

#EUSpaceResearch

# IN-SPACE OPERATIONS AND SERVICES

INTRODUCING THE FUTURE  
SPACE ECOSYSTEM  
AND OUR STRATEGIC  
CAPACITY TO  
**ACT IN SPACE**



Horizon Europe,  
a programme of the  
European Union





Horizon Europe,  
a programme of the  
European Union

#EUSpaceResearch

# IN-SPACE OPERATIONS AND SERVICES

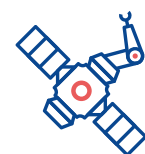
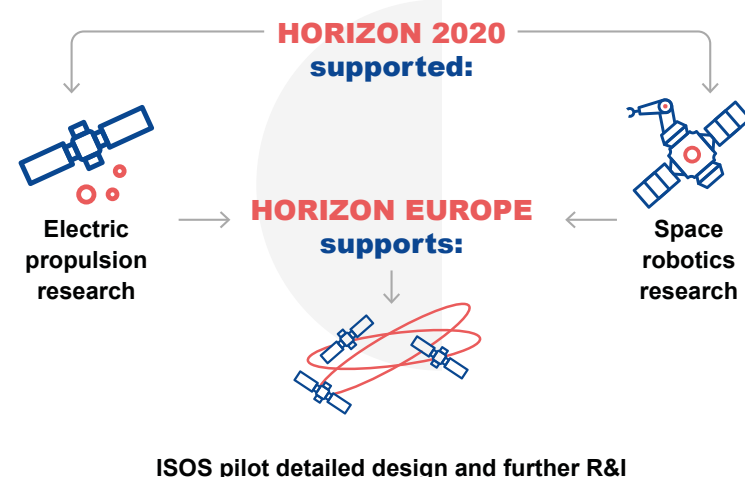
Introducing the future space ecosystem  
and our strategic capacity to  
**ACT IN SPACE**

In-Space Operations and Services (ISOS) will enhance the **adaptivity, resilience and sustainability of space assets**. It includes satellite servicing, assembly, manufacturing, recycling and logistics in space. The European Commission recognises the **strategic importance of ISOS**, in particular with regards to resilience and protection of the infrastructure in space and to commercialisation.

**ISOS aims at creating a new in-space economy and at fostering the protection of space assets, safeguarding the EU's freedom to act in space.**

## Towards a strategic flagship

In the current geopolitical context, it is essential to reduce technological dependencies in critical sectors. **Act in Space** is a key future strategic capacity for the EU as a space power. The EU is aligning objectives and acting towards a **new strategic flagship** for service provision to the European infrastructure in space that will also foster a new in-space economy. A pioneering pilot mission including technology and service demonstration is already under development. It will be the seed point for this future flagship. As global competition intensifies, it is necessary to maintain Europe's capabilities on par with competitors.



### Act in Space

This strategic capacity will bring the EU to the forefront of emerging service applications, including inspection, rendez-vous and docking, grasping, repair, reconfiguration, assembly and disassembly, manufacturing, resource extraction, reuse/recycling, removal and transport of objects in space, for satellites, platforms and larger structures.



### ISOS pilot mission

The EU ISOS mission shall demonstrate future applications and operational services.

## Game-changing innovations and enabling technologies

The paradigm shift towards adaptive space systems builds on **automation and robotics, AI, electric propulsion and modular and reconfigurable spacecraft concepts**. Together with other enabling technologies such as electric propulsion, they will change how space assets are designed, produced, tested, transported, and operated. Different means realised with AppStore-like approaches, will benefit the future space ecosystem and foster a **circular economy**.

## Synergies between civil and defence sector

Autonomous, robotic, real-time and onboard decision-making ISOS technologies illustrate their potential use for both **commercial and governmental purposes**. ISOS, leveraging in-space servicing, assembly, manufacturing, and transport technologies, will foster the reliability, safety, security, sustainability, and flexibility of space missions.

## Promoting rules and standardisation for an ISOS market

Appropriate regulation and standardisation are crucial for the growth of global ISOS. The European Commission works towards a comprehensive **regulatory framework** that provides the foundation for a new ecosystem, stimulating market growth and **fostering cooperation** between market players. Standardisation ensures interoperability of developed products and services.

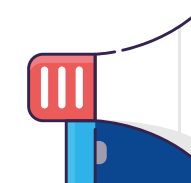
## Introducing EU-funded space R&I projects

**EROSS IOD** seeks to enable the repair of satellites in orbit through autonomous robots, covering tasks like rendezvous, refueling, and component replacement to extend satellite lifespans.

**STARFAB** is developing an automated orbital warehouse unit that will enable the handling of goods in space, supporting sustainable on-orbit servicing, assembly and manufacturing (OSAM) business models.

**EU-RISE** is analysing the market for in-space services to develop and refine European capabilities in space robotics, thereby establishing a significant OSAM capacity in Europe.

**SPACE USB** aims to develop a flexible, universal interface akin to USB for on-orbit servicing and assembly, focusing on compactness, docking symmetry, and interoperability with existing space connectors.



**Be part of the  
EU-funded space R&I**

Horizon Europe is the EU's key funding programme for research and innovation, with a budget of around €95 billion over 2021-2027, of which close to €1.6 billion is dedicated to space research. The space R&I is managed by the **Health and Digital Executive Agency (HaDEA)**, the **EU Agency for the Space Programme (EUSPA)**, the **European Space Agency (ESA)** and the **European Commission** itself. Most calls are also published on the **EC Funding and Tenders participant portal**.

