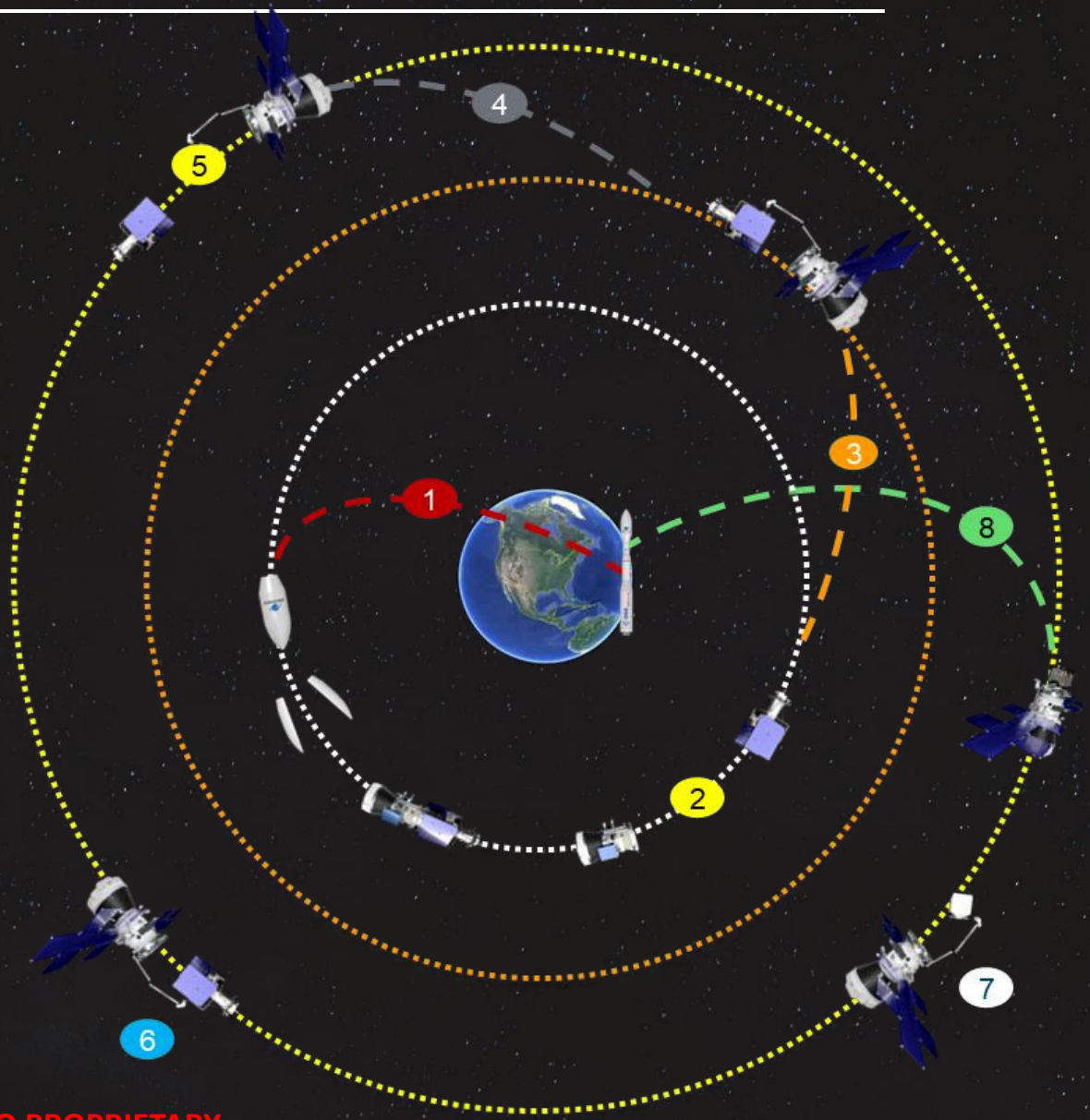
Let's clean up the space junk around the Earth…..

VIS: ACCOMODATION IN VEGA C P/L FAIRING



VIS: Value Proposition

1. VEGA C launch
2. Vega C Payload release
3. VIS - Rendez-vous with target Satellite
4. VIS - Satellite In Orbit Transportation
5. VIS - Satellite release into final orbit
6. VIS - Other Satellite Servicing (e.g. Refueling)
7. VIS - Debris capture
8. VIS - De-orbit maneuver



First step: matching technological roadmap with market needs

VIS CORE SERVICES

- In-orbit inspection
- Refueling
- Life Extension
- Relocation
- Space Debris Removal
- Self Disposal

VIS ENABLED SERVICES

- APM Exchange
- Reconfiguration
- Salvage

VIS FUTURE SERVICES

- Repair
- Refurbishment
- On-Orbit Assembling
- Station keeping

Q&A

Any questions?

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AVIO