

NSTIx Op-Tech Co-creation Space

Challenge Form: Airborne DNA Collection

Release Date	Proposal Deadline	Expected Start Date	Duration	Indicative Budget
Mon 17 th April 2023	Fri 19 th May 2023	July/Aug 23	12 weeks	£60k+ per Solution Provider. Higher budgets available for consortia.

Responding to NSTIx OpTech Co-creation

The National Security Technology and Innovation Exchange (NSTIx) is a government-led science, technology and innovation partnership that enables coherent and agile delivery of innovative national security outcomes through a co-ordinated and systematic approach to research and capability development.

NSTIx has established a government-led network of themed Co-Creation Spaces (CCS). The CCS' combine the respective power of specialist public and private sector partners in research, capability development and end user requirements. This supports the development of effective, user-driven technology at pace in areas that are critical to national security. For more information, please see the 'NSTIx Leaflet' in digital form (<https://www.gov.uk/government/publications/nstix-information-leaflet>).

Op Tech Co-Creation (OCCS) has engaged with a network of key Community Collaborators, to accelerate and leverage access to their existing networks of industry and academic Solution Providers.

By responding to this Challenge (details provided in 'Solution Provider Proposals – 'our ask' section) and participating in Co-Creation there is an exciting opportunity for collaboration between National Security, Community Collaborators and Solution Providers.

What is the current state for this Challenge?

Law Enforcement and National Security stakeholders have a requirement to collect human DNA samples from within buildings and other enclosed spaces for identification and/or confirmation purposes. In some scenarios, it's difficult, dangerous or otherwise undesirable for forensics officers to enter the collection environment themselves to take DNA samples. This could be due to a live threat situation such as a kidnapping or hostage scenario, or because the collection environment is inaccessible or unsafe to enter.

What is the gap?

There are established and effective practices of manually swabbing surfaces and objects to collect non-airborne DNA samples, and for subsequently analysing such samples to identify specific people. Recent research has shown that DNA can be collected from air to identify nearby animals [1], however there is a gap to subsequently analyse and identify a specific person (using existing DNA databases) from these airborne samples. Further considerations are that the DNA of interest will be within

a building or an enclosed space and that the person collecting the DNA will remain nearby but not within the building and so must be able to do this remotely. The collected DNA would subsequently be analysed.

Current gap analysis

The table below illustrates the area of focus for this Challenge, i.e., the identification of capabilities and techniques to provide the DNA analysis and subsequent individual fingerprint from airborne DNA.

Technique	Input (DNA Collection)	Processing (DNA Analysis)	Output (Individual DNA fingerprint)
Non-Airborne (i.e., surface based)	✓	✓	✓
Airborne	✓	✗	✗

For the purposes of this Challenge, we are seeking innovative solutions for airborne ‘processing’ and ‘output’ elements above. Proposals may be for complete, or partial solutions.

This Challenge

This Challenge will be run over a period of up to 12 weeks in total. As a Solution Provider, you will be part of an Agile team working collaboratively with the Project Sponsor and Agile Delivery Manager with these suggested workstreams:

- A brief review of the technology landscape.
- Lab based studies to review the feasibility of collecting airborne DNA samples.
- Lab based studies to show processing collected airborne DNA samples from air with the aim to distinguish a specific individual from the samples is feasible.
- Demonstrate a working prototype.
- A future roadmap of how this tech may be matured.

Follow-on project

If this initial project shows the concept to be feasible, and the OCCS team agree, a follow-on project funding will be likely.

Solution Provider Proposals – ‘our ask’

We are seeking one or more Solution Providers to propose on the outlined Challenge above. Collaborative proposals are encouraged to pool their collective strengths to co-create a viable solution to this challenge. Additional funding may be made available for collaborative proposals.

Community Partners are welcome to participate in both coordination and delivery of the Workstreams to support the Solution Partners – please contact us to discuss this approach if you are considering a multi-partner approach.

Commercial Consideration:

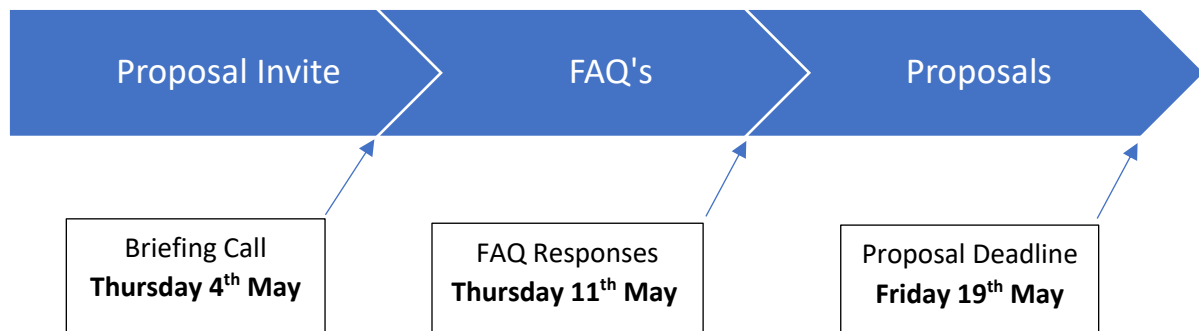
We are happy to be guided by Solution Providers proposals regarding the number and duration of these sprints within the **maximum 12-week** period.

Evaluation criteria

Proposals will be scored 1 – 5 on the following criteria:

- Timescale – will the proposal deliver a Minimum Viable Product within the time period defined within this Challenge Form?
- Does the proposal fit within the Challenge scope, taking into consideration cost and benefits?
- Is the organisation / delivery team credible in this technical area?
- Is the technical solution credible?
- Will the proposal deliver a full or partial solution? Has the proposal identified collaborators if a partial solution or is willing to work collaboratively with others?
- Is it innovative?

Next Steps



Confidentiality: All proposals will be subject to commercial confidentiality and a maximum protective marking of OFFICIAL. Please do not submit any materials above this classification.

Briefing Call: All parties will be invited to an open Briefing Call via MS Teams on **Thursday 4th May**, where members of the OCCS Challenge Team will be available to provide additional context and information on this Challenge, and where attendees can ask Clarification Questions. A calendar invite for this call with dial-in details will be sent nearer the time. NB; please note that failure to attend the Briefing Call does not exclude Community Collaborators and suppliers from submitting a proposal by the deadline stated below.

Frequently Asked Questions – responses (FAQ): All enquiries from the Briefing Call will be collated, and responses sent to all parties in an FAQ document by **Thursday 11th May**.

Deadline: The deadline for proposals to be submitted is close of business on **Friday 19th May**. Please include the title of the Challenge '**Airborne DNA Collection**' in your email. Please note that shortlisted Collaborators may be invited to pitch prior to contract award.

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Selection and notification of finalists: The OCCS Challenge Team aims to select a shortlist of successful proposals by the **week commencing Monday 29th May** and invited to a pitch day.

Pitch day: The OCCS Challenge Team pitch day will be on **Wednesday 14th June**. An option to attend face to face or online will be made.

Technology Readiness Level (TRL): A cross-section of all TRLs will be considered for this Challenge.

Format: Final responses for this challenge are to be provided in MS Office (Word, PowerPoint, Excel) or PDF format to the following email address: cocreation@hmgcc.gov.uk with cc to the coordinating Community Collaborators who introduced the Challenge.

Alternative Formats: If you wish to discuss other forms of response such as a video presentation or live demonstration please contact us via the Clarification process to discuss your approach.

Feedback: All applicants will be provided with written feedback via the Community Collaborator once both technical and commercial assessments have been concluded. We will endeavour to provide feedback within 2 weeks of the competition deadline.

Commercial Engagement: The OCCS challenge team will select Solution Providers for this Challenge on the technical and commercial merit of the proposal received, commercial contracts and funding will be engaged through Cranfield University. Intellectual Property deliverables will be engaged with the OCCS under the terms attached.

Pricing: Solution Providers are invited to submit **Fixed Price** proposals for the **12 week** engagement. When preparing pricing please provide pricing against 3 monthly payment points in line with the sprint-profile of your project.

Commercial Considerations – Regardless of the Commercial Route Selected the following terms apply:

Please note that by submitting a proposal in response to this challenge you are agreeing to the terms and conditions of contract as issued and are thereby making a formal offer of contract, from which the Authority shall have the right to accept in part or in full should your proposal be deemed acceptable.

#	Category	Consideration
1	IP	Intellectual Property (IP) will be managed in accordance with the attached Terms & Conditions.
2	NDA	It is the responsibility of the Community Collaborator to propagate and adhere to the agreed Non-Disclosure Agreements (NDAs).
3	IT Systems	The Community Collaborator and/or Solution Provider IT system will be used as the collaboration platform for developing solutions to this challenge (including for example MS Teams, SharePoint, plus any required development and test environments). Systems must be capable of holding documents marked at OFFICIAL.
4	Data	All data will be managed in accordance with UK Data Protection legislation. This includes commercial & project documentation, and any data utilised in developing, testing and implementing the solution for this challenge.
5	Scope	Solution providers for this challenge may be from the UK or 5EYES geographies. Other geographies will be considered on a case-by-case basis.

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6	Clearance	All work will be classified at no higher than OFFICIAL. It is desirable for resources working on the project from Community Member organisations to have BPSS or SC (or equivalent) clearance, however this is not essential at this stage. Collaborators are asked to please state the clearance levels of their proposed Project Team within their submitted proposals.
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*Onboarding of a company onto our commercial Terms & Conditions can take up to an additional 12 weeks.

References

[1] DNA pulled from thin air identifies nearby animals, Science.org.