

NSTIx OpTech Co-Creation Space

Challenge Form: Seeing in the Dark

| Release Date | Proposal Deadline | Expected Start Date | Duration | Indicative Budget |
|--------------|-------------------|-------------------------------------|----------|--------------------|
| 27/02/23 | 31/03/23 | 4 – 8 weeks after proposal accepted | 12 weeks | Approximately £50K |

Responding to NSTIx OpTech Co-Creation

The National Security Technology and Innovation Exchange (NSTIx) is a government-led science, technology and innovation (ST&I) 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 \(https://www.gov.uk/government/publications/nstix-information-leaflet\)](https://www.gov.uk/government/publications/nstix-information-leaflet).

The NSTIx OpTech Co-Creation Space (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 'UK 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?

Closed-circuit television (CCTV) cameras frequently use infra-red (IR) illumination to see in low-light conditions. As such they are susceptible to IR light sources within their view, and there is general awareness that they can be dazzled by attaching IR light sources to items or people that the cameras were placed to surveil.

What is the gap?

CCTV and security cameras are often fitted with IR light-emitting diodes (LEDs) that automatically activate when darkness falls. This gives clear images in darkness as well as during daylight hours and provides full 24 hour coverage.

By wearing or carrying an IR LED illuminator into a bank or shopping centre, it is possible to blind the camera and "white out" the image partially or completely obscuring the information in the scene. IR

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LEDs are also invisible to the naked eye and can pass through certain fabrics, so it would be difficult to spot the source or individual concerned causing the “white out”.

An applique protection system is required to protect these cameras from IR sources while still providing the benefits of night sight.

During exposure to these sources, there should be the ability to alternate between the direct view and protected view to ensure maximum information can be retrieved from the camera output.

This Challenge

This Challenge is focusing on producing a (TRL 4) concept demonstrator(s) that, if demonstrate potential, could be funded beyond this particular Challenge to a more mature level (TRL 6-7). As such we are not looking for very-low TRL research.

To ensure future proofing and advanced usability, it is highly desirable that the applique can detect a light source and then respond quickly to automatically activate to protect a camera from an IR illuminator.

It is believed that using a variety of methodologies such as frequency agile / switchable filters or spatial light modulators, may be able to solve this challenge.

There is guidance below to assist narrowing down the Challenge. It is however noted that these are not set requirements and these criteria could be pivoted during a project.

- It is highly desirable that the applique can automatically detect a light source and respond quickly (within a fraction of a second)
- The applique must have a manual override capability
- The applique must be able to work with typical small screw-mount CCTV lenses
- The applique must be a standalone unit, to allow a simple retrofit to existing installations (separate power packs are acceptable)
- The applique must be as lightweight and inconspicuous as possible, whilst being sufficiently robust to carry out a large number of actuations
- The applique must be low-power
- The applique must be robust against damage

Follow-on project

It is not expected that a fully-productionised applique is delivered by the end of this project, but if significant progress has been achieved and there is clear potential to continue, a follow-on project may be funded.

UK Solution Provider Proposals – ‘our ask’

Proposals are requested by **31/03/23**.

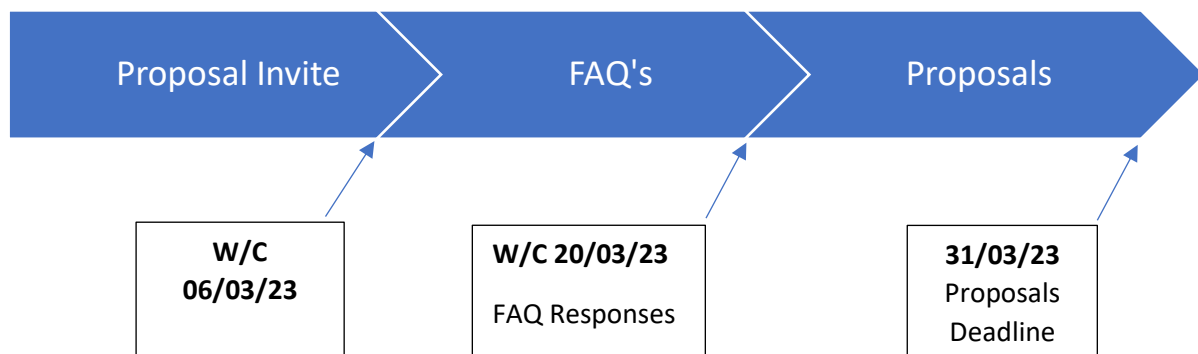
An agile approach over the **12 week** period is preferred, i.e. with sprints designed to work with the National Security and Defence community to iteratively define the solution.

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 **W/C 06/03/23**, where members of the OpTech CCS 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 close of business on **24/03/23**.

Deadline: The deadline for proposals to be submitted is close of business on **31/03/23**. Please include the title of the Challenge ‘**Seeing in the Dark**’ in your email. Please note that shortlisted Community Collaborators and/or Suppliers 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 03/04/23**, who will be invited to a pitch day. All applicants will be provided with written feedback via the Community Collaborator.

Pitch day: The OCCS Challenge Team aims to host a pitch day on the **week commencing 10/04/23**. An option to attend face to face and online will be made.

Technology Readiness Level (TRL): A cross-section of TRLs will be considered for this Challenge, ranging from those in development (e.g. TRL 4-6) or to readily deployable commercial-off-the-shelf products (TRL 7-9). Low TRL research is out of scope due to the timescales involved and the requirement for a Concept Demonstrator.

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 NSTIx Op-Tech Co-Creation Space will select and directly engage Solution Providers for this Challenge on the technical and commercial merit of the proposal received.

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.

Pricing: Solution Providers are invited to submit Fixed Price or Time and Materials (T&M) proposals for the **12 week** engagement. If submitting T&M, please indicate the approximate run-rate across the sprint-profile.

Commercial Considerations – Please see attached SC1A and DEFCON 705 terms documents.

Regardless of the Commercial Route Selected the following terms apply:

| # | Category | Consideration |
|---|------------|---|
| 1 | IP | Intellectual Property (IP) will be managed in accordance with DEFCON 705 – please see attached terms. |
| 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. |

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| | | |
|---|-----------|---|
| 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. |
| 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. |

*Onboarding of a company onto our commercial Terms & Conditions can take up to an additional 12 weeks.