ISD Workshop: LEO Industrial opportunities

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Day 1

14:05-14:30

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Continued Operations of ISS/Columbus

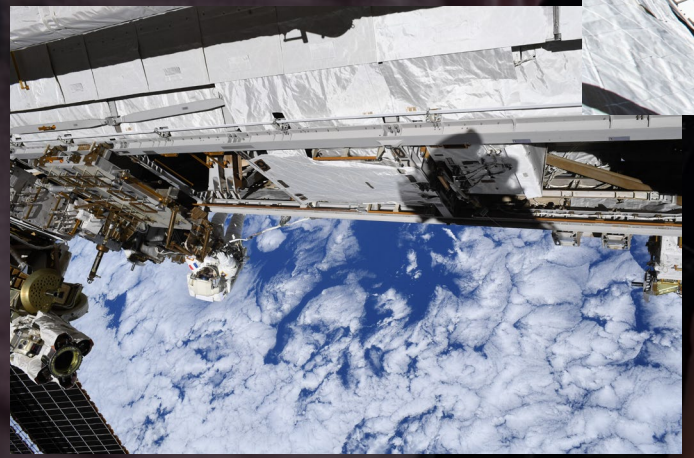
Baseline plan

Q1 2028
Start of Altitude lowering

Mid 2030
Final Crew Departure

Mid-2029
US Deorbit Vehicle (USDV) Launch
(effective end of operations)

Jan 2031
ISS Re-entry



- ISS operations will continue but will be ramping down towards End of Life (EoL)
- There are/will be very limited new developments as efforts will concentrate on maintaining current operations.
- There will be some opportunities for essential sustaining engineering (maintenance) to keep ISS running until EoL (bearing in mind a potential lifetime extension).

Potential Extension (all dates tentative)

Oct 2026
NASA Authorisation Bill
(NASA budget request for ISS extension to 2032)

Nov 2028
CM28 Request funding for extension

Dec 2026
ESA CM decision for ISS EoL or Extend

30 Sept 2032
End of ISS Operations

ALADDIN: Autonomous Leo Accelerated Demo Docking to ISS Node

- A European vehicle capable of cargo transportation to ISS and Commercial LEO destinations
- Two competing consortia
- First demo mid-2029:
  - Launch
  - Dock to ISS
  - Unload and load cargo
  - Re-entry
  - Splashdown
  - Recovery of cargo

Essential to fulfil barter exchange obligations

Essential for continued LEO Science, Technology development and Astronautical endeavour

Building block for European crewed Vehicle

Repositioning of European exploration

Stepwise own capability build-up to cope with investments

Maturing options on European self-determination in exploration for upcoming decision points, including IMM26 and CM28

Priority in LEO Cargo vehicle: 2029+ Crew transportation vehicle in 8-10 years

Priority: autonomous European crew access to LEO

End-to-end core capability

- Crew vehicle + service module
- Integrated launch abort system
- European launch service
- Launch site and range adaptations
- Mission operations, training and recovery

NOW
Competing concepts and critical technology de-risking

2031
Launcher selection decision gate

AROUND 2035
First operational crew launch targeted

Design principle: preserve credible growth paths towards cislunar transportation without imposing an early design constraint.

Ambition: secure a European foothold in the post-ISS landscape

A. ACCESS THROUGH PARTNER OR COMMERCIAL PLATFORMS

- Service procurement and reciprocal access
- European infrastructure and technology contributions
- Interoperability with European cargo and crew systems
- Safeguards for access, governance, industrial return and resilience

Lower initial capital exposure, but continued reliance on external destination choices.

B. EUROPEAN-LED, HUMAN-TENDED OUTPOST

- Minimum viable core for short crew sorties
- Robotic operations between visits
- Utilisation services with partner-provided extensions
- Potential evolution into a staging, logistics and servicing node

Greater leadership and control, paired with phased expansion against demand and affordability.

Decision basis: strategic value, full lifecycle cost, schedule viability and European industrial return, not capital cost alone.

Assess potential European-led, Human-tended LEO Outpost

Ongoing studies & derisking

Post-ISS Scenario#3 Pre-Ph A studies:

- Main objectives are to further define the technical, operational, financial and programmatic perimeter of, a Minimum Viable Product (MVP) configuration for the LEO Outpost.
- ESA enters the pre-Phase A as the architectural, technical, and programmatic authority - not as a solution developer. Two industrial consortia (ADS-led + OHB-led) are maturing their concepts until Q1 2027

Life Support / Environmental Control Pre-Ph 1 studies:

- Technology maturation for selected technologies: Trace Contaminant Control, Humidity Removal & CO2 scrubbing, Metabolic Waste Management

Science, instruments and payload opportunities in low Earth orbit

- Uncrewed Autonomous Free Flying Platforms
- End to end science services in LEO & study post-ISS science
- Research commodities and preparation for future capabilities

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THANK YOU!