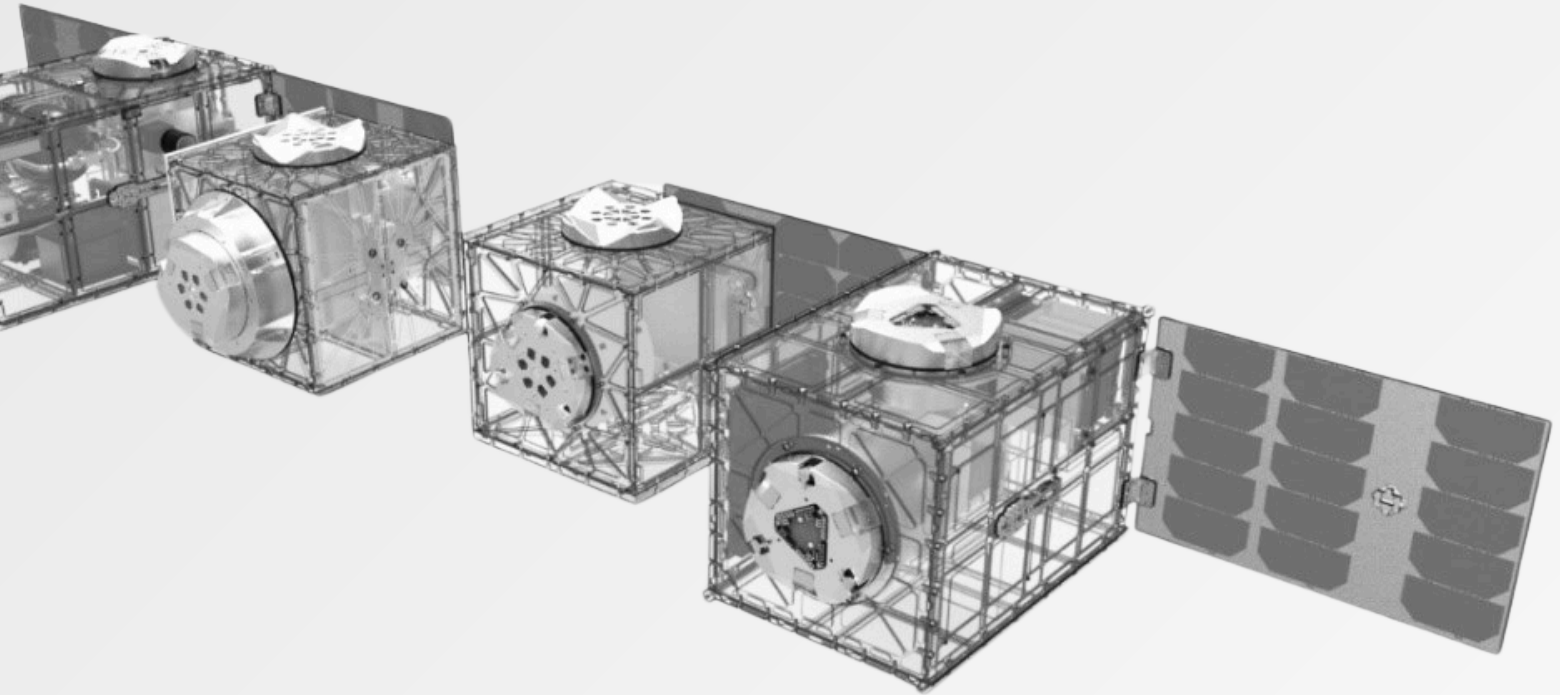




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ORUBOAS

Orbital Replacement Unit -
Based on Building Blocks for
Advanced Assembly of Space Systems

Pushing Boundaries of what's possible

—————”

HaDEA





ORU-BOAS in a Nutshell

The ORU-BOAS system brings **modularity** to satellite **construction, servicing, and assembly**. By leveraging plug-and-play modules, it reduces costs, extends mission lifespans, and adapts to diverse mission needs. Our dedicated researchers have developed the following features:

Modular System

ORU-BOAS offers a flexible, modular architecture for satellites, enabling straightforward assembly, servicing, and upgrades in orbit.

Cost-Effective

By using interchangeable modules, ORU-BOAS significantly reduces the cost of space missions, making space more accessible and sustainable.

Adaptable

The system is designed to support a wide range of mission types and payloads, ensuring compatibility with various space applications.



Plug-and-Play Approach

Similar to an AppStore model, the system allows payloads and components to be swapped in and out with ease, offering greater flexibility for future space missions.

Extended Lifespan

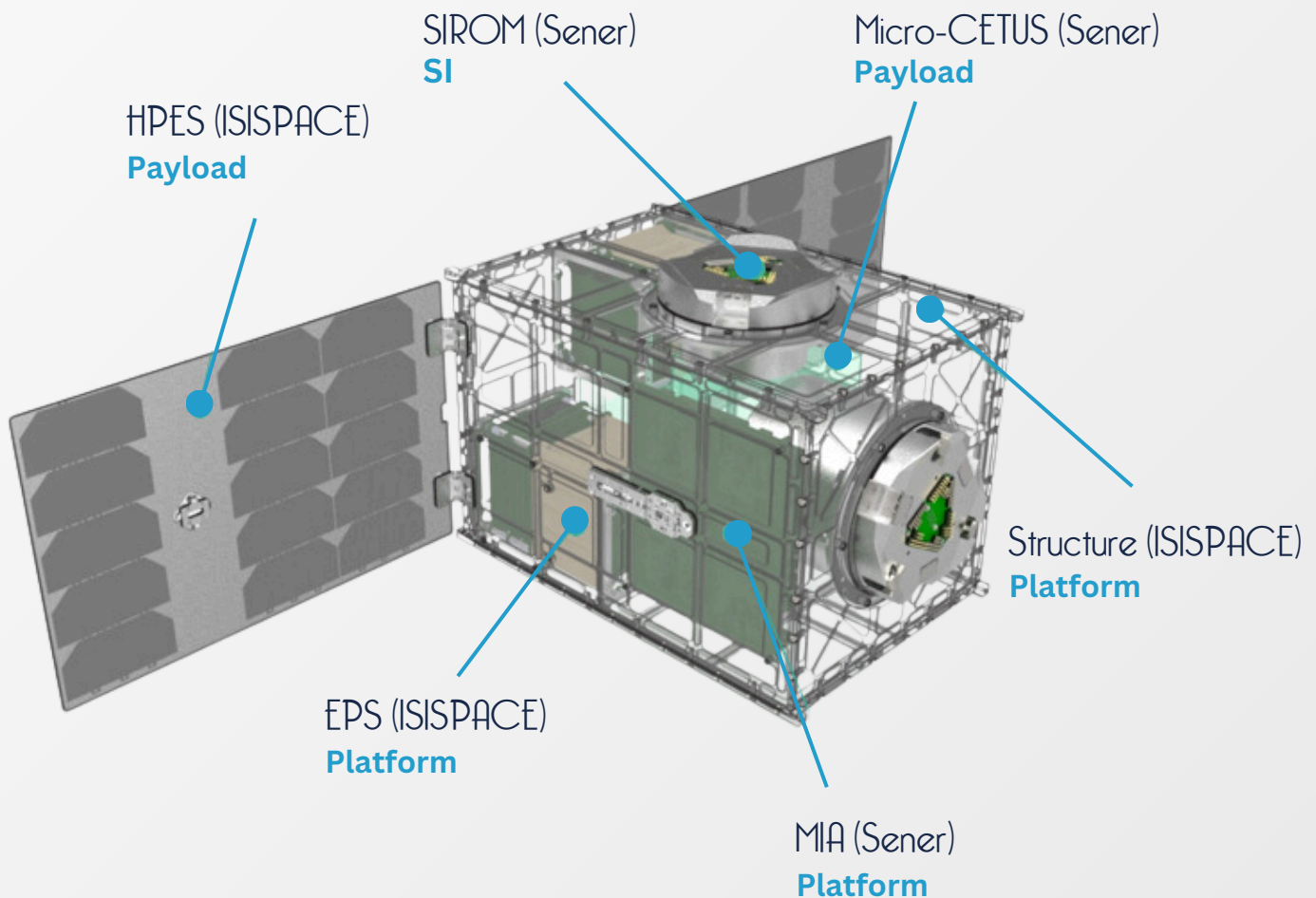
In-orbit servicing and upgrades help extend the lifespan of satellites and space infrastructure, reducing the need for costly new launches.

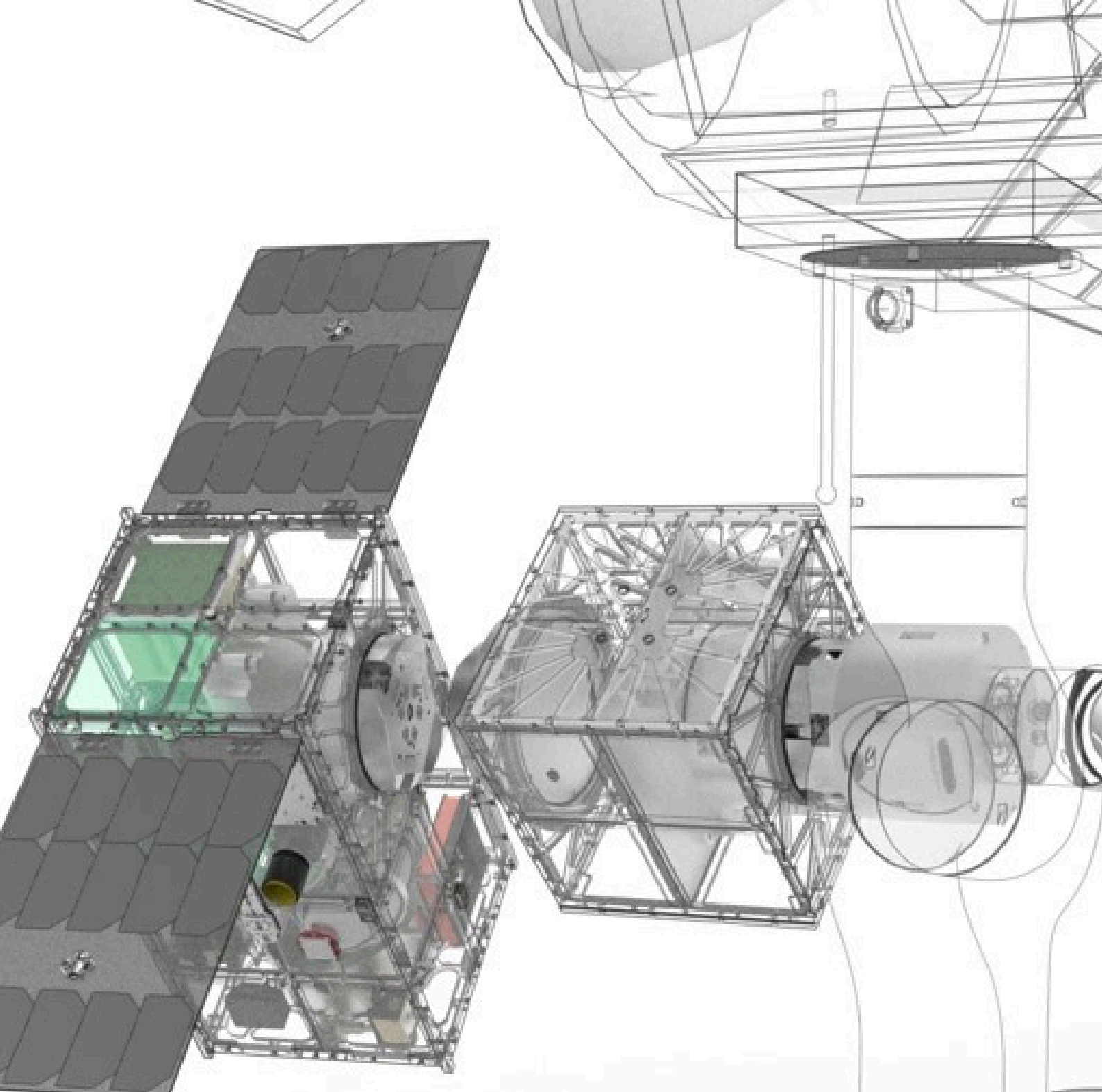
In-Orbit Manufacturing & Assembly

ORU-BOAS enables in-space manufacturing and modular assembly, transforming how satellites and space systems are built and maintained.

Sustainable Space Operations

The system supports reusable space components, contributing to long-term sustainability and reducing space debris.

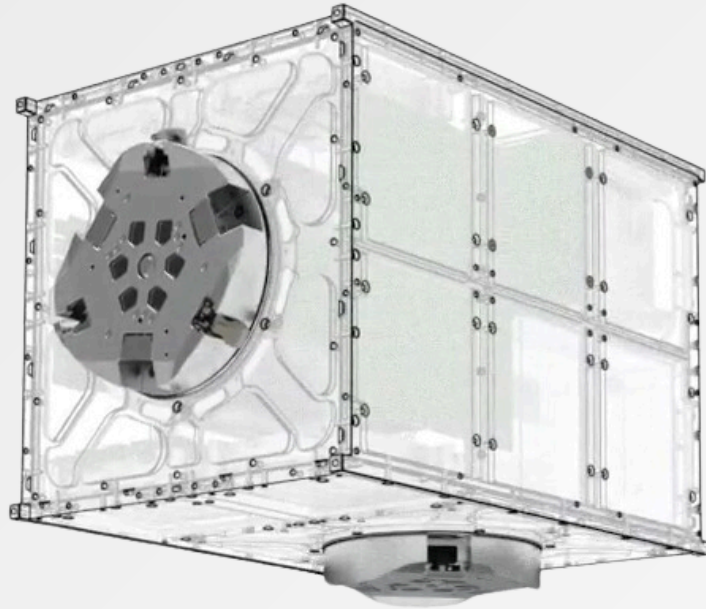




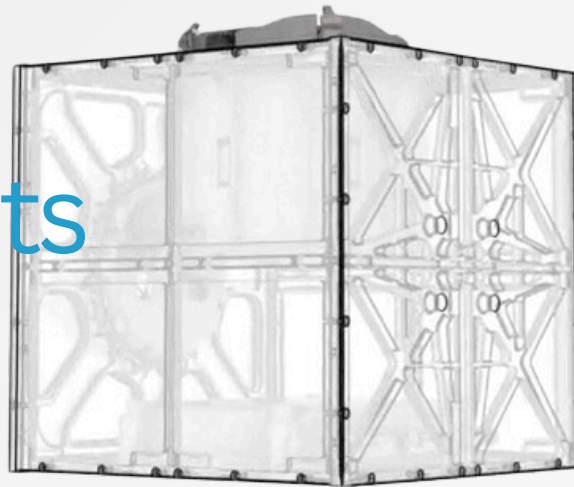
Artistic representation of berthing operations involving ORU-BOAS



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Key ——— Achievements



The development of this **modular satellite system** has achieved significant milestones across all phases, from concept to validation. By focusing on **scalable designs, modularity, and seamless integration**, the program has advanced satellite technology to meet diverse mission requirements.



Key Achievements

System Requirements and Concept

System Requirements Review (SRR) validated mission requirements and technical readiness goals.

Preliminary Design Phase

Designed a scalable ORU platform and payloads with interchangeable modules.

Completed the *Preliminary Design Review (PDR)*, refining modularity for diverse missions.

Detailed Design Phase

Critical Design Review (CDR) validated detailed system designs.

Defined interfaces (SIROM) for seamless integration and established the Design and Development Specification for Satellite Construction Kit (DSSCK).

Manufacturing and Testing Phase

Breadboard modules for key systems were manufactured, including *IMEPS3 power systems* and *Data Handling Systems (MIA)*.

Completed *Manufacturing Readiness Review (MRR)* and *Test Readiness Review (TRR)*.

Validation Phase

Simulated free-flying and module attachment in rendezvous conditions.

Demonstrated module interchangeability and autonomous docking using robotic arms.



ORU-BOAS and the EU Strategic Vision for Space

ORU-BOAS aligns with the EU's strategic objective to attain the capacity to “**Act in Space**”, a critical step toward ensuring autonomy and sustainability in the European space ecosystem. As part of this initiative, the project contributes to the development of **In-Space Operations and Services (ISOS)**, enabling advanced capabilities like servicing, assembly, manufacturing, debris removal, and autonomous transport.

Building the Future of Space,
One Module at a Time

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The Team



Connect



101082078



SENER AEROESPACIAL



24 Months



info@oru-boas.eu



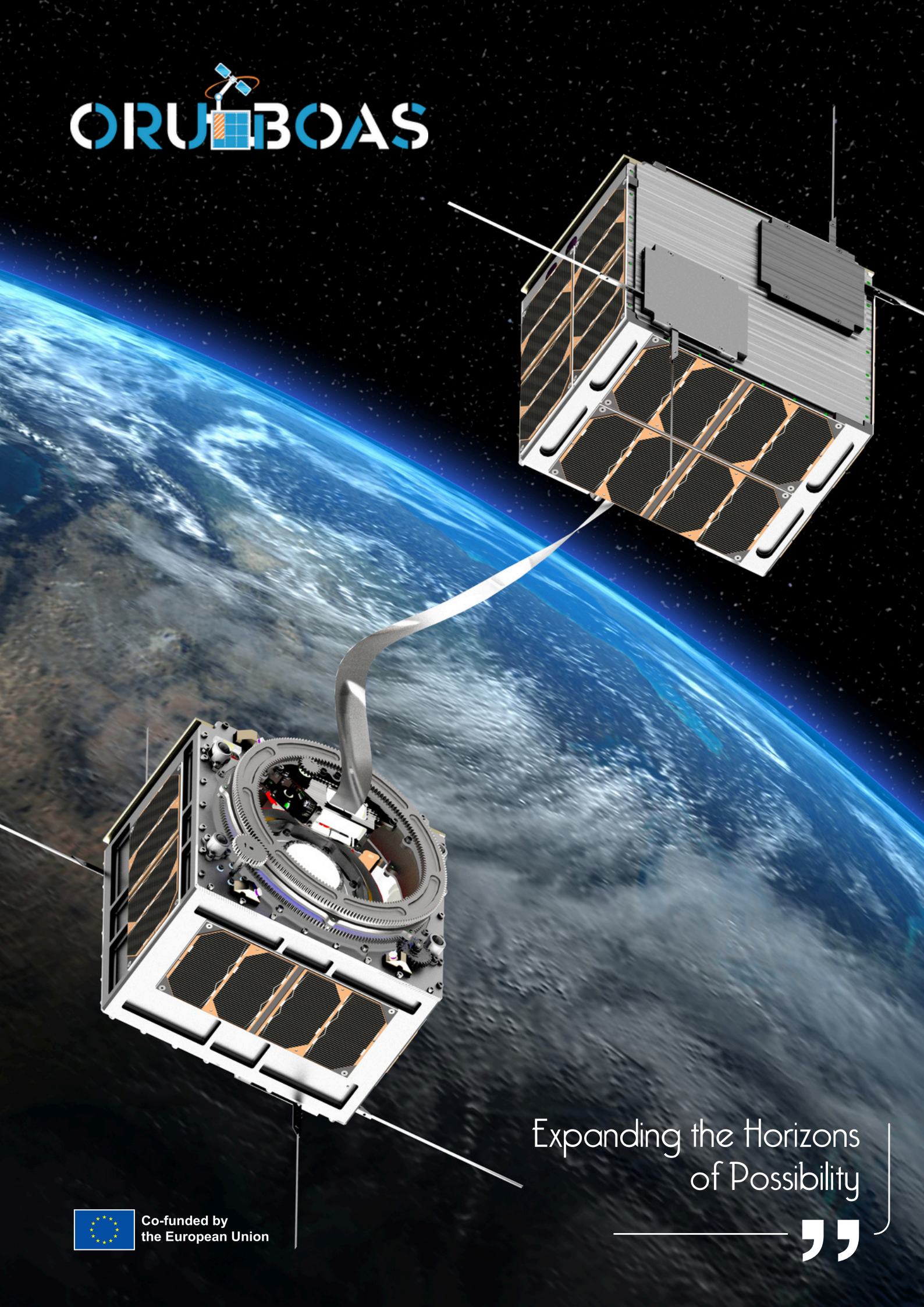
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Expanding the Horizons
of Possibility



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