Contracts for Innovation: NSpOC BOREALIS Algorithm Development

Commercial Reference: UKSAC25_0107

Competition Guidance Notes

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Short Summary

Eligible organisations can apply for up to **£100,000**, excluding VAT, to research and develop initial proof of concepts for algorithms and similar solutions that directly improve the quality of data processing being undertaken within the BOREALIS system, contributing to enhanced analysis capabilities within NSpOC.

UKSA is likely to award multiple Contracts that meet its requirements within this competition, and further competitions may be opened subsequently to those who are successful within this competition for further development work on identified solutions.

This funding is from the UK Space Agency **only** and applicants should note this competition is wholly run and administered by the UK Space Agency.

Applicants should note that as BOREALIS is a sovereign UK capability and this work is to develop solutions that eventually can be deployed into use, **this competition is restricted to UK registered companies** on grounds of national security. For the avoidance of doubt, this can include UK-registered universities.

Acronyms and Abbreviations

CA	Contract Award
CfI	Contracts for Innovation
CONOPS	Concept of Operations
EEA	European Economic Area
EU	European Union
GMT	Greenwich Mean Time
HMRC	His Majesty's Revenue and Customs
IP	Intellectual Property
IPR	Intellectual Property Rights
KO	Kick-Off
NOTSO	Notices to Space Operators
NSpOC	National Space Operations Centre
PDF	Portable Document Format
R&D	Research and Development
SST	Space Surveillance and Tracking
UKSA	UK Space Agency
VAT	Value Added Tax
WBS	Work Breakdown Structure
WPD	Work Package Description
CA	Contract Award
CONOPS	Concept of Operations
EEA	European Economic Area

1 Summary (Description)

This is a [Innovate UK Contracts for Innovation](#) competition funded by the UK Space Agency.

The aim is to undertake research and development of algorithmic solutions that enhance the processing of observational data that feeds into the BOREALIS command, control and data processing system. At the end of the three month period, applicants should be able to demonstrate proof-of-concept for their developed solution. The following documents support this Competition Guidance and are available on the [Find a Tender](#) website:

- Contracts for Innovation Terms and Conditions (Annex A)
- UKSA Contracts for Innovation Additional Guidance (Annex B)
- Contracts for Innovation Finance Sheet (Annex C)
- IP Declaration (Annex D)
- Contracts for Innovation Application Form (Annex E)

It is recommended that you review all the annexes before starting your application and familiarising yourselves with the terms and conditions of the competition.

1.1 Background, Aims and Objectives

NSpOC obtains data from observation networks, operators and other SST networks to help perform a wide range of tasks and missions. These tasks and missions (with differing constraints and assurance requirements) compete for limited sensor time and funding availability. A complex trade-off and optimisation issue arises.

Data is provided through the following routes:

- Owned capability: NSpOC has direct tasking and scheduling authority over a small number of sensors. Usage can be considered "free" at the point of use.

- Commercially provided access: NSpOC has network level tasking authority with commercial partners, but limited scheduling visibility and control. Cost is per unit time/task with a contractual budget ceiling.

- Other accessible data streams: NSpOC receives data from other partners (e.g. observations, SST catalogues, operator ephemerides, JCO NOTSOs) but has no tasking/schedule visibility.

NSpOC must cohere this information to create an assured catalogue for the UK (extending beyond basic positional information of objects), improve its resilience and capability to independently detect and monitor high interest events, and have capabilities that exploit the assured catalogue and events it produces to generate data driven insights.

The competition aims to promote development of algorithmic solutions in the following broad areas:

1. SSA event detection and characterisation:
   a. Computationally efficient uncorrelated track monitoring and screening for the detection of fragmentation events. Solutions to characterise the event to enable the generation of efficient sensor search/survey strategies and to support analysis (parent object, breakup time, energy, deltaV distributions, fragment count and mass).
   b. Efficient and scalable close approach screening (utilising UK assured catalogue) to enable sensor prioritisation and more detailed analysis within the existing system. Shall support ephemerides with manoeuvres (including electric propulsion) and operate at the scale of ~10k primaries vs 100k secondaries across all Earth Orbit regimes.
   c. Upcoming re-entry screening and detection of re-entry/launch events using existing sensors/instrumentation (seismic, ionospheric, etc...)
2. Pattern of life and characterisation:
   a. Manoeuvre characterisation and categorisation e.g. station keeping (N/S, E/W, Altitude), collision avoidance, continuous thrust, orbital relocation. Pattern of life analysis and deviation alerting.
   b. Detection of co-planar/proximity operation activity, behaviour characterisation and categorisation.
   c. Satellite 'fingerprinting' techniques to support custody maintenance/recovery and prioritisation. For instance, stability analysis, size estimation, spectral/radiofrequency analysis, and the creation of RSO similarity indexes/clusters.
3. Sensor scheduling, exploitation and optimisation:
   a. Optimise the distribution of sensor tasks between owned sensors and commercial networks considering different sensor types and capabilities (e.g. radar, optical, laser), tasking methodologies, mission set requirements and cost.
   b. Scheduling and optimisation of assets under direct control, balancing the need to monitor high interest events, with the need to monitor for new objects and changes in the wider catalogue.
   c. Image/signal processing techniques to enable small object detection and monitoring of closely separated objects.
   d. Search strategies for non-cooperative launches
4. Catalogue exploitation:
   a. Tools to detect and interpret macro-level trends and changes (e.g. utilising artificial intelligence/machine learning techniques)

Projects should address one or more of the substantive objectives set out above (1-4). By the end of the project, there should be a proof-of-concept that can be demonstrated to and validated by the NSpOC. Bidders should note this proof-of-concept is **not** expected to demonstrate validity within the BOREALIS environment and no awarded supplier will be given access to BOREALIS as part of this Contract. However, there may be some limited access to the BOREALIS delivery team and/or users available for successful projects.

UKSA does not intend to provide the awarded Suppliers with a historic dataset to use for testing their solutions at this stage: Suppliers are expected to use or procure their own datasets.

This competition aims to fund between one and eight studies, depending on number of quality proposals received and funding availability. UKSA has allocated £500,000 towards this competition and will fund individual proposals up to **£100,000** (exclusive of VAT) in value. Bidders should note that Contracts for Innovation costs must reflect actual costs at a 'fair market value' and not include profit (further guidance on cost calculation is available at Annex B – UKSA CfI Additional Guidance).

This is a single-phase competition that NSpOC will use to inform decision making when developing analytical and data processing tools for BOREALIS. In applying to this competition, you are entering into a competitive process. Subsequent development phases may be opened to successful applicants to this competition, pending budget availability in 26/27. Applicants should note this is not guaranteed.

Any adoption and implementation of a solution from this competition or future associated competitions would be subject to a separate, likely competitive, procurement exercise. This competition does not cover the purchase of any solution by the UK Government.

IP arrangements are set out within the Annex A – Contracts for Innovation Template, which Suppliers should study. Foreground IP generated within the project shall belong to the Contractor.

This competition closes at 15:00 GMT (UK time) on Monday 22 December 2025.

2 Your Project

2.1 Eligibility

Projects must:
- Be ready to commence by 19 January 2026
- Be completed by 31st March 2026 (noting that invoices can be submitted by 30th April 2026, but all project work must be concluded by 31st March 2026)
- Focus on addressing at least one of the five objectives set out in section 1.1
- Be-led by a UK-registered company, academic institution or Research and Technology Organisation (RTO) within which all strategic decisions are undertaken in the UK by UK nationals only.
- Conduct the majority of the research and development within the UK. Non-UK subcontractors are permitted, but no more than 20% of the available funding may be allocated to international partners and/or subcontractors.
- Applicants should note that UKSA reserves the right to reject any application on national security grounds, particularly (but not exclusively) in relation to non-UK subcontractors. Applicants proposing to use international subcontractors should specify in their application response why the relevant capability is not available in the UK.

2.2 Applicant

To lead a project, you:

- Can be an organisation of any size
- Can work alone or with others from business, research organisations, research and technology organisations or the third sector as subcontractors (noting the restriction above that funding to subcontractors is capped at 50%)
- Must have a valid UK bank account capable of accepting BACS payments
- Must be able to provide reporting against North Star Metric (see section 7.1)

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.

3 Funding

A total of up to £500,000 exclusive of VAT is allocated to this competition.

We expect to fund a maximum of eight projects, depending on the value and number of applications. Each project should be delivered by 31st of March 2026. Suppliers can bid for multiple contracts, but should note that UKSA is likely to take a portfolio approach to ensure an even spread of suppliers and projects across the full strategic objectives in the event the call is oversubscribed.

Each project can range in size up to a total cost of £100,000 (excluding VAT) per study, and for a duration from project commencement on 19th January 2026 to conclusion at 31st March 2026.

The contract is completed at the completion of all milestones set out in the project plan, and the successful organisation is expected to pursue commercialisation of their solution with customers beyond NSpOC.

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. As part of the application process VAT will be automatically calculated and added to your project cost total. Your total project costs, exclusive of VAT, must not exceed £100,000.

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 £100,000.

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

Contracts for Innovation 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.

To facilitate adoption of the solutions developed through Contracts for Innovation, the challenge owner retains free usage rights to foreground intellectual property (IP) developed during the funded project. This ensures that no matter the size of award Contracts for Innovation funding is never considered a subsidy under the Subsidy Control Act 2022. Bidders should still read the Contract Terms and Conditions provided at Annex A to ensure they fully understand the IP implications of undertaking this work.

4 Scope

4.1 Your project

The aim of this competition is to support development of innovative solutions that can enhance the data processing and/or analytical capabilities of the BOREALIS system by addressing objectives 1-5 set out in section 1.1.

The Contractor shall perform a number of key tasks during the contract, as outlined below. In your response to this call for proposals, you should elaborate and critique these tasks, identifying any additional suitable activities (with justification), presenting Work Package Descriptions (WPDs) and a Work Breakdown Structure (WBS) demonstrating a comprehensive and organised management approach.
You must demonstrate a credible and practical route to market, so your application must show how you will engage with potential end customers, integrators and suppliers, including a plan to commercialise your results beyond the NSpOC.

Contractors must perform the following tasks over the duration of the contract:

Task 1: Solution Development

This task aims to:
- Develop a solution to any of the objectives 1-5 set out within this document

Associated deliverables shall include:
- Proof of concept of developed solution (this may include source code)
- Final report section explaining how the developed solution works

Task 2: Project Management

This task aims to:
- Ensure suitable management of the development project (e.g. through an agile methodology)
- Capture lessons identified throughout the process
- Manage risks appropriately
- Document end customer engagement

Associated deliverables shall include:
- Project Management Schedule
- Final report section highlighting any lessons identified throughout the project and the outcome of any end customer engagement activities
- Timesheets for staff time spent working on the project

Further detail on the acceptance criteria associated with each of these deliverables can be found in Section 5.2.

4.2 Deliverables & Acceptance Criteria

Item #	Category	Requirement Guidance	Contract Deliverables	Lead Time	Acceptance Criteria
1	**Kick-Off Meeting**	The Contractor shall work with the UK Space Agency to agree a date for a virtual (online) Kick-Off meeting. The Contractor shall attend this meeting and take minutes to be distributed to attendees following the meeting. The Contractor shall produce a presentation as a deliverable, to be presented in the Kick-Off meeting. The Kick-Off presentation shall outline the Contractor's plan to achieve the overall aim and both objectives for this procurement, including as minimum: • Project team (including roles and responsibilities) • Schedule • Milestones and Deliverables • Any identified risks, issues and dependencies • Milestone Payment Plan	1.1. Kick-Off Meeting	Within 5 working days of Contract Award	• Completion of the Kick-Off meeting with the Kick-Off Presentation presented.

			1.2. Kick-Off Presentation	Pdf or ppt. copy sent to the UK Space Agency by the date of the Kick-Off Meeting at the latest	• The Kick-Off Presentation includes all of the following elements:
					  o Project team (including roles and responsibilities)
					  o Objectives and scope
					  o Schedule
					  o Milestones and Deliverables
					  o Any identified risks, issues and dependencies
					  o Milestone Payment Plan

			1.3. Kick-Off Meeting Minutes	Within 5 working days of the Kick-Off Meeting	• Kick-Off Meeting Minutes accurately reflect the Kick-Off meeting discussions.
2	**End of Project Deliverables**	The Contractor shall produce a written report at the project's conclusion, which sets out: • what the proposed solution is • how it works	2.1. Final solution	At least 5 working days prior to the End of Project meeting	• The deliverable shall deliver all aims for the corresponding task, as set out in section 5.1.

Item #	Category	Requirement Guidance	Contract Deliverables	Lead Time	Acceptance Criteria
		• key assumptions and dependencies	2.2 Final Project Report	At least 5 working days prior to the End of Project Meeting	• The deliverable shall deliver all aims for the corresponding task, as set out in section 5.1.

4.3 Project Management

To allow acceptance of deliverables associated with technical development, the Authority will require access to any document, data, procedure, specification or equivalent process/ document relied upon to demonstrate completion of the task. Documents will need to be provided to the Authority to allow for assurance to be undertaken and successful acceptance of deliverables. This may include timesheets to demonstrate the claimed amount of labour has been completed.

Failure to provide the Authority with access to any document, data etc. relied upon to demonstrate successful completion of a milestone, may result in the deliverable being rejected.

4.4 Projects we will not fund

We will not fund projects that:

- are not original or in scope
- duplicate someone else's work
- do not demonstrate significant support and engagement from potential customers
- do not evidence the potential for their proposed innovation to generate positive economic, environmental or societal impact
- do not address how any potentially negative outcomes would be managed
- are being funded elsewhere in the UK Space Agency or UK Government
- would directly duplicate other UK Government or EU funded initiative you have already been funded to deliver
- are covered by existing commercial agreements to deliver the proposed solutions
- involve solutions considered below Technology Readiness Level (TRL) 2
- projects that do not deliver work before Tuesday 31 March 2026
- projects where we deem there is a substantial conflict of interest that cannot be managed (e.g. where a supplier is in a privileged position relative to other bidders owing to existing contracts they hold with NSpOC) – UKSA reserves the right to reject applications on this basis
- projects where we deem there is a national security risk

5 Dates & Competition Deadline

Open date	28/11/2025
Deadline for Initial Expression of Interest	17:00 on Friday 12th December 2025
Deadline for Clarification Questions	17:00 on Friday 19th December 2025
Deadline for Applications	15:00 on Monday 22nd December 2025
Applicants notified and feedback provided	10/01/2026
Contracts awarded	By 12/1/2026

6 Evaluation Criteria and Assessment

Criteria	Scoring Criteria	Page Limit	Weighting %
1. Proposed idea or technology	Proposals are expected to provide a description of your proposed solution, including details of which objectives (1-5) within the competition brief it addresses and how. Proposals can include images and diagrams but these will contribute to the 3 page limit. High scoring applicants will: • Provide a clear, detailed description of their proposed idea • Demonstrate clear alignment to the 5 objectives set out in the competition brief • Explain clearly how their solution will improve data processing and/or analytical capabilities in relation to the 5 objectives • Show understanding of the benefit their project will bring in terms of enhancements to data processing and/or analytical capabilities • Demonstrate the idea is technically feasible • Demonstrate that proof-of-concept can be achieved within the time available • Demonstrate commercial potential of the proposed idea (beyond the NSpOC)	3	40
2. Project Management	Proposals are expected to demonstrate they are well planned and connected to key	2	30

milestones. They should be deliverable within the specified timeframe and projects should have an effective structure in place for managing the administration of a project of this size. There should be a sound approach to planning to achieve objectives on time and within budget. Key risks should be identified and mitigated.

You should set out the resources that will be needed to deliver your project (including any subcontractors/partners) and describe how each organisation has the skills, capabilities and experience to deliver intended benefits.

You should identify any project management processes or methodologies and describe key risks and how these will be mitigated.

You should include a light-touch project plan/Gantt chart within your answer.

High scoring proposals will:
- Provide a clear milestone plan with clear deliverables, payment values and a project plan
- Clearly identify the project team, their roles, experience and time commitment
- Demonstrate robust project management, governance and reporting structures
- Identify and address risks with appropriate mitigation
- Ensure milestone values and payment schedules are consistent with the finance summary
- Evidence good time management and clear documentation of progress

| 3. Value for Money | All projects will need to demonstrate they represent value for money for the taxpayer. This is demonstrated by providing appropriate budgets allocated to appropriate tasks. Information from the finance spreadsheet will be used to support the assessment of this question. | 1 | 20 |

Proposed milestones and associated payments should match those entered in the

project management section of your application.

High scoring proposals will:
- Demonstrate a cost-effective proposal, with resources appropriately allocated to tasks and work packages
- Justify all costs, showing how the investment will deliver proportionate outputs and value for money
- Use existing technologies partnerships and freely available data/platforms where possible
- Avoid financial red flags and ensure all costs are reasonable proportionate

| 4. Benefit to the UK | All projects will need to demonstrate the investment sought from the UK Government represents clear value for the UK public through measurable benefits to the UK economy, supply chain and public.

High scoring proposals will:
• Demonstrate measurable benefits to the UK economy through work being undertaken in the UK
• Outline potential broader benefits (e.g. skills development and training of UK staff) | 1 | 10 |

Applicants should use font size 12. For the avoidance of doubt, any content exceeding the page limits will not be considered. In the event this funding call is oversubscribed, UKSA reserves the right to apply portfolio moderation to the successful application panel to ensure the funded portfolio has breadth across all stated objectives.

7 How to apply

7.1 Before you start

By submitting an application, you agree to the terms of the draft contract which is attached to the Contract Notice in 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 prior to contract signature.

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.

You are required to fill in the application form (Annex E) with your response and you must stick to the page limits set out in the evaluation criteria above. If you are attaching appendices to your submission they must be in a PDF format.

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

7.2 How to apply

If you wish to submit an application for this procurement, please email commercial@ukspaceagency.gov.uk, with "UKSAC25_0107 NSpOC BOREALIS Algorithm Development" as the subject line by **17:00 on Friday 12th December**. Provide at least two contact email addresses in your email.

You will be emailed a link to a SharePoint folder to which you must upload your application. It is strongly recommended that you test this link on receipt by uploading a test file. You may email the commercial mailbox to request confirmation that a test file has been successfully uploaded.

Applications will close at 15:30 on Monday 22nd December 2025. It will not be possible to submit applications beyond this deadline.

7.3 What happens next

A selected panel of assessors will review and score your application in accordance with the Evaluation Criteria. You will be notified of the outcome and feedback will be provided. Contracts for this competition will then be issued to all successful applicants. Further details can be found in the additional guidance document.

7.4 What we will ask you in the application form

The application is split into 4 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 marked as complete

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

Accessibility and inclusion

We welcome and encourage applications from people of all backgrounds and are committed to making our application process accessible to everyone. This includes providing support, in the form of reasonable adjustments, for people who have a disability or a long-term condition and face barriers applying to us.

You must contact us as early as possible in the application process. We recommend contacting us at least 5 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

Project Detail

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

Application details

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

What is your organisation's primary area of focus?

State your organisation's primary focus area.

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. You must demonstrate the active support and commitment of potential end customers. You can submit a letter of support with your application to highlight this commitment.

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

Finances

Enter your project costs, organisation details and funding details within the template at Annex C.

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 £100,000 excluding VAT.

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.

Intellectual Property

You are required to identify any and all background Intellectual Property (IP) that you are bringing to the project using the template set out in Annex E. The arrangements for intellectual property rights and exploitation of IPR are set out in the contract terms and conditions for this competition (Annex A).