



PROGRAMME OF  
THE EUROPEAN UNION



# Webinar on IOD/IOV Call for Expression of Interest

16 July 2024

WebEx, 09:30 – 12:00

European Commission – DG DEFIS

European Space Agency – TEC & STS



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# IOD/IOV Service – an overview

- **In-Orbit Demonstration and Validation (IOD/IOV)** is a Union programme allowing new technologies to be tested in orbit by providing **aggregation** (if needed), **launch services, operations**.
- The IOD/IOV service is broadly open to **experiment providers** from academia, research organisations, SMEs and large industrial companies, space agencies, etc.;
- **IOD/IOV experiments needing aggregation** are defined as innovative technologies, products, concepts, architectures, and operations techniques that require in orbit demonstration/validation. Experiments may be instrument, equipment, technologies, system experiment, missions, payloads, etc. Experiments will be aggregated on a carrier (dedicated or rideshare).
- **“Ready to fly” IOD/IOV satellites** are satellites with a payload or a set of payloads including innovative technologies, products, concepts, architectures, and operations techniques that require in orbit demonstration/validation.

# IOD/IOV Service – Expected benefits

- The **global competitiveness of the European space sector** allowing innovative technologies to be effectively tested in orbit, while reducing the time to market.
- **Reduce EU non-dependence** by providing cost-effective services based on EU solutions both for the spacecraft and for the launch services;
- Foster the **development of skills and talents** by providing a generation of European engineers with hands-on experience in real-world space programmes.
- Enable the **development of new commercial entrants** (space tech start-ups and SMEs) for technology developers, satellite manufacturers and space transportation solutions.

# IOD/IOV Services

The **IOD/IOV Services** cover:

1. **Aggregation** services for IOD/IOV Experiments that need to be aggregated on a spacecraft (dedicated or rideshare missions);
2. **Launch services** for aggregated IOD/IOV missions and for “Ready to Fly” Satellites implemented through the **European Flight Ticket Initiative**;
3. Up to one year of **operations** for aggregated IOD/IOV missions.

**Implementation** of all procurement activities is **entrusted to ESA** on behalf of the European Commission.

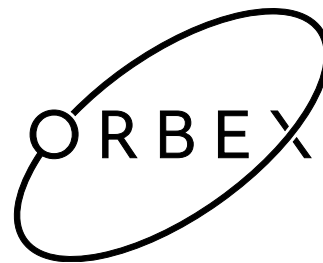
# IOD/IOV Service – European Flight Ticket Initiative

The **European Commission** and the **European Space Agency** are jointly implementing a **Flight Ticket Initiative** with the objectives to:

- Stimulate **new European space transportation solutions** through open competition for the procurement of launch services;
- Provide **regular opportunities** of affordable and responsive launch services for European “ready to fly” IOD/IOV satellites;
- Provide **regular opportunities** of affordable and responsive launch services for other EU IOD/IOV missions and possibly EU institutional missions.

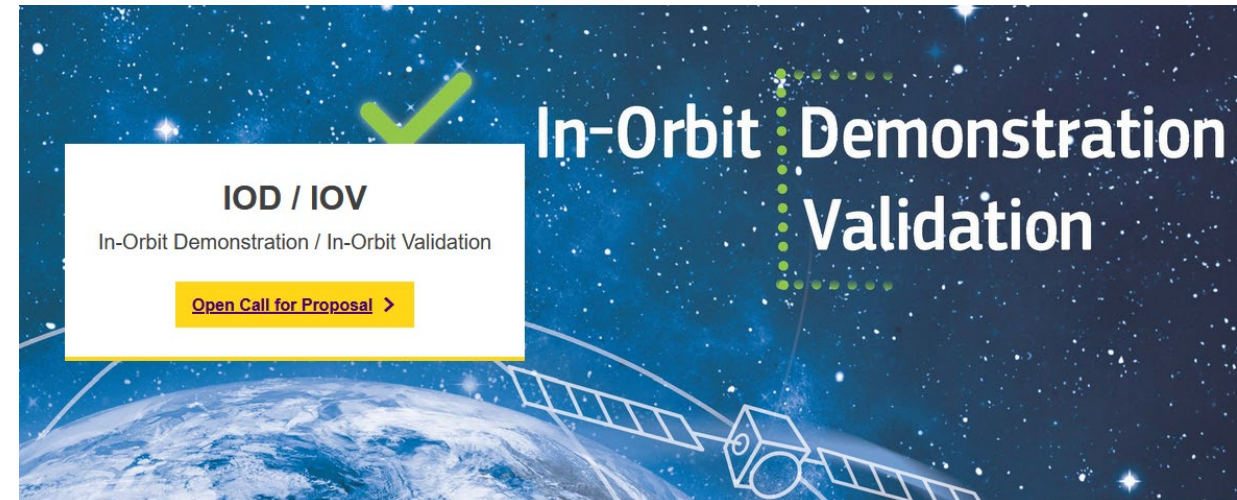
# IOD/IOV Service – European Flight Ticket Initiative

- The launch service for IOD/IOV missions is subject to a **separate procurement process** through the flight ticket initiative.
- The flight ticket initiative for IOD/IOV missions will use exclusively European manufactured launchers **co-funded** through the **EU Horizon Europe** programme and the **ESA Boost!** programme.
- Launch services for all IOD/IOV missions will be performed by the following launch service providers:



# IOD/IOV Service – Calls open for application

- Two parallel Calls for Expression of Interest for:
  - **IOD/IOV Experiments needing aggregation;**
  - **Ready to Fly IOD/IOV satellites.**
  
- Multiple cut-off dates on:
  - *31 May 2023, 18:00 (CET), closed;*
  - *15 March 2024, 18:00 (CET), closed;*
  - **2 September 2024, 18:00 (CET);**
  - 15 March 2025, 18:00 (CET);
  - 1 September 2025, 18:00 (CET);
  - 15 March 2026, 18:00 (CET).



# IOD/IOV Service – Eligibility

## IOD/IOV Experiments needing aggregation

Applicants must be **legal entities** (natural persons, public or private bodies);

Applicants must **be established in** one of the eligible countries, i.e.:

- **EU Member States** (including overseas countries and territories (OCTs));
- **Countries Associated** to the Horizon Europe Programme or countries which are **in ongoing negotiations** for an association agreement.

## Ready to Fly IOD/IOV satellites

Applicants must be **legal entities** (natural persons, public or private bodies);

Applicants must **be established in** one of the eligible countries, i.e.:

- **EU Member States** (including overseas countries and territories (OCTs))
- **Countries Associated** to the Horizon Europe Programme or countries which are **in ongoing negotiations** for an association agreement;
- **ESA Member States.**



# IOD/IOV experiments needing aggregation

## - Constraints and requirements

- At the time of application, candidate experiments shall have reached a minimum TRL 5/6;
- Compliance with resources and interfaces compatible with:
  - **Small satellites missions;**
  - **Cubesat missions.**
- Compliance with **EU manufactured launcher** solutions;
- **Delivery** of the flight model **within one year** following the application cut-off date.

# IOD/IOV experiments needing aggregation

## - Analysis and Selection process

1. **Analysis** of received applications on the basis of three criteria (next slide) by a jury of independent experts and ESA experts;
2. **Pre-selection**: Applications that meet the threshold for each criterion will go through a pre-selection process. IOD/IOV experiments will be given priority based on:
  - a) Experiment developed or funded in the frame of Union and/or ESA initiatives;
  - b) Applications that received the highest overall score, in case of ex-æquo, experiments that received a higher score on the innovation criterion will be given priority.

IOD/IOV experiments needing aggregation will undergo an **accommodation analysis** with a view to allocating the highest number of experiments to IOD/IOV mission(s).

Considering available resources, a list of pre-selected IOD/IOV experiments will be established.

3. The **final selection** will be confirmed by the European Commission after the System Design Review (SDR) that will validate the feasibility of the relevant IOD/IOV mission.

# IOD/IOV experiments needing aggregation

## - Analysis criteria

Criteria	Threshold/ score
<p><b><u>Technical fit:</u></b></p> <p>Demonstration of acceptable technology readiness level for actions to be considered for the IOD/IOV service (required TRL 5/6);</p> <p>Substantiation of compatibility and complexity of the experiment needing aggregation in terms of interfaces and resources (e.g. Self-standing experiments, simple mechanical/ thermal/ electrical/data, interfaces with the host spacecraft, mass, volume, etc.).</p>	25/40
<p><b><u>Programmatic fit:</u></b></p> <p>Justification of the in-orbit demonstration and validation need of the mission.</p> <p>Justification of programmatic elements (e.g. risks, planning, funding, development plan, etc.) and compliance with overall planning for flight model delivery.</p>	25/40
<p><b><u>Innovation:</u></b></p> <p>Demonstration of the innovation content and potential.</p> <p>Justification of policy relevance with EU/ESA activities.</p>	10/20
<b>Total (threshold/ score)</b>	<b>60/100</b>

***Applications must pass both the individual thresholds AND the overall threshold.***



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# Ready to Fly IOD/IOV satellites

## - Constraints and requirements

- **Co-funding** for standard launch services in case the satellite provider is a **for-profit** private entity **up to**:

1U	2U	3U	6U	12U	16U	50kg	100kg	150kg	200kg	>200kg
15k€	30k€	35k€	70k€	90k€	100k€	110k€	220k€	310k€	400k€	2k€ per kg

In case the candidate ready-to-fly IOD/IOV satellite provider is a university or a research institute without further commercial interest, EU/ESA funding for launch services may rise to 100%.

- Compatibility with **European launch services**;
- **Delivery** of satellite **within one year** following the application cut-off date;
- Compatibility with latest directives on debris mitigations.

# Ready to Fly IOD/IOV satellites

## - Analysis and selection process

1. **Analysis** of received applications on the basis of **three criteria** (next slide) by a jury of independent experts and ESA experts;
2. **Pre-selection**: Applications that meet the threshold for each criterion will be pre-selected.

“Ready to fly” IOD/IOV satellites will be given priority based on:

- a) Innovations developed or funded in the frame of Union programmes and/or ESA initiatives;
  - b) Applications that received the highest overall score, in case of ex-æquo, experiments that received a higher score on the innovation criterion will be given priority.
3. The **final selection** of the “ready to fly” IOD/IOV satellite will be confirmed, considering available resources, and based on flight availability.
  4. **Way forward**: the launch service for the selected “ready to fly” IOD/IOV satellites will be subject to a separate procurement process in the endeavour **to provide a launch service within 18 months following the cut-off date of application.**

# Ready to Fly IOD/IOV satellites

## - Analysis criteria

Criteria	Threshold/ score
<b><u>Technical fit:</u></b> Demonstration of readiness of candidate satellite to be considered for the launch service; Substantiation of compatibility with European launch services.	25/40
<b><u>Programmatic fit:</u></b> Justification of the in-orbit demonstration and validation need of the mission. Justification of programmatic elements (e.g. risks, planning, funding, development plan, etc.) and compliance with overall planning for flight model delivery.	25/40
<b><u>Innovation:</u></b> Demonstration of the innovation content and potential. Justification of policy relevance with EU/ESA activities.	10/20
<b>Total (threshold/ score)</b>	<b>60/100</b>

***Applications must pass both the individual thresholds AND the overall threshold.***

# Application package and Submission

- **The application package is composed of four parts:**
  - **Part I:** Application and compliance matrix, (30 pages max);
  - **Part II:** Commitment on Flight Model delivery;
  - **Part III:** Declaration of honour on exclusion criteria and absence of conflict of interest;
  - **Part IV:** Legal Entity form.
- Submission in ENGLISH by email to [DEFIS-IOD-IOV@ec.europa.eu](mailto:DEFIS-IOD-IOV@ec.europa.eu) before the relevant cut-off date with the subject line:
  - Call for Expression of Interest – IOD/IOV experiments, or
  - Call for Expression of Interest – Ready to fly IOD/IOV satellites.

# Main steps – from selection to flight

2023 - 2026

- Application → cut-off dates;
- Analysis of received applications → 0-4 months after cut-off dates;
- Information on analysis results → 4-6 months after cut-off dates

2023 - 2026

- Procurement actions published on the ESA-Star portal for:
  - Carrier procurement for aggregation and operation services, including rideshare opportunities;
  - Launch services through the COM/ESA Flight Ticket Initiative.

2024 - 2026

- IOD/IOV Experiment delivery for aggregation on carrier within one year following the application;
- Ready to fly IOD/IOV satellite delivery within one year following the application.

2024 – 2027

- Launch and up to one year of operations for aggregated IOD/IOV Experiments;
- Launch services for ready to fly IOD/IOV satellite within 18 months following the application.





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**Other questions:**

[DEFIS-IOD-IOV@ec.europa.eu](mailto:DEFIS-IOD-IOV@ec.europa.eu)



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