

Announcement of Opportunity

Exploration Technology Development

Announcement Date 05/08/2019

Closing Date: 16:00; 20 September 2019

The UK Space Agency invites proposals for space technology research and development projects that will further the UK's ability to exploit the opportunities offered by the UK's participation in the European Space Agency's Exploration programme over the period 2020 – 2022. Up to £100,000 available to support selected projects.

1. INTRODUCTION

This call, funded by the UK Space Agency's National Space Technology Programme (NSTP) in collaboration with the UK Space Agency's Exploration and Robotics Programme, aims to develop the capability of the UK space sector in technology that is relevant to robotic and human exploration of Low Earth Orbit, the lunar vicinity and lunar surface, and Mars, to position the UK community to secure the maximum scientific and technological return from the future exploration projects and programmes. This falls within the Exploration and Robotics theme of NSTP.

Project proposals are sought for space technology research and development projects in areas including early Technology Readiness Level (TRL) innovation; technology proof of concept; technology development; evolution of technology for new markets, establishing new industrial research collaborations; development of spin in or out of technologies for space. Industrial co-funding may be required for the selected projects in accordance with the EU State Aid Regulations.

2. PROJECTS

Up to £100,000 of funding is being made available. There is no maximum or minimum grant value in this call, though the UK Space Agency expects to fund between 1 and 3 projects. Projects must be complete by 31 March 2020. It is anticipated that awards would be made by early October.

The projects should have strong enabling potential for future space exploration activities; projects developing instrumentation for commercial applications are also encouraged.

The call is open to both industrial and academic teams. The UK Space Agency encourages combined industrial-academic teams (any organisation type can lead). Note that there are private venture concessions for collaborative activities (see Annex A, which also defines eligible collaborations). We will also consider collaborative proposals that form part of a larger activity funded by one or more other organisations; provided that the proposed work falls fully within the remit of this call.

Projects will be considered which introduce, develop or enable technologies that have relevance to the European Space Agency's and UK Space Agencies Exploration programme. Such

technology-led projects must show a credible benefit to future commercial, operational or scientific mission objectives. Proposals that include elements of technology demonstration would be welcome.

Acceptable activities are:

- Fundamental research
- Feasibility studies
- Experimental development
- Industrial research
- Technology improvement

In all cases it is essential that the project proposal shows how the grant will make a difference to UK space technology capability, in addition to its value to the bidder.

Out of scope activities include funding of CASE students, training courses and outreach. Applicants should contact the UK Space Agency if they are unsure if an activity is likely to be within scope of the Call.

This Call is open to UK Higher Education Institutions, other research organisations (including not for profit organisations), SMEs and industry. Industry-industry and industry-academia collaborations are encouraged and there is no restriction on which type of organisation can lead.

3. GUIDELINES FOR PREPARING AN APPLICATION

3.1 Overview

- **Please read the following guidelines carefully to ensure that your application includes all of the information required and in the required format.**

Applications for project funding shall take the form of a proposal in single-spaced typescript (minimum font size 11point Arial, minimum 1.5 cm margins all round, including diagrams and tables) and must contain the following sections:

Item/Section	Description	Format	Maximum Page Count
Cover letter	See 3.2 below	Single-spaced typescript Arial 12pt	2
Application form	See 3.3 below and Template A	Template A must be completed and submitted	2
Project summary	See 3.4 below and Template B	Relevant section in Template B must be completed and submitted	1
Technical case	See 3.5 below and Template B	Relevant section in Template B must be completed and submitted	4 – plus risk table and roadmap
Outline business plan	See 3.6 and Template B	Relevant section in Template B must be	2

Item/Section	Description	Format	Maximum Page Count
(for commercial projects only)		completed and submitted - for commercial projects only	
Company or organisation background	See 3.7 below and Template B	Relevant section in Template B must be completed and submitted	2
Eligibility information	See 3.8 below and Template B	Relevant section in Template B must be completed and submitted by new entrants only.	1 - plus any appended information
CVs	See 3.9 below and Template B	Relevant section in Template B must be completed and submitted	1
Financial Information	See 3.10 below and MS Excel spread sheet template	Excel spread sheet must be used and submitted	n/a

- Where a Template is specified, this must be used and submitted.
- Should any Section be omitted, the proposal will be rejected.
- Should any Section of the application overrun the specified page limit, only material up to the designated page limit that is in the correct format will be considered.

3.2 Cover Letter

To aid the placing of the grant agreement with successful bidders, the applications for funding must include a cover letter containing:

- The State Aid Category (see Annex A), or that the grant will be applied for under the *de minimis* rules.
- A committing offer to UK Space Agency.
- A firm fixed price for the work to be carried out.
- A statement of acceptance of the standard UK Space Agency Terms and Conditions (T&Cs). The T&Cs are contained in the Draft Grant document available as part of the call documentation. Note - any requested amendments to the grant document will be considered by the Agency but may not be accepted.
- **Industry bidders only:** The name of at least one customer contact in the UK who may be approached, with whom you have recently undertaken similar work. The bids will be assessed by the Review Panel (see Section 5), but the UK Space Agency reserves the right to seek a customer reference, to be considered by the Panel.

3.3 Application Form

The Application Form provides a summary of key information concerning the project proposal submitted.

- Contact information for the project's lead organisation.
 - Contact information for each of the project partners.
 - The overarching objective of the work proposed. GBER category (see Section 4.3 and Annex A)
 - Grant funding requested
- **Information must be provided in Template A**

3.4 Project Summary

The project summary should be brief and contain no confidential or sensitive Intellectual Property (IP) material. A single diagram or picture may be included on an additional page in support of the project summary.

The intention is that, should the project be funded, information from this summary may be used for publication on the UK Space Agency websites and/or used in press releases.

- **Information must be provided in the relevant section of Template B.**

3.5 Technical case

The technical case for the project should include:

- The project objective and success criteria.
- A description of the work to be undertaken, highlighting the innovative aspects of the project and the possible disruptive effects of the proposed work on the status quo.
- How the grant will make a difference to UK space technology capability and the UK's ability to exploit future opportunities in ESA' exploration programme, including the value to the bidder.
- For very new and unfamiliar concepts, you should also include references to any relevant - preferably peer-reviewed – publications.
- An outline project plan, including a work breakdown structure, a project schedule/Gantt chart, work break down structure, and clearly defined deliverables for each work package.
- The deliverables should be clearly identified as to their scope and delivery schedule, and where possible linked to payment milestones.
- The project plan should also include a summary risk analysis table, identifying any anticipated risks in managing the delivery of your proposed project. The impact and likelihood should be represented as High, Medium or Low as per the key in the template. Mitigation measures against each of the risks identified must also be included. A risk table is included in Template B.
- A diagrammatic roadmap of how the technology will be incorporated into future activities.
- The start and end TRL of the proposed work, and possible exploitation routes.

- Information on collaboration between partner organisations and Intellectual Property Rights.
 - A list of the individuals involved, and the resources required, identifying which institutions and individuals will be performing which functions and the respective resources requested.
- **Information must be provided in the relevant section of Template B.**

3.6 Outline business plan

This section should include a description of potential and accessible market including a simple Return on Investment model.

For those projects targeting commercial missions, the project description should be supported by a business plan, of sufficient detail to enable a viable assessment by the reviewers, which clearly indicates the potential accessible market size and estimated time to break even and enter profit, where applicable.

Any benefits to science, society or the economy should be described and where possible an explanation of how those benefits will be captured.

- **Information must be provided in the relevant section of Template B.**

3.7 Company/Organisation background

This section should include a short description of the background to the company(ies) or organisation(s) to undertake the project and also include a summary of their track record(s).

- **Information must be provided in the relevant section of Template B.**

3.8 Eligibility information

This section to be completed by new entrants – i.e. those organisations who have never received a UK Space Agency grant

We welcome bids from a variety of organisations including academia, industry and (not for profit) government research institutes. The details of some organisations may not be known by the UK Space Agency, especially for newer entrants to the space technology sector. Such applicants should also provide brief and relevant company or organisation background information, including areas of expertise and company contact information including their registration and official address.

Following receipt of bids and before award of any contract, new entrants may be required to provide additional eligibility details:

- Evidence of company legitimacy and financial solvency, supported by e.g. company Annual Reports.
- Details of company quality processes and accreditation.
- Track record, supported by reputation or by statements from referees and customer testimonials.

For newly formed companies who do not have first year accounts then one of more of the following could be deemed as acceptable proof of eligibility:

- Reference from their bank – confirming capital solvency and appropriate management of finances etc.
 - Industry/Trade reference from either customers or suppliers.
 - Companies House Registration details.
- **Information must be provided in the relevant section of Template B.**

3.9 CVs

Please provide brief CVs of key project personnel from both the lead organisation, and all project partners (1 page per individual).

- **Information must be provided in the relevant section of Template B.**

3.10 Financial Information

Please include financial information as follows (and see also Section 4):

- The completed Finance Table.
 - A justification of the resources requested, including travel plans and other expenditure.
 - Equipment must be listed separately as per GBER regulations (see Q9 in the Q&A, Annex B).
 - A clear statement of the Private Venture (PV) investment offered, and its relationship to the State Aid mandatory limits under GBER exclusions (see below and Annex A).
- **Information must be submitted using the MS Excel spread sheet Template. Please ensure that the instructions tab is read and understood before completing the form.**

4. FINANCIAL AND CONTRACTUAL INFORMATION

4.1 Grant award

All applications for project funding will also be judged on the basis of value for money.

The award will be made on a firm fixed price basis.

Award(s) will take the form of a grant agreement between the UK Space Agency and the project's lead organisation. Bidders should note that the UK Space Agency will not refund any costs associated with preparing proposals. As part of the application for funding, applicants must review and accept the terms of the UK Space Agency's published grant agreement which

have been published with the rest of the documents for this call. This will enable selected projects to start promptly after evaluation of proposals has been completed. Applicants wishing to request changes to the agreement are required to submit a marked-up document setting out the proposed variations, along with a justification for any amendment to the standard grant funding agreement terms.

Bidders should note that grants cannot be given to companies or organisations in financial difficulties.

4.2 Payment Plans

Project funding cannot be paid in advance of need and all payments will be made in arrears on successful completion of project milestones.

Payment of the grant will be made:

- In the form of one full payment upon successful completion of the project,
- OR -
- In the form of staged payments on successful completion of intermediate deliverables, together with a final payment on successful completion of the project.

Payment plans should be constructed so that no less than 20% of the grant total will be paid at the final review acceptance. Other milestone payments should be included which reflect major project stages and intermediate deliverables. No payment will be made at kick-off therefore where applicable, bidders will be asked to consider an appropriate early milestone.

4.3 State Aid

Industry is required to either provide a PV contribution to eligible project costs in accordance with the guidance to the European State Aid General Block Exemption Regulations (GBER), or alternatively to claim exemption from having to make a contribution under the EU *de minimis* regulations.

For GBER, bidders must identify the category of work proposed, and this must be consistent with the work programme described in the technical case. Note that the type of activity and company size defines the maximum 'Intervention' rate (and hence the minimum required PV level) that is permitted for that activity (see Annex A), and that there are concessions for collaborative activities. Bidders will be expected to justify the category of work selected.

Bidders must ensure that they supply the correct information that allows the UK Space Agency to award grants within the scheme and it is the responsibility of the bidder to ensure compliance with the relevant State Aid legislation. Further guidance is available on the gov.uk website:

- <https://www.gov.uk/government/publications/state-aid-general-block-exemption-regulation>

EC grants awarded on related projects or other public funding are not eligible as a PV contribution.

Academic partners and Government institutions will be funded in all cases at 80% of Full Economic Cost (FEC).

4.4 Treatment of VAT

This grant funding is categorised as outside the scope of VAT. The supply of 'non-business' research is outside the scope of VAT which is defined by the intention of the parties at the beginning of a project – UK Space Agency as the funder does not receive anything in return for the consideration paid (grant) e.g. services or transfer of IP, therefore the grant is deemed as being outside the scope of VAT.

Note: Provision of regular project update reports does not count as a benefit received by UK Space Agency as these are used for monitoring purposes so that the Agency can ensure that the terms and conditions of the grant are being met.

5. ASSESSMENT OF APPLICATIONS

Applications for project funding will be assessed by a Selection Panel which will consist of independent reviewers drawn from academia, industry, Government or the Research Council Review Colleges. The panel will assess the proposals according to the criteria listed below, taking into account the commitment of the organisations involved, in particular the lead organisation, to the success of the project and the financial viability of the organisations involved.

Assessment criteria:

- Relevance: Applicability of the technology to future exploration programmes (LEO, lunar, Mars); degree to which this technology has the potential to be disruptive in the space field;
- Technological Innovation: Technology positioning, technology benefits derived from the funding, suitability of the work proposed, including assessment of risk and benefits;
- Benefit: Potential applications and the benefits it offers over alternatives technologies. Who and how will this technology benefit? How timely is this activity?
- Quality of the proposal: Capability and track record of the team, quality of staff, and value for money;
- Strength of team(s)/collaboration.

6. PROJECT MONITORING AND REPORTING

Following an award and completion of grant agreement formalities, the UK Space Agency will assign a project coordinator to each project to oversee the projects with the following methodology:

- The project coordinator will initiate each project.
- The grant recipient will provide short progress reports to the coordinator, and the schedule for these will be agreed at the project kick-off meeting.

- The grant recipient will schedule a mid-term progress meeting with the coordinator.
- At the end of the project, a final report, IPR free, and executive summary are to be provided to the UK Space Agency. The executive summary should not contain any confidential information, as this may be uploaded onto the UK Space Agency website. All other reports should be marked commercial in confidence where applicable.
- The grant recipient will also schedule a final review meeting with the coordinator at the appropriate time.

There may be a project final presentation day in which each of the project teams will be invited to present a summary of their work and achievements.

Selected projects will commence no later than the 1st December 2019 and finish no later than the 31st March 2020; however we would expect projects to start as soon as possible.

7. CONFIDENTIALITY

The procedure for handling and assessing the applications for project funding will be as follows:

- Completed applications will be submitted to the UK Space Agency's Exploration Team via email. The Exploration team will hold all bids in confidence.
- Once the Call closing date has passed, electronic copies of all documents will be distributed to the independent assessment panel members; UK Space Agency confidentiality rules will apply.
- Information submitted for those projects not recommended by the Panel for funding will be destroyed.
- Information submitted for those projects selected for funding will be retained by UK Space Agency but remain confidential.
- Summary information about the projects selected for funding will be published on the UK Space Agency web site.

The UK Space Agency will monitor the funded project through project reports and the submission of project deliverables. The Agency requests that any confidential information is clearly marked *Commercial in Confidence*.

8. COLLABORATION AGREEMENT

Should an award be made, any contracted consortium will be required to establish a Collaboration Agreement between its members, prior to the commencement of the project. The Collaboration Agreement should establish agreements regarding how the results of the work, including IPR and spin-outs, will be exploited by the consortium members. A template version is available on the UK Space Agency website with the call documents, although organisations are welcome to use an agreement that is applicable to them.

9. SUBMISSION AND CONTACT INFORMATION

Only the lead company or organisation should submit an application. Applications for project funding should be submitted to the UK Space Agency as follows:

- Electronically in both pdf and in Word with the exception of the finance table which will be submitted in the Excel format specified in Section 3.

- Any information that bidders do not wish to be sent to the assessors (e.g. eligibility information) should be contained in a separate file, and clearly marked as such.

All application documentation should be sent by email to the UK Space Agency's Exploration Team, at spaceexploration@ukspaceagency.gov.uk clearly stating the nature of the call:

Exploration Technology Development

Q&A can be found in Annex B and any further queries about this Call can be submitted to the above email address.

10. DATA PROTECTION

- The contact details you provide will only be used for the purposes of this funding call. The UK Space Agency will not share your contact information with anyone else.
- The UK Space Agency complies with the GDPR and its Privacy Notice can be found here: <https://www.gov.uk/government/publications/uk-space-agency-gdpr-privacy-notice>.
- The UK Space Agency will not retain your data for any longer than is necessary for administering your application and grant, should it be awarded.
- The UK Space Agency relies on Legitimate Interest as the Lawful Basis to process your contact information, you can find out more about Lawful Bases at the Information Commissioner's website.

All applications must be submitted by 16:00 on Friday 20 September 2019

It is the lead organisation's responsibility to ensure that all required information is complete and submitted before the deadline

Incomplete and/or late applications will not be considered

spaceexploration@ukspaceagency.gov.uk

ANNEX A - STATE AID INTERVENTION LEVELS

Bidders should ensure their proposal is compliant with the relevant State Aid legislation. European regulations allows State Aid to companies for technology R&D activities via the General Block Exemption Regulations (GBER), with intervention rates (i.e. maximum % grant offered) depending on the type of activity, the type of organisation, and the size of the company as follows:

- **'fundamental research'** means experimental or theoretical work undertaken primarily to acquire new knowledge of the underlying foundations of phenomena and observable facts, without any direct commercial application or use in view;
- **'industrial research'** means the planned research or critical investigation aimed at the acquisition of new knowledge and skills for developing new products, processes or services or for bringing about a significant improvement in existing products, processes or services. It comprises the creation of components parts of complex systems, and may include the construction of prototypes in a laboratory environment or in an environment with simulated interfaces to existing systems as well as of pilot lines, when necessary for the industrial research and notably for generic technology validation;
- **'experimental development'** means acquiring, combining, shaping and using existing scientific, technological, business and other relevant knowledge and skills with the aim of developing new or improved products, processes or services. This may also include, for example, activities aiming at the conceptual definition, planning and documentation of new products, processes or services;

Experimental development may comprise prototyping, demonstrating, piloting, testing and validation of new or improved products, processes or services in environments representative of real life operating conditions where the primary objective is to make further technical improvements on products, processes or services that are not substantially set. This may include the development of a commercially usable prototype or pilot which is necessarily the final commercial product and which is too expensive to produce for it to be used only for demonstration and validation purposes.

Experimental development does not include routine or periodic changes made to existing products, production lines, manufacturing processes, services and other operations in progress, even if those changes may represent improvements;

- **'feasibility study'** means the evaluation and analysis of the potential of a project, which aims at supporting the process of decision-making by objectively and rationally uncovering its strengths and weaknesses, opportunities and threats, as well as identifying the resources required to carry it through and ultimately its prospects for success;

Enterprise category	Headcount: Annual Work Unit (AWU)	Annual turnover	or ↔	Annual balance sheet total
Medium-sized	< 250	≤ € 50 million (in 1996 € 40 million)	or ↔	≤ € 43 million (in 1996 € 27 million)
Small	< 50	≤ € 10 million (in 1996 € 7 million)	or ↔	≤ € 10 million (in 1996 € 5 million)
Micro	< 10	≤ € 2 million (Previously not defined)	or ↔	≤ € 2 million (previously not defined)

Figure 1 - EC definition of the various company types

Anything above the limits for a medium sized company is designated as a large company.

Academic partners will be funded in all cases at 80% of Full Economic Cost (FEC).

The following table summarises the GBER categories and maximum allowable intervention rates.

Table 1 GBER Definitions of State Aid Categories

State Aid Category	Intervention rate		
	SME	ME	LE
Fundamental Research	100%	100%	100%
Feasibility study	70%	60%	50%
Industrial research	70%	60%	50%
Industrial research projects involving collaboration/ dissemination*	80%	75%	65%
Experimental development	45%	35%	25%
Experimental development projects involving collaboration/dissemination*	60%	50%	40%

*Collaborations between businesses and research organisations where the research organisation bears at least 10% of the costs and have the right to publish their own research, or business to business collaborations which involve more than one member state of the EU/ EEA or involve at least one SME, provided that no one business partner carries more than 70% of the project costs. Procurement/supplier relationships do not qualify.

ANNEX B – Q&A

1. Can I resubmit a proposal that was rejected in a previous UK Space Agency technology call?

Yes, you may re-submit your proposal which will then go through the independent evaluation process when being considered for funding. We recommend that any previous feedback is taken into consideration.

2. Do the PV funds have to be immediately available when applying for funding?

Yes the PV funding should have been agreed and secured at the time of applying for the grant so that the project can commence as soon as the grant agreement has been completed.

3. Can the UK Space Agency provide advice about any type of collaboration/partnership programme that the Agency is promoting?

The Agency does not promote any particular collaboration although collaboration in essence is encouraged in projects.

4. Do you have any examples of successful projects in the previous rounds that you can share?

We cannot offer examples of successful proposal applications but relevant information can be found in the Announcement of Opportunity guidance. We also offer successful news stories at our web page <https://www.gov.uk/guidance/apply-for-funding-through-the-national-space-technology-programme>

5. Can a non-UK based organisation receive funding?

The UK must lead the consortium. A non-UK based organisation cannot receive national funding as the primary focus of UK Space Agency is on the growth of the UK sector; therefore any monies awarded cannot go outside the UK to a partner body. If the proposed non-UK capability is essential the work can be subcontracted out, however the proposal must demonstrate clearly that this resource is not available in the UK.

In such instances the subcontractor cannot be a partner to the project. However, if a non-UK entity wants to be a partner in the project that is acceptable. This can be facilitated by the non-UK entity organisation providing PV or capability as contribution-in-kind.

6. Should we explicitly state the overhead rate attached to salary costs, or would you prefer it to be amalgamated into a combined salary/overhead cost for each staff position?

The finance template includes notes on what information is required.

7. What are the rules on overheads (i.e. a standard rate or calculation provided by us)?

Your normal company accounting procedures should be used; see also the finance template.

8. Do labour costs relate only to staff on a PAYE payroll or would staff employed on short/long-term fixed contracts be eligible?

Costs should be applied for any staff that will be part of the project team/work regardless of employment status within the organisation. However any costs for project work done by sub-contractors must be declared as a separate cost to the project. Sub-contractors cannot be partners to the project and justification in the proposal would need to be clearly stated as to the requirement for use of sub-contractors.

9. What are the eligible equipment costs – is it the depreciation on any capital expense?

That depends on what you plan to do with the equipment post project. Below are the GBER rules on eligible costs.

GBER rules:

Eligible costs

Aid for R&D projects:

- (a) Personnel costs: researchers, technicians and other supporting staff to the extent employed on the project.
- (b) Costs of instruments and equipment to the extent and for the period used for the project. If such instruments and equipment are not used for their full life for the project, only the depreciation costs corresponding to the life of the project, as calculated on the basis of good accounting practice, are considered as eligible.
- (c) Costs of buildings and land, to the extent and for the period used for the project. With regard to buildings, only the depreciation costs corresponding to the life of the project, as calculated on the basis of good accounting practice are considered as eligible. For land, costs of commercial transfer or actually incurred capital costs are eligible.
- (d) Cost of contractual research, knowledge and patents bought or licensed from outside sources at arm's length conditions, as well as costs of consultancy and equivalent services used exclusively for the project.
- (e) Additional overheads incurred directly as a result of the project.
- (f) Other operating expenses, including costs of materials, supplies and similar products.

10. Are referees required to be within the UK?

Referees do not have to be UK specific but should be from recognised international organisations and/or from other known space institutions.

11. Does the organisational background information apply only to the lead organisation?

No. All proposals must include organisational background information for all those involved, therefore including those put forward in collaboration.

12. Is there a difference between a partner and a sub-contractor?

Yes. If you are collaborating with another organisation or company then they are your project partner and will be included in your proposal as subject to PV contribution.

If you wish to sub-contract some work then that company cannot be considered as a project partner as payment to them will be made from the award and they will therefore be included in the costs of the project.

13. Would sub-contractors have any IP publication rights?

If you sub-contract work this may not affect the IP publication rights of your company but this is for the lead organisation to confirm.

14. Does the maximum grant award offered include the PV contribution?

The maximum grant is the award value the UK Space Agency will give to a successful proposal. However, GBER rules apply to industrial organisations (e.g. SME/LE) and FEC to not-for-profit organisations/academia. Therefore your equivalent PV contribution should match that criterion.