

CLEANSPACE



Luisa Innocenti

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Management of End Of Life



Where we are

- Only 60% satellites apply Space Debris Mitigation guidelines
- System approach partially implemented
- Some technologies SDM technologies are being developed
- Copernicus Expansion Design 4 Removal

What we propose

- Mature critical technology building
- Define how to break-up a satellite
- Develop platforms optimised for EoL
- Extension of D4R to small Satellites
- Capturing payload bay for Copernicus phase 2 and In Orbit Demonstration

Where we want to be

- LEO satellite platforms fully demisable
- Large satellites optimised for controlled reentry
- Satellite can be de-orbited by passive or active de-orbit kits
- High probability of successful disposal
- Prepare all satellites to be removed
- Prepare satellites for servicing



Active Debris Removal and In Orbit Servicing



Where we are

- Technologies for IOS
- First ADR mission on-going
- IOS IOD preparation
- IOS missions outside Europe
- Close Proximity Guidelines

What we propose

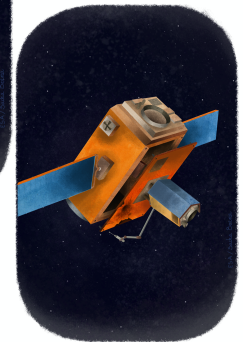
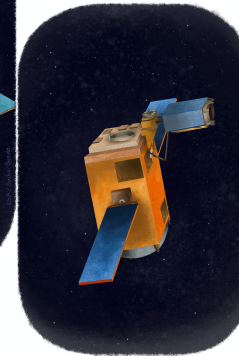
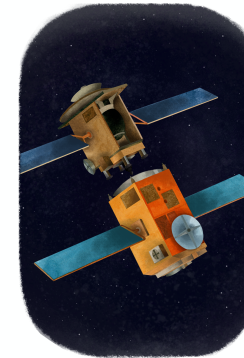
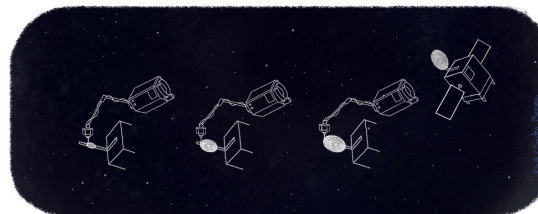
- Complete CS1 funding
- User-driven IOS mission(s)
- Technology developments

Where we want to be

- Fly Clearspace-1 mission
- Fly European IOS with a customer
- Develop a catalogue of technologies for IOS
- Rules for Sustainable Close Proximity Operations

Where do we want to be

- RETHINK
 - Recycle
 - Reuse
 - Repurpose



Credits: ESA/Sacha Berna



Ecodesign

Where we are

- Number of LCA studies
- First version of framework
- Some green technologies
- Some LCA implemented in projects

What we propose

- Update handbook
- Increase use of LCA
- Investigate impacts of testing
- Roadmap of green technologies
- Use of sustainability rating for space debris



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Where we want to be

- Established eco-design framework
- Eco-design of missions leading to impact reduction
- Implementation of green technologies

