



Announcement of Opportunity

United Nations Access to Space for All initiative

United Nations/Mohammed Bin Rashid Space Centre Cooperation Programme on Payload Hosting Initiative or “PHI”

04 October 2023

1. **Thematic Area:** Access to Space for All – Satellite Development Track
2. **Title:** United Nations/Mohammed Bin Rashid Space Centre Cooperation Programme on Payload Hosting Initiative or “PHI”
3. **Subject:** Hosting of Payload(s) up to 5U on a 12U modular satellite platform, to foster innovation in the space technologies sector.
4. **Implementation:** PHI is executed by the United Nations Office for Outer Space Affairs (UNOOSA) and Mohammed Bin Rashid Space Centre (MBRSC).
5. **Duration:** October 2023 – Early 2026
6. **Deadline for Applications:** Applicants must submit fully completed application forms to UNOOSA by **31 March 2024 23:59 Central European Summer Time (CEST, UTC+2)**. UNOOSA will notify the applicants of the outcome of their application by **June 2024**.
7. **Expected Profiles of Applicants:** Government organisations, research institutes, universities, other public and not-for-profit organisations, and private companies with limited turnover¹.
8. **Number of Opportunities for Hosting a Payload:** UNOOSA and MBRSC will select two entities to each provide a payload with a maximum size of 3U. The total combined size of the two payloads to be selected will be 5U.
9. **Language of the Programme:** English

10. Brief Programme Description:

UNOOSA promotes international cooperation and capacity-building in the areas of space technology and

¹ For the purpose of this Announcement of Opportunity, private companies with an annual turnover, in U.S. dollar terms, of between 10 and 1000 times the mean per capita gross national income, at purchasing power parity, of the country in which it operates are eligible.

its applications, especially in developing countries, within the framework of the United Nations Programme on Space Applications. In 2018, UNOOSA launched the Access to Space for All initiative, which enables communities from all over the world to use and benefit from space technologies and applications.

The Payload Hosting Initiative (PHI) programme, provided under the Access to Space for All initiative, is contributing to the promotion of space education and research in satellite development, particularly for the enhancement of relevant capacity-building activities in developing countries.

The first round of the PHI programme (PHI-1), utilizing the MBRSC 12U modular platform was announced in January 2022. The awardees of the first round are now working on their payloads with the help of MBRSC.

This second round of PHI programme (PHI-2) will provide an opportunity to host up to two payload(s) on the MBRSC PHI-2 mission. MBRSC will develop a 12U spacecraft platform, launch and provide ground station support. The awardee(s) will provide tested payloads to MBRSC ready for integration with the spacecraft and participate with MBRSC in Flight Model Assembly, Integration and Testing (FM AIT) activities.

Entities located in the Member States of the United Nations, including research institutes, universities, other public organizations, NGOs, and private companies satisfying criteria are eligible to apply to this programme with one payload only. Each payload should demonstrate technologies that are at least at Technology Readiness Level 6 (TRL-6). The maximum size of each payload should be 3U.

11. Schedule of the PHI Programme

One round of the PHI programme comprises the following phases: application, selection, development, handover and launch, outreach, and reporting.

(A) Programme Tentative Schedule

Application Submission	31 March 2024
Selection and notification of shortlisted applicants	30 April 2024
Assessment of additional information and selection*	31 May 2024
Selection and notification of awardee(s)	June 2024 (T ₀)
Development	July 2024 – June 2025
Handover**	July 2025
Launch	Approximately T ₀ +18 months***
Outreach	Throughout the programme
Reporting	Launch + 3 months

* UNOOSA and MBRSC may ask for further information on the applications.

** The handover of the Payload to MBRSC must be completed by July 2025 as tentatively scheduled. MBRSC may terminate the contract if the Awardee(s) is not able to meet the handover date.

*** The schedule of development will be defined in the bilateral agreement between MBRSC and the Awardee(s).

(B) Programme Milestone

1) Application Phase: October 2023- March 2024

- Following this Announcement of Opportunity (AO), applicants will prepare their application package, including the application form.
- Applicants will submit their completed application forms by **31 March 2024 at 23:59 Central European Time (CET, UTC+1)**.

2) Selection Phase: April 2024- June 2024

- The Selection Board composed of UNOOSA and MBRSC will evaluate the applications.
- UNOOSA will notify shortlisted entities by 30 April 2024.
- The shortlisted entities shall submit additional documentation by 31 May 2024, if applicable.
- UNOOSA and MBRSC will select and announce the Awardee(s), who will be requested to sign the legal agreement with MBRSC.

3) Development Phase: July 2024 - June 2025

- UNOOSA and MBRSC will invite the Awardee(s) to the kick-off meeting.
- Awardee(s) shall develop the payload following the spirit of the project development cycle and reviews defined by NASA Systems Engineering Handbook Revision 2, NASA/SP-2007-6105, deviations need to be agreed with MBRSC during development ([NASA Systems Engineering Handbook Revision 2 | NASA](#)).
- Awardee(s) shall develop the payload following the schedule below:

Milestone Checkpoint	By
Kick-off Meeting	T ₀ + 0.5 months
Preliminary Design Review (PDR)	T ₀ + 2.5 months
Critical Design Review (CDR)	T ₀ + 5.5 months
Pre-Shipment Review (PSR)	T ₀ + 10 months
Handover	T ₀ + 12 months
Launch	Approximately T ₀ + 18 months

- Reviews
 - MBRSC will invite the Awardee(s) to the milestone reviews.
 - Awardee(s) will prepare the documentation for the milestone reviews according to the requirements of MBRSC. The documents shall be submitted to MBRSC and UNOOSA before the reviews.
 - MBRSC and Awardee(s) will review the compatibility of the payload with the interfaces, such as the mechanical, electrical, and thermal interfaces between the payload and the bus.
 - Awardee(s) shall work together with MBRSC and conduct regular meetings to review the progress and check the compatibility between the spacecraft and payloads.

4) Handover and Launch Phase: July 2025 – Q4 2025

- Transport and delivery of the Payload
 - Each Awardee shall bear the cost of shipping their payload to MBRSC.
 - MBRSC will afterwards ensure the environmental test and launch of the satellite.
- Launch
 - Launch of the satellite will be organized and handled by MBRSC.
- Registration of the space object
 - MBRSC will handle the registration of the satellite, which will be done by the United Arab Emirates, in accordance with the Convention on Registration of Objects Launched into Outer Space. The Awardee(s) shall provide all necessary information for registration purposes.
- Operations
 - MBRSC will conduct satellite operations and handle data link for each payload.

5) **Reporting Phase: Q1 2026**

- Reporting the results
 - The Awardee(s) shall submit the reports to UNOOSA.
 - A Post-development Report shall summarize the development progress of the payload, including the achievements against the requirements; technical specifications; summary of the development process; deviations from the preliminary design, development schedule, and operational plan, etc., if applicable. The Post-development Report shall be submitted to UNOOSA no later than 3 months after the launch.
 - A semi-annual report on the payload operation, related activities and on any publications regarding the participation in this Programme by Awardee(s) must be submitted to UNOOSA after the launch of the satellite, until the reentry.
 - A Final Report on the results of the payload shall submitted to UNOOSA no later than 3 months after re-entry of the PHI-2 satellite.

12. Eligibility Criteria

This Opportunity is open to entities located in developing economies and economies in transition that are Member States of the United Nations:

- Government organisations;
- Research institutes;
- Universities;
- Public and not-for-profit organisations;
- Private companies with an annual turnover, in U.S. dollar terms, of between 10 and 1000 times the mean per capita gross national income, at purchasing power parity, of the country in which it operates.

Entities located in countries which do not have satellites in orbit at the time of the opening of this application (according to the information on the United Nations Register of Objects Launched into Outer Space) are particularly encouraged to apply.

To assess eligibility, UNOOSA will use the country classification list of developing economies and economies in transition indicated in the joint report, World Economic and Situation Prospects published by the United Nations Department of Economic and Social Affairs and other related organisations: <https://desapublications.un.org/file/1098/download>

Entities applying for this Opportunity are responsible for the development of their payload including the design, manufacturing, testing and verification of their payload, as well as the coordinating with MBRSC for operations and utilization after the launch. Therefore, to be eligible for this Opportunity, applying entities must have sufficient capability in space system engineering, including preparation and implementation of reviews, and be able to deliver the payload to MBRSC (budget, export/import control etc.)

If necessary, applying entities shall provide information to support the radio frequency-related matters in full compliance with the applicable International Telecommunication Union radio regulations.

Changes to the composition of the team are NOT allowed once the application has been submitted. If, for exceptional reasons, changes are absolutely necessary, they will be subject to the approval of the Selection Board.

Teams are allowed and encouraged to partner with external entities that can support their development, even if those entities are not eligible themselves. These partnerships should be clearly written as “External Support” in the Application Form and external partners shall not be included in the team.

13. Selection Criteria

The Selection Board consists of members nominated by UNOOSA and MBRSC and will review the incoming applications according to the following criteria:

- (i) Scientific and technical feasibility of the Payload, as determined by either:
 - a. The payload’s expected contribution to developing human knowledge and capacity to undertake activities in the field of space science and technology in the applying entity’s home country or abroad; or
 - b. The payload’s expected contribution to enhancing research and development through the technological demonstration of deploying and operating the payload in the applying entity’s home country or abroad.

- (ii) Team Composition:

The skills set, organization, and composition of the team to successfully deliver the payload to MBRSC. The team shall demonstrate competence in scientific and technological research or in education as well as in project management. The team composition of proposals with the same score will be compared and the proposal with a larger number of women will be ranked higher.

- (iii) Feasibility:
 - Compliance with the Programme Schedule, general feasibility of the proposed payload design and development, including the work breakdown structure, overall schedule credibility, and risk analysis.
 - Budget plan to support the development, preparation, transportation, and shipping of the payload, as well as the availability of funds.

- (iv) Outreach:

The communication and dissemination plan for outreach activities to promote capacity-building and STEM education, clearly linking the project with the Sustainable Development Goals of the United Nations 2030 Agenda on Sustainable Development.

For more information about the SDGs: <https://sdgs.un.org/>

14. Roles and Responsibilities

The Awardee(s) will conduct the following activities:

- Submit the overall schedule/timeline for the payload development to MBRSC.
- Design, analyze, manufacture and test the payload and its supporting systems against the technical requirements.
- Provide information for radio frequency coordination in full compliance with the applicable International Telecommunication Union radio regulations (if applicable).
- Implement and prepare the reviews defined in the contract with MBRSC (indication of milestones is provided in section 11(B) of this document).
- Attend the technical coordination meetings which are to be arranged by MBRSC.
- Deliver the payload to the location specified by MBRSC.
- Conduct outreach activities to promote capacity-building and STEM education related to the payload project.
- Contribute to the public relations and promotion activities of UNOOSA and MBRSC including responding to press inquiries about the payload and preparing information materials upon request from UNOOSA and MBRSC.
- Publish results in journals, proceedings, conferences, workshops, Bachelor, Master and PhD theses, etc., if possible.

Please note that any cost associated with the activities above, including employment costs, travel expenses and transportation fees shall be borne by the Awardee(s).

UNOOSA will consider publishing the payload data (e.g. pictures or other data), subject to consultation with MBRSC and the Awardee(s).

15. Publications

The awardee is requested to inform UNOOSA and MBRSC of any publications that uses the outcome of this Payload Hosting mission, including PhD, Master thesis, publications in journals, and conference or workshop proceedings and presentations. The awardee is requested to include the following sentence in their peer-reviewed publications, contributions to congresses, and other forms of written dissemination:

The authors would like to thank the United Nations Office for Outer Space Affairs and the Mohammed Bin Rashid Space Centre for the Access to Space for All initiative: PHI opportunity for their support in enabling access to MBRSC's PHI-2 mission.

16. Terms and Conditions:

By submitting a completed Application, the applicant agrees to the following:

- The Awardee(s) will enter into an arrangement (contract) with MBRSC to resolve any and all practical, logistical, technical and/or legal issues related to the deployment of the hosting of the payload that may arise between MBRSC and the Awardee(s). The arrangement (contract) will contain terms to define, *inter alia*, scope of work, the necessary conditions for the deployment, allocation of costs, compliance rules, handling of technical information and test results, confidentiality, security issues of MBRSC facilities, declarations of immunity and hold harmless on the part of MBRSC, cross-waivers of liability for damages sustained by either party, third party

liability claims and apportionment of other responsibilities arising under United Nations treaties on outer space, and dispute resolution procedures.

- MBRSC will not cover any insurance related to the payloads. MBRSC will cover only the third-party liability of this mission.
- MBRSC does not in any way guarantee the launch date, the launch success or operational success, nor will MBRSC be in any way responsible for the overall success of the mission. The specific date of the launch will be fixed by negotiation between MBRSC with the Awardee(s) after assignment of the launch.
- MBRSC may terminate the provision of the payload hosting opportunity at any time, should the Awardee(s) violate the terms and conditions described in this Announcement of Opportunity or the separate arrangement (contract) or when the Awardee(s) cannot meet the Programme Schedule.

17. Application Submission

Applicants must email to UNOOSA the fully completed application documents including the Letter of Endorsement from the head of their entity (Document 1), Payload Hosting Application (Document 2) and due diligence document² (Document 3) by **31 March 2024 23:59 Central European Summer Time (CEST, UTC+2) to the following address:**

unoosa-access-to-space@un.org

In the email, applying entities are requested to attach scanned PDF versions (.pdf) of all documents. Please note that the UNOOSA email account only accepts emails with a size limit of up to 10 megabytes. Submission of Document 1, Document 2 is mandatory; in the case of private companies, Document 3 is also required.

Applicants are required to notify their country's permanent mission in Vienna (Permanent Missions to the United Nations (Vienna) (unodc.org)) of their application submission to UNOOSA. If they cannot locate the permanent mission's information in the above link, please refer to Geneva (Member States | UN GENEVA) or New York (e-BlueBook (unmeetings.org)).

At the discretion of UNOOSA or MBRSC, additional information may be requested from applicants, if necessary, to assist in the evaluation of the application. All awards are final, made at the sole discretion of UNOOSA and MBRSC and are not subject to challenge or review.

18. United Nations Privileges and Immunities

Nothing in or relating to this Announcement of Opportunity shall be deemed a waiver, express or implied, of any of the privileges and immunities of the United Nations, including its subsidiary organs.

19. Reference Documents

Applicants are required to refer to the following documents while preparing their applications and experiments:

PHI Platform User Guide Rev 2.0 (released September 2023)

<https://www.unoosa.org/documents/pdf/Access2Space4All/PHI/PHI Platform User Guide for PHI-2-Final.pdf>

² Only for private companies.

20. Additional Information

The latest information on PHI will be made available on the website of UNOOSA at:
https://www.unoosa.org/oosa/en/ourwork/access2space4all/PHI/PHI_Index.html

For further information regarding PHI and applications, please contact
unoosa-access-to-space@un.org