



Defence and Security
Accelerator

Small, Lightweight Trace Explosives Detector

Briefing and Q&A Session
8th February 2024



Innovation for a Safer Future

1

Welcome & Housekeeping

Alison Stevenson

DASA Delivery Manager

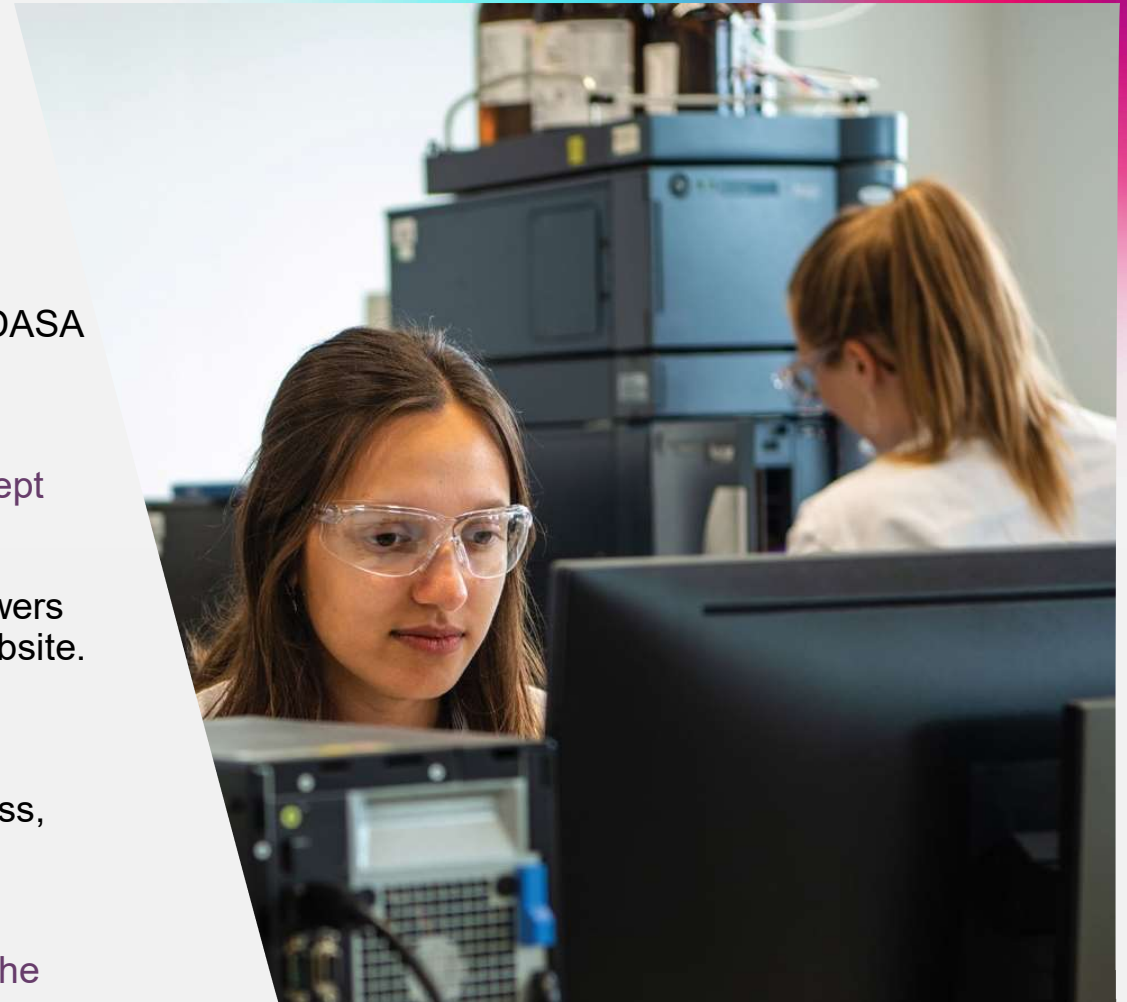


Agenda

Time	Item	Presenter
15:00 – 15.05	Welcome, Housekeeping, Introduction	Alison Stevenson DASA Delivery Manager
15:05 – 15.20	Introduction to DASA	Clare Green DASA Innovation Partner
15:20 – 15.40	Competition Background and Details	Peter Glover DSTL Erin Tamargo US Irregular Warfare Technical Support Directorate (IWTSD)
15.40 – 15.45	Break - opportunity to submit questions via Slido website sli.do, code #DASATRACE	
15:45 – 16.25	Question & Answer Session	Competition Team
16:25 – 16.30	Wrap Up	Alison Stevenson DASA Delivery Manager

Housekeeping

- Welcome to today's Briefing and Q&A for the new DASA competition: Small, Lightweight Trace Explosives Detector
- Please note your camera and microphone will be kept off.
- The slides and the anonymised questions and answers will be uploaded afterwards to the DASA gov.uk website.
- Discussions will remain at **OFFICIAL**.
- Q&A session will take place after via Slido. To access, go to the website www.sli.do (on a separate tab or device) and enter the code **#DASATRACE**.
- If you are having any technical issues, please use the chat function in Teams and direct message **Nick Deacon**.



Submitting Questions

Please submit or upvote any questions via slido



Scan above, or go to the website sli.do and enter the code **#DASATRACE**





Defence and Security
Accelerator

Clare Green

Innovation Partner –
Yorkshire and the Humber

DASA Overview



Innovation for a Safer Future

Our Mission

The Defence and Security Accelerator (DASA) finds and funds exploitable innovation to support UK defence and security quickly and effectively, and support UK prosperity.

Why work with DASA

DASA is set up to accelerate ideas towards impact and help businesses succeed.

- Innovation Partners provide advice and guidance
- Intellectual property stays with the innovator
- Quick, simple contracting process
- Project Manager and Technical Partners to support project delivery
- Post-funding support to help pull ideas through to impact
- 100% funding through Open Call and Themed Competitions

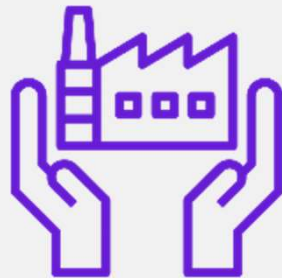


Why do Innovators work with us?



1 in 5

Proposals funded



57%

of contracts are
awarded to SMEs



£50k-£350k

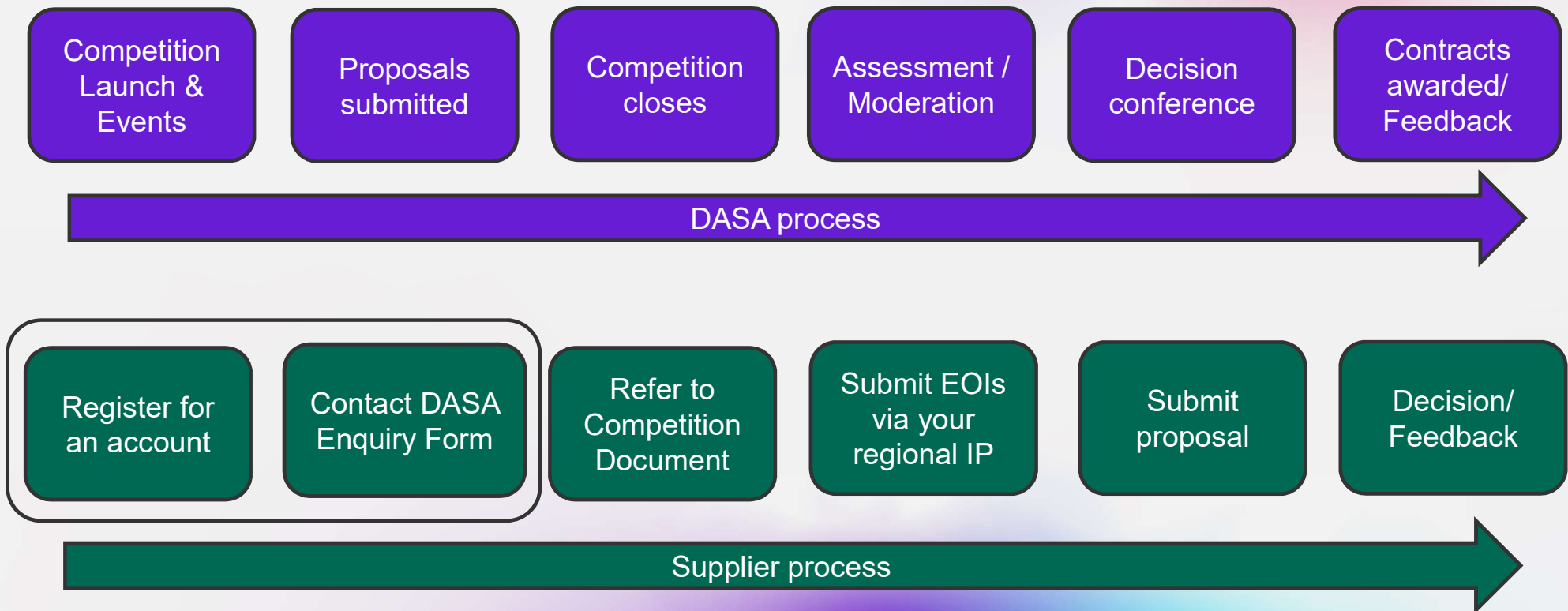
Typical funding range



Up to **4x**

Follow on
investment

High level process



 Defence and Security Accelerator
Part of [Ministry of Defence](#)

- Login/Register for an account
- Ideas Marketplace
- Apply for Funding
- Market Exploration
- Defence Technology Exploitation Programme (DTEP)
- Defence Innovation Loans
- Innovation Case Studies
- Get in touch with DASA

We recommend you use a **Google Chrome browser** when accessing the service

Log in, or register for an Enterprise Collaboration Service (ECS) account

All current calls, competition documents and dates, including the 'pipeline'

Contact an Innovation Partner and DASA Help Desk

Featured



18 December 2023 — Case study
[Flare Bright continues to fly high](#)
 Following initial funding from the Defence And Security Accelerator (DASA) to help get it off the ground,



12 December 2023 — News story
[£1.5 million competition seeks innovations to remotely monitor sensitive sites](#)
 The Nuclear Decommissioning



5 December 2023 — News story
[DASA launches new £1.6 million competition to get missiles talking](#)
 DASA has launched a new Themed Competition to identify and develop

DASA Homepage

Meet the team



Andrew Peaty
West Midlands



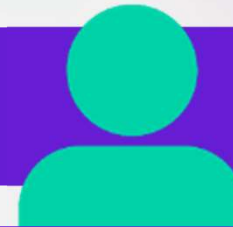
Jas Shanker
East Midlands



Clare Green
Yorkshire &
Humber



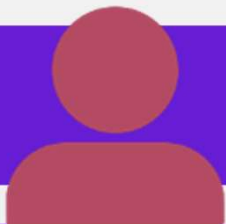
Jonathan
Jones
North West



Anna Taylor
North East



Mike Madden
South West



Mark Helliker
South East



Ralph Wilkins
London



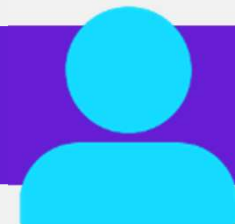
Vicki Savage
East of England



Tom Adamson
Wales



Deb Carr
Scotland



Linda Galloway
International

Contact us



www.gov.uk/DASA



[@DASAccelerator](https://twitter.com/DASAccelerator)



accelerator@dstl.gov.uk



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Small, lightweight trace explosives detector



- Explosives and weapons detection plays a key role in searching and securing buildings and areas
 - Defence and security related
 - e.g. Police, military, forensics
- Variety of approaches used. Focus of this competition is trace particle detection / identification
 - Explosives
 - Other targets of interest e.g. drugs





- Detect the presence of trace explosives on surfaces
 - E.g. resulting from a suspected improvised explosive device
- 1. Sample area of interest using collection medium (e.g. swab)
 - Efficient sampling
 - Easy to use
- 2. Swab is transferred to a detection system (commonly benchtop) for analysis
- 3. Detection system provides analysis / result, e.g.
 - Fast (seconds)
 - Detect / no-detect
 - Type of material
 - Low reliance on interpretation



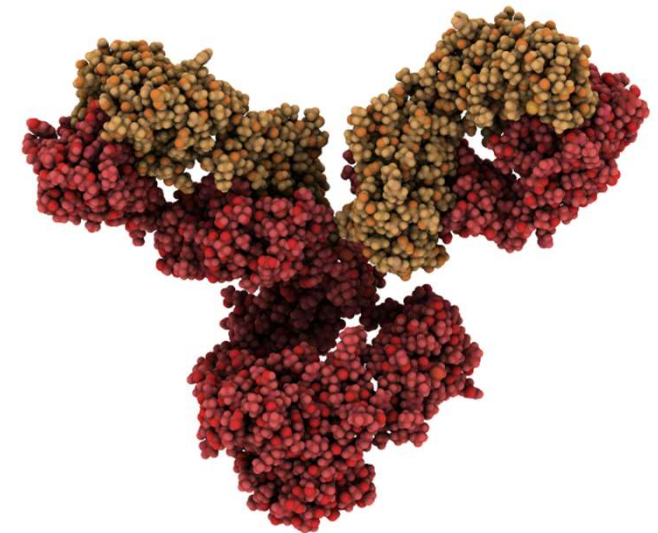
- Trace materials
 - Range of substrates e.g. plastic, wood, metal
 - Chemical background can be significant e.g. dirt, oil, finger grease
 - Trace target likely to be minor component from surface sample

- The challenge: Size Weight and Power (SWaP) vs performance
 - Call for proposals to develop a small format platform
 - Benefit of presumptive test kit SWaP, trace detection performance
 - Pocket size / small handheld
 - Maintain high sensitivity and specificity
 - Specificity = identify target, minimal false alarms





- Biological assay: using biologically derived or biologically inspired reagents or methods to identify / detect a chemical
 - Amenable to small, low power formats
- Antibodies have previously been successfully used for explosives assays
 - Highly specific, low false alarm rate
 - Low hazard
- Explosives are small molecules
 - Low molecular weight, <400 Da
 - Competitive antibody assays used previously
 - Sandwich assays challenging due to target size



Output of competition



- Small modern explosives trace detector platform
 - Innovative solution
 - Biological assay
 - Antibody based
 - Other suitably specific biological recognition elements in scope
 - Swab based sampling

- Funding available for up to two contracts
 - UK MOD and US DOD funded
 - Up to £300k each
 - Option to fund one exceptional solution





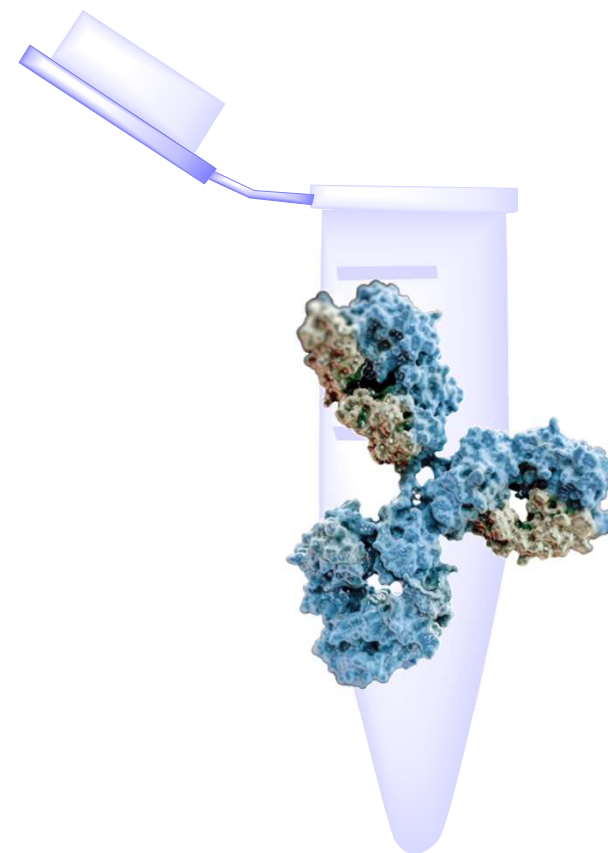
- Delivery of TRL 4-6 platform
 - Two prototype small, lightweight trace explosives detectors
 - Capable of multiplex detection for at least three targets (TNT, RDX and PETN corresponding to GFE)
 - Ideally up to 10 targets in the future
 - Swab based sampling
 - Delivery of all deliverables within 12 months from award of contract
 - Exploitable within 2 years of contract end
- Details of testing methodology and information on use / training materials
- Swabbing materials / consumables to perform 200 multiplex tests
 - Require a scalable plan providing costing / timeline for the supply of future consumable materials
- Exploitation plan

Government Furnished Equipment and Information (GFE/GFI)



[dstl] The Science Inside

- Antibody reagents available for three explosives targets (TNT, RDX, PETN)
 - Antibodies
 - Corresponding protein conjugates (if required)
- GFI for binding profiles as single reagents and using a competition ELISA format will be provided to all successful suppliers in receipt of the GFE
- Explosives solutions not provided, details can be provided to successful bidders
- Provision of GFE/GFI subject to necessary approval and on a case by case basis (please contact DASA)





- ✓ **Small handheld assay platform**
 - Operable by non-scientific personnel
 - Unambiguous detection/identification results
 - Low training and logistical burden
 - Multiplexed detection (three targets initially, expandable in future)
 - Swab sampling
 - Analysis from operational (e.g. dirty) surfaces
 - Result within 2 minutes, faster desirable

- ✓ **Optimal sensitivity**
 - e.g. improved signal transduction, positive response assays
 - Wide dynamic range (non-visible target detection higher priority)

What we don't want



- ✗ Proposals that do not use biologically derived strategies
- ✗ Use short lifetime consumables
- ✗ Require sub-ambient temperatures for storage
- ✗ Have a biological hazard or that will need disposal through licensed disposal routes
- ✗ Proposals offering no additional functionality over a small molecule competitive assay
- ✗ Single target assays
- ✗ Solutions with high capital / consumable costs

- Further detail is provided in the competition document

[dstl] The Science Inside

Discover more



We are on a break, back at 15.30!



To take part in the Q&A session, please Scan above, or
go to the website sli.do and enter the code
#DASATRACE

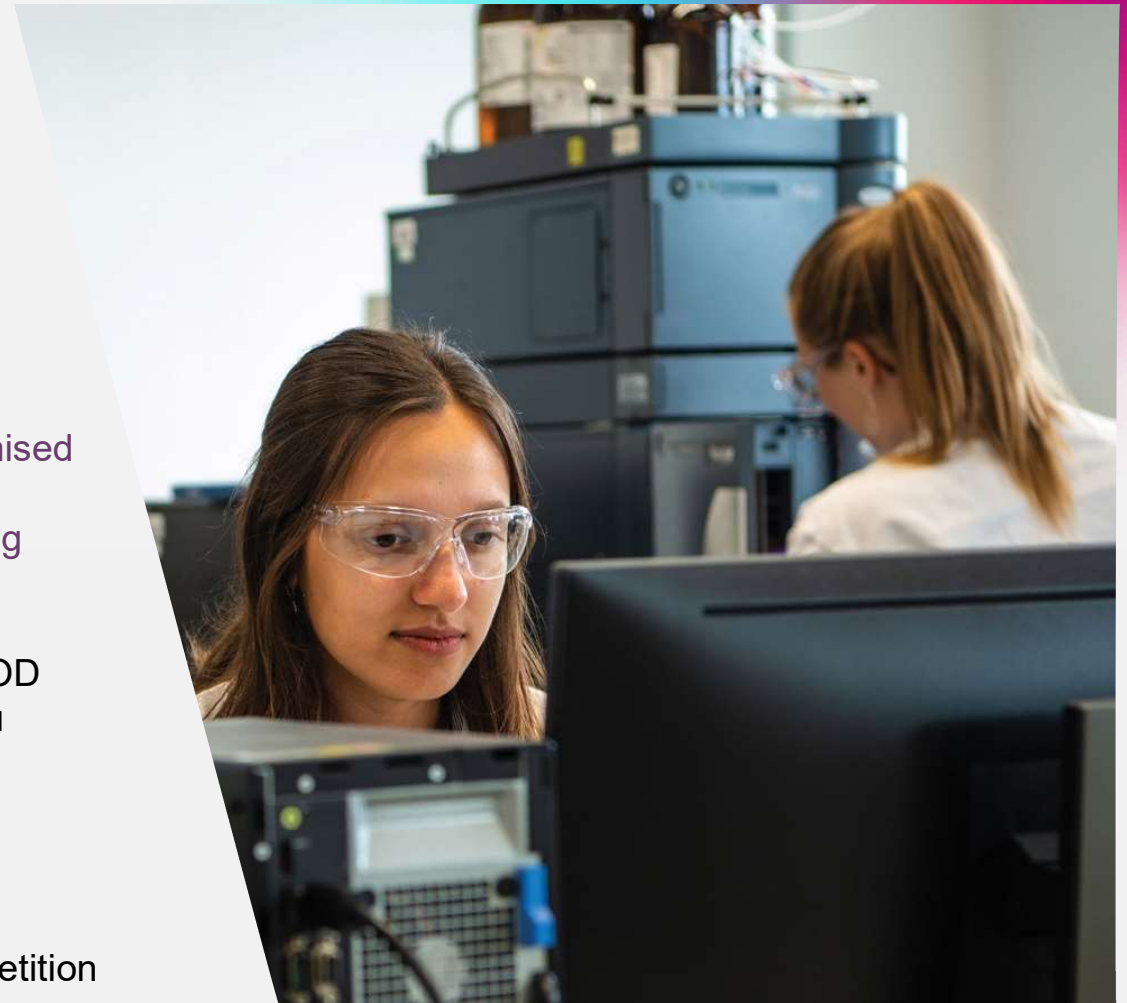
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Closing Remarks

- Thank you for attending this Q&A event
- The slides from today's event along with the anonymised questions and answers will be uploaded to the competition page on the gov.uk website in the coming days.
- We also invite you to book a 1-1 session with the MOD customer team if you have any further questions you would like to ask.
- Slots are available on:
 - 1-2-1 Session **Tuesday 20 February 2024**
- The link to these sessions can be found on the competition page on Gov.uk



Contact us



www.gov.uk/DASA



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Thank you for attending!

We look forward to receiving your submissions by
12:00 hrs (BST) on 9th April.