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SBRI: Active Debris Refuelling Mission feasibility study- Phase 1

Competition Guidance Brief

Dated:20th October 2023

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# **Short summary**

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| Organisations can apply for a share of £2m, inclusive of VAT, to develop feasibility studies that seek to refuel the UK Active Debris Removal mission, & demonstrate the ability to refuel a commercial customers/ client. |

# **Short eligibility**

|  |
| --- |
| To lead a project, you can:   * be an organisation of any size * work alone or with other organisations as subcontractors * Must have a valid UK bank account capable of accepting BACS payments * Must be able to provide reporting against North Star Metric   Contracts will be awarded to a single legal entity only. |

The following additional documents support this Competition:

* Annex A - SBRI Terms and Conditions
* Annex B - Project Specification- Active Debris Removal- Refuelling Study Phase 1 Overview
* Annex C - UKSA SBRI Additional Guidance
* Annex D - Finance Spreadsheet
* Annex E – Evaluation Criteria
* Annex F – IP Declaration

It is recommended that you review all the annex before starting your application.

# **Summary (Description)**

This is a [Small Business Research in](https://www.ukri.org/what-we-offer/browse-our-areas-of-investment-and-support/small-business-research-initiative-sbri/)itiative (SBRI) competition funded by the UK Space Agency.

The aim of the competition is to undertake feasibility studies to refuel the National Active Debris Mission & refuelling a commercial client/ customer satellite.

**1.1 Background**

Until recently satellites have been designed as one shot items, non-refuellable with mission lifespans coming to an end when the satellite can no longer manoeuvre effectively. Up to half a satellite’s payload can be the fuel needed to complete its mission. With launch costs increasingly lowering and expected to decrease even further and new capabilities coming online such as rendezvous proximity operations (RPO) giving rise to highly manoeuvrable satellites capable of docking with others and performing in orbit service tasks, in orbit refuelling looks increasingly attractive as a service proposition.

The capability to refuel a satellite will allow operators to operate in a more sustainable manner by moving away from “one shot” satellite builds to platforms which can be modularised, upgradable and more mission-capable due to not being limited to the single tank of fuel they are launched with. Refuelling will allow satellites to have increasingly large amounts of payload dedicated to instruments and payload instead of a fuel tank. And as orbits, LEO in particular, get more congested, the manoeuvring needed to avoid conjunctionscollisions, which currently shortens a satellite’s lifespan, will be able to be countered by refuelling which will extend mission lifespan.

Such In Orbit Servicing (IOS) missions are likely to be a key tool in ensuring the long-term sustainability of the outer space environment. Whilst the commercial market for IOS services is still maturing, the market for IOS services could be worth up to $2bn to the UK by 2030. The potential economic gain from conducting IOS missions could, for the UK, be matched by longer term strategic benefits by being among the first movers in this new market. For example, developing the national skills, expertise and robotics capability needed to conduct IOS will enable UK industry to support other ambitious space projects like orbital assembly or space-based power generation.

The UK has launched two studies to preliminary define a national Active Debris Removal (ADR) mission. This mission will build and grow UK capability in ADR and also grow key technologies such as Close Proximity Operations (CPO) and RPO which have cross-over use for IOS capability. Crucially, one of the mission requirements for the national ADR mission is to be refuellable, with each satellite design having a refuelling interface; offering a perfect client to test and derisk new and innovative refuelling and servicing technology.

The UK is also keen to grow and expand the nascent IOSM market and recognises that it cannot do this through institutional missions alone. This study has two key goals:

1. Refuel the national ADR mission allowing a potential third client to be deorbited.
2. After the national ADR refuelling demonstration, refuel a commercial client/ additional partner as part of a shared cost initiative which allows the commercial client to benefit from the significant derisking delivered by refuelling the national ADR mission gaining them low cost service life extension and attracting additional funding to offset total mission costs.

**1.2 Challenge**

The challenge to be addressed by the successful team(s) can be summarised as follows:

* Elaborate the requirements for a mission capable of refuelling the UK ADR satellite in Low Earth Orbit (LEO):
* Elaborate the requirements for a mission which meets goal 2 of the study.
  + - Develop a baseline design that responds to the technical requirements – providing confidence that the mission is feasible within the technical, programmatic, and financial constraints, which also defines what those constraints may be. Identify risks and propose realistic mitigations, establish plans for further development in the subsequent phases of the mission lifecycle.

Further details of the tasks needed to deliver this SBRI can be found within Annex B - Project Specification- Active Debris Removal- Refuelling Study Phase 1 Overview

It is important that you review Annex B as projects that are unable to meet the tasks of the SBRI may score poorly or be viewed as out of scope.

**1.3 SBRI summary**

This is phase 1 of a potential 2 phase competition. The decision to proceed with phase 2 will depend on the outcomes from phase 1 and assessment of a separate application into a subsequent phase 2 competition.

In applying to this competition / phase 1 competition you are entering into a competitive process.

Any adoption and implementation of a solution from this competition would be subject to a separate, possibly competitive, procurement exercise. This competition does not cover the purchase of any solution.

This competition closes at 11am UK time on the date of the deadline.

# **Project size**

Phase 1 projects can range in size up to total costs of £500K, inclusive of VAT.

# **Eligibility**

**3.1Your project**

Projects must:

* start by 1st December 2023
* end by July 2024
* last up to 8 months

**3.2 Applicant**

To lead a project, you can:

* be an organisation of any size
* work alone or with other organisations as subcontractors
* Must have a valid UK bank account capable of accepting BACS payments
* Must be able to provide reporting against North Star Metric

Contracts will be awarded to a single legal entity only.

This competition will not fund any procurement, commercial, business development or supply chain activity with any Russian or Belarusian entity as lead or subcontractor. This includes any goods or services originating from a Russian or Belarusian source.

Contracts will be awarded to a single legal entity only. However, if you can justify subcontracting components of the work, you can engage specialists or advisers. The project and delivery against the project milestones will still be the responsibility of the main contractor.

# **Funding**

A total of up to £2m, inclusive of VAT, is allocated to this competition / phase 1.

The Phase 1 feasibility study research and development (R&D) contracts will be up to £500k, inclusive of VAT, for each project for up to 8 months. We expect to fund up to 4 projects.

The total funding available for the competition can change. The funders have the right to:

* adjust the provisional funding allocations between the phases.
* apply a ‘portfolio’ approach as detailed in the Annex C

The contract is completed at the end of the competition, and the successful organisation is expected to pursue commercialisation of their solution.

**Value Added Tax (VAT)**

You must state whether you are VAT registered before entering your project costs.

VAT is the responsibility of the invoicing business. We will not provide any further advice and suggest you seek independent advice from HMRC.

**VAT registered**

If you are VAT registered, you must enter your project costs exclusive of VAT. Your total project costs inclusive of VAT must not exceed £500K.

**Not VAT registered**

If you are not VAT registered, you must enter your project costs exclusive of VAT. You will not be able to increase total project costs to cover VAT later should you become VAT registered. Your total project costs must not exceed £416k.

**Research and development (R&D)**

Your application must have at least 50% of the contract value attributed directly and exclusively to R&D services, including solution exploration and design. R&D can also include prototyping and field-testing the product or service. This lets you incorporate the results of your exploration and design and demonstrate that you can produce in quantity to acceptable quality standards.

R&D does not include:

* commercial development activities such as quantity production
* supply to establish commercial viability or to recover R&D costs

integration, customisation or incremental adaptations and improvements to existing products or processes

# **Subsidy Control**

SBRI competitions involve procurement of R&D services at a fair market value and are not subject to subsidy control criteria that typically apply to grant funding.

# **Scope**

## 6.1 Your project

The aim of this competition is to undertake a feasibility study to refuel the national Active Debris Removal mission.

In this competition / phase 1 you must:

* Elaborate the requirements for a mission capable of refuelling the UK ADR satellite in Low Earth Orbit (LEO):
* Elaborate the requirements for a mission which meets goal 2 of the study.
* Develop a baseline design that responds to the technical requirements – providing confidence that the mission is feasible within the technical, programmatic, and financial constraints, which also defines what those constraints may be. Identify risks and propose realistic mitigations, establish plans for further development in the subsequent phases of the mission lifecycle.

Contracts will be given to successful applicants. At this stage contracts will be given for phase 1 only. You must define your goals in your application and outline your plan for phase 2. This is part of the full commercial implementation in your phase 1 application.

You must demonstrate a credible and practical route to market, so your application must include a plan to commercialise your results.

If a phase 2 is run it will be competitively run and open to any applicant.

## 6.2 Research Categories

**Phase 1: technical feasibility studies**

This means planned research or critical investigation to gain new knowledge and skills for developing new products, processes or services.

In phase 1 your project will work closely with the stakeholders to develop a solution and produce a final report, which will be assessed and form part of the decision for awarding phase 2 contracts. The outcome of phase 2 will be a prototype of the solution.

## 6.3 Projects we will not fund

We will not fund projects that:

* are not original in scope and duplicates someone else’s work
* have significant overlap with projects being funded elsewhere in the Agency or parts of HM Government.

# **Dates**

|  |  |
| --- | --- |
| Open date | Friday 20th October 2023 |
| Close date | Monday 13th November 2023 |
|  |  |
|  |  |
| Applicants notified | Friday 20th November 2023 |
| Phase 1 contracts awarded | NLT Friday 27th November 2023 |
| Feedback |  |

# **How to apply**

## 8.1 Before you start

By submitting an application, you agree to the terms of the draft contract which is attached to the Contract Notice ..Annex A The terms of the contract are non-negotiable and are included in the draft contract. We reserve the right to change the terms and conditions if necessary.

The final contract will include any milestones you have agreed with the funding authority and will be sent to you if your application is successful. The contract is binding once it is returned by you and signed by both parties.

Annex C sets out the standard assessment process.

**The UK Space Agency’s North Star** **Metric** - In addition to ongoing reporting, successful applicants will be expected to provide the UK Space Agency with 6-monthly updates on North Star Metrics during the course of project delivery, and information on the impact of funding support up to 10 years after project completion. Details of which can be found in the contract document

As the applicant you are responsible for:

* collecting the information for your application
* representing your organisation in leading the project if your application is successful

## 8.2 What we will ask you

The application is split into 3 sections:

1. Project details.
2. Application questions.
3. Finances.
4. Background IP

Before submitting, it is the lead applicant’s responsibility to make sure:

* that all the information provided in the application is correct
* your proposal meets the eligibility and scope criteria.
* all sections of the application are complete.

You can reopen your application once submitted, up until the competition deadline. You must resubmit the application before the competition deadline.

**Accessibility and inclusion**

You must contact us as early as possible in the application process. We recommend contacting us at least 15 working days before the competition closing date to ensure we can provide you with the most suitable support possible.

You can contact us by emailing [commercial@ukspaceagency.gov.uk](mailto:support@iuk.ukri.org)

### Project Details

This section provides background for your application and is not scored.

**Application details**

Give your project’s title, start date and duration.

**Project and scope summary**

Please provide a short summary of your project.

* Describe your project briefly. Be clear about what makes it innovative and how it relates to the scope of the competition. How does it tackle different aspects of the challenge and how will it provide an integrated solution?
* Give details of the lead organisation. Before you submit, we expect you to have discussed your application within your organisation.

Your answer for this section can be up to 800 words long.

This section is not scored, but we will use it to decide whether the project fits the scope of the competition. If it does not, it may be rejected.

**Public description**

Please provide a brief description of your project. If your application is successful, we will publish this description. This could happen before you start your project. This question is mandatory, but we will not assess this content as part of your application.

Describe your project in a way that you are happy to see published. Do not include any commercially sensitive information. We have the right to amend the description before publication if necessary but will consult you about any changes.

Your answer can be up to 400 words long.

**Applicant location**

You must state the name of your organisation along with your full registered address and companies house number.

You must also state the name and full registered address of any potential or confirmed subcontractors.

We are collecting this information to understand the geographical location of all participants of a project.

Your answer can be up to 400 words long.

### Application Questions

The assessors will score all of your questions. You will receive feedback for each scored question. The scoring criteria and evaluation criteria can be found at Annex E. A high level summary is provided below of the scoring questions.

|  |  |  |
| --- | --- | --- |
| # | Title | Weighting % |
| 1 | Technical Feasibility | 30 |
| 2 | Commercial sustainability | 15 |
| 3 | Benefit to the UK | 20 |
| 4 | Management and planning | 20 |
| 5 | Value for Money | 15 |

Your answer to each question can be up to 5 pages long. Do not include any URLs in your answers unless we have explicitly requested a link to a video.

### Finances

Enter your phase 1 project costs, organisation details and funding details within the template Annex E.

You must state whether you are VAT registered before entering your project costs. We advise you answer the VAT registered question first before entering your costs. Your total project costs must not exceed £500K VAT Inc.

If you are VAT registered, you must enter your project costs inclusive of VAT.

If you are not VAT registered, you must enter your project costs exclusive of VAT and no VAT will be added. You will not be able to increase total project costs to cover VAT later should you become VAT registered.

VAT is the responsibility of the invoicing business. We will not provide any further advice and advise you to seek independent advice from HMRC.

For full information on what costs you can claim, see our supporting documents.

### 4 Intellectual Property

You are required to identify any and all Background IP that you are brining to the project using the template set out in Annex F Thearrangements for intellectual property rights and exploitation of IPR are set out in the contract terms and conditions for this competition in section 14 and 15

# **Supporting information**

## 9.1 Background and further information

**About Small Business Research Initiative competitions**

SBRI provides innovative solutions to challenges faced by the public sector. This can lead to better public services and improved efficiency and effectiveness.

The SBRI programme:

* supports economic growth and enables the development of innovative products and services through the public procurement of R&D
* generates new business opportunities for companies
* provides a route to market for their ideas
* bridges the seed funding gap experienced by many early-stage companies

SBRI competitions are open to all eligible organisations that can demonstrate a route to market for their solution. Under current regulations, SBRI contracts are open to applications from organisations registered in the UK, European Union (EU) and the European Economic Area (EEA). The SBRI scheme is particularly suited to small and medium-sized businesses, as the contracts are of relatively small value and operate on short timescales. Developments are 100% funded and focused on specific identified needs, increasing the chance of exploitation.

SBRI is a procurement of R&D services. If successful, you will receive a contract to deliver the proposed activity. Costs quoted must reflect actual costs at a ‘fair market value’ and not include profit.

You must submit an invoice for the work undertaken. All payments are made in arrears on submission of an invoice. Invoices must be submitted within 30 days of the end of each monitoring period for all completed milestones.

If you are VAT registered, your total costs are expected to include VAT that you would charge as a service provider. VAT is the responsibility of the invoicing business, and applications are expected to list total costs inclusive of VAT.

Suppliers for each project will be selected by an open competition process and retain the intellectual property generated from the project, with certain rights of use retained by the contracting authority. This is an excellent opportunity to establish an early customer for a new technology and to fund its development.

## 9.2 Next Steps

After the assessment stage, all applicants will receive a short summary of key feedback regarding their applications irrespective of whether they are successful or not. UKSA aims to provide all feedback to applicants once all applications have been reviewed and assessed. Feedback will be given at the same time as the successful/unsuccessful letters are sent to the applicants.

If you are successful with this application,.

You will need to provide:

* the name and contact details of your project manager and project finance lead
* a redacted copy of your bank details

You must complete this within 7 days of receiving notification that you have been successful.

In order to process your claims, we need to make sure that the bank details you give to us relate to a UK high street bank that is regulated by the Prudential Regulation Authority (PRA). The account must have a BACS clearing facility and be in the same company name as your application.

In order to process your payments you must provide details of a valid UK bank account that account must have a BACS clearing facility and be in the same company name as your application

## 9.3 Finance checks

We will carry out checks to make sure you are an established company with access to the funds necessary to complete the project and other relevant due diligence. (financial standing assessment, governance, conflicts of interest, technical expertise)

We will carry out checks to make sure you are an established company with access to the funds necessary to complete the project.

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**Your Contract**

Once we have completed our due diligence we will issue the contract.

Your contract will show the start date for your project, do not start your project before this date. Any costs incurred before your start date cannot be claimed as part of your contract

**If your application is unsuccessful**

If you are unsuccessful with your application this time, you can view feedback from the assessors. This will be provided directly to the lead applicant by UKSA.

Sometimes your application will have scored well, and you will receive positive comments from the assessors. You may be unsuccessful as your average score was not above the funding threshold or your project has not been selected under the portfolio approach if this is applied for this competition.

## 9.3 Further help and guidance

If you have any questions about the scope requirements of this competition, email commercial@ukspaceagency.gov.uk