

# EOAC Future EO Mission/Instrument Opportunity Questionnaire

The questionnaire is divided into four elements:

- Part 1 A questionnaire capturing general characteristics of the proposed mission/instrument.
- Part 2 Responses against specific down-selection criteria
- Part 3 Ability to provide further Information at short notice
- Part 4 Potential for International collaboration and dual-use (*new Section in 2020*)

The initial process will only be used to identify possible mission concepts. However the submitted concepts may be subject to an initial assessment by an independent EO Mission Capability Review Panel (EOMCR Panel), to be set up by UKSA, to identify the most viable concepts in relation to a specific opportunity.

Selection of a specific concept, leading to mission implementation, would be the subject of a later process for which additional information would be requested. No specific mission cost ceiling is indicated at this time. Down-selected proposals may be partly or fully funded, but must give value for money. A credible path to implementation within a 3 year timescale is preferred.

Submissions will only be accepted within the specified page limit using the questionnaire pro-forma, font size Arial 10. **Any content outside this limit will be discarded.**

Your response should be emailed to [UKSAEOT@ukspaceagency.gov.uk](mailto:UKSAEOT@ukspaceagency.gov.uk) by noon on 9<sup>th</sup> September 2020.

## Part 1 – Mission Characteristics

Part 1 requests basic information about a potential future EO mission/instrument opportunity. Please give succinct answers, using the table in the pro-forma. The EOMCR panel will use this information to understand your proposed mission concept.

Your overall response must be limited to 2 sides of A4 for Qs 1-13 and 1 page for Q14, font size Arial 10.

		Information Sought
<b>Submission Details</b>		
Q1	<b>Project Name</b>	Name to be used in referring to the proposed mission / instrument.
Q2	<b>Lead UK Organisation</b>	Name of proposing organisation. Note that it is not necessary to identify a mission delivery consortium at the current stage.
Q3	<b>UK Points of Contact</b>	Name, email and phone no. of project leaders and Principal Investigators
<b>Mission Overview</b>		
Q4	<b>Mission Concept</b>	Briefly outline the mission concept, including orbit, constellation configuration (if applicable), ground segment elements and data collection concept (E.g. daily tasking vs long-term observation plan). Provide clarity on whether the current proposal is for an in-orbit demonstration (IOD) or for a full mission/instrument concept, and whether the IOD or full concept is being considered in the answers to each question.
Q5	<b>Objective, Main Products and Beneficiaries</b>	Outline the <b>principal</b> objective of the mission (e.g. technology demonstration; new scientific measurements; enabler for consumer applications; etc) and the main data products. Please identify the <b>principal beneficiaries</b> of the mission.
Q6	<b>Instrument Concept</b>	Outline the nature of the instrument(s) that will generate the principal mission products, including any dependence on data from other instruments or sources.
Q7	<b>Calibration / Validation Concept</b>	Describe any new infrastructure, development, collaboration or research needed for product calibration. Also describe any particularly challenging aspects of performance and how they will be validated.
Q8	<b>Instrument Hosting</b>	Describe the intended payload hosting arrangement. E.g. dedicated mission; hosted mission on 3 <sup>rd</sup> party platform; etc. If hosted / bilateral, provide evidence in Section 4 that the partner organization has an identified, currently progressing programme with a partnership opportunity.
Q9	<b>Mission Requirements</b>	Describe any challenging requirements to achieve mission objectives (e.g. high pointing accuracy / stability / power generation / heat dissipation /downlink, calibration, data retrievals/analysis etc).

Mission Readiness			
Q10	<b>Product Scientific Maturity</b>	Describe the maturity of the main data products and the steps and timescales required to reach operational status. Where applicable, please indicate the current Science Readiness Level (SRL) - refer to ESA SRL Handbook <sup>1</sup> .	
Q11	<b>Mission Technology Maturity</b>	Identify the critical technologies and their TRL <sup>2</sup> . Describe the steps and timescales required to reach flight-ready status. Identify any critical technologies or elements that are currently at TRL 4 or lower.	
Q12	<b>UK Footprint</b>	Indicate any aspects of the mission that would require capabilities not available in the UK, and/or any extant or potential international partnerships (including co-funding opportunities). Further information can be provided in Section 4.	
Q13	<b>Mission Readiness</b>	Assess the overall maturity of the mission concept using the scale in the table below (MRL1 to MRL9) and briefly justify the assessment	
		MRL 1 Early mission concept proposed	MRL 6 Mission design at PDR level (Completion of system design)
		MRL 2 Initial mission/system analysis carried out	MRL 7 Mission design at CDR level (completion of detailed design)
		MRL 3 First mission study completed, including mission ROM cost estimate	MRL 8 Mission implementation in progress
		MRL 4 Mission Phase 0/feasibility study completed, with improved cost estimate	MRL 9 Mission in orbit
		MRL 5 Mission phase A study (or equivalent) completed	
Mission Funding			
Q14	<b>Assessment of Overall Mission Cost and Complexity</b>	<p>Please mark the appropriate boxes for each category shown in Q14 of the pro-forma, and provide additional information to explain your selection.</p> <p>If you are able to provide any further information at this stage on the mission cost, you should do so within the box for Q14. (one page maximum for Q14 including the table)</p>	

<sup>1</sup> [https://eopro.esa.int/wp-content/uploads/2020/05/Science\\_Readiness\\_Levels-SRL\\_Handbook\\_v1.1\\_issued\\_external.pdf](https://eopro.esa.int/wp-content/uploads/2020/05/Science_Readiness_Levels-SRL_Handbook_v1.1_issued_external.pdf)

<sup>2</sup> <https://eopro.esa.int/wp-content/uploads/2020/05/ESA-2017.-Technology-Readiness-Level-TRL-Guidelines.-ECSS-E-HB-11A-March-2017.pdf>

## Part 2 - Selection Criteria

Proposers should use the table in the pro-forma to make the case for their mission/instrument proposal in terms of the five assessment criteria. These criteria will have equal weighting in any assessment.

Refer to the slides presented at the 2018 CEOI Future Missions Workshop for further information on the selection criteria. **These are available on request from the UK Space Agency EO Team:**

[UKSAEOT@ukspaceagency.gov.uk](mailto:UKSAEOT@ukspaceagency.gov.uk)

**The information in this second table must be limited to two pages, font size Arial 10.**

Describe the <b>principal</b> user need for the mission and any existing collaboration with the end user
Show how the project aligns with UK EO, national space policy or other UK industrial objectives (e.g. climate science, UK EO Technology Strategy, UK Industrial Strategy)
Describe the <b>principal</b> benefits that will result (e.g. leading science position; job creation; export growth; national prestige; etc)
Describe the <b>principal</b> innovative/ unique aspects of this project (science / technology / products / services)
Why is this mission / instrument achievable, realistic and cost-effective? (e.g. by comparison to previous missions)

## Part 3 – Further Information

Proposers may be asked to provide further information, potentially at short notice, including the areas listed below:

- Background information on the proposing organisation and consortium members
- Why public investment would be required to realise the mission
- Risk assessment
- High-level project management plan & key milestones
- Cost breakdown
- The exploitation pathway (e.g. route to market for commercial, or science data exploitation route for scientific)
- Any other relevant information

**Please indicate in Part 3 of the attached form, using the tick box provided, if you would be able to provide such information at short notice.**

## Part 4 – International Collaboration

Provide more detail of the potential for bilateral/international collaboration, including potential partner organisations, status of any ongoing discussions, and possible models for sharing of funding support.
Outline the potential for dual use (i.e. application to security and/or defense applications) of the technology, instrument or mission.