Ministry of Defence

Home Office

Innovations in Dermal Protection against Liquid Chemicals

Briefing and Q&A Session

6th March 2025

DASA INNOVATION FOR A SAFER FUTURE

[dstl] Delivering Mission Success

Innovation for a Safer Future

Agenda

Time	Item	Presenter
14:00 – 14.05	Welcome, Housekeeping, Introduction	**Robert Hammond-Smith** DASA Delivery Manager
14:05 – 14.15	Introduction to DASA	**Deb Carr** DASA Innovation Partner
14:15 – 14.40	Competition Background and Details	**Corinne Stone** Dstl, CBRN
14.40 – 14.45	Break - opportunity to submit questions via Slido website sli.do, code #DASACOMP	
14:45 – 15.25	Question & Answer Session	Competition Team
15:25 – 15.30	Wrap Up	**Robert Hammond-Smith** DASA Delivery Manager

Housekeeping

- Welcome to today's Briefing and Q&A for the new DASA competition: Innovations in Dermal protection
- 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.**
- We are recording this session
- 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 **#DASACOMP.**

Submitting Questions

Please submit or upvote any questions via slido

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

Innovations in Dermal protection against liquid chemicals

Introduction to DASA

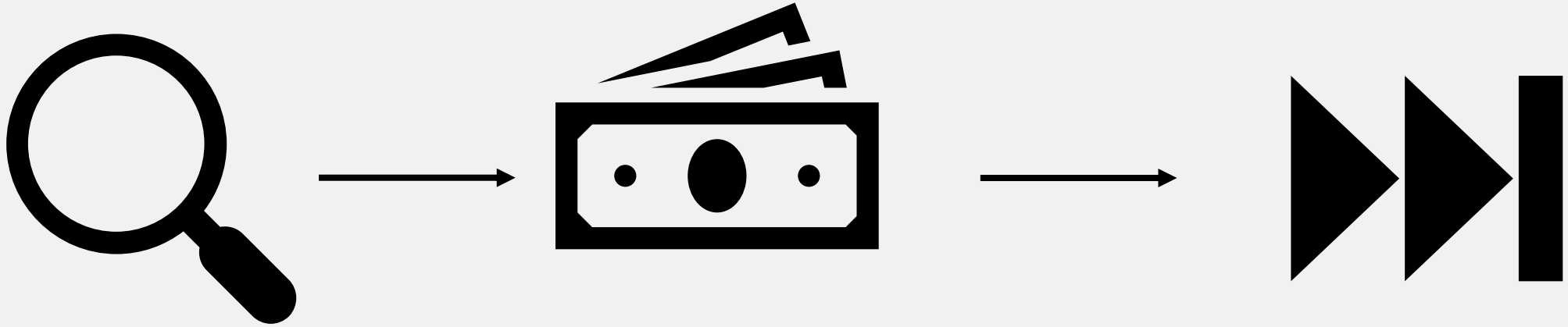
Deb Carr

DASA Innovation Partner

DASA 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.



Technology readiness levels (TRL)

TRL	MOD definition
1	Basic principles observed and reported
2	Technology concept and/or application formulated
3	Analytical/experimental critical function and/or proof of concept
4	Technology basic validation in a laboratory environment
5	Technology basic validation in a relevant environment
6	Technology model or prototype demonstration in a relevant environment
7	Technology prototype demonstration in an operational environment
8	Actual technology completed and qualified through test and demonstration
9	Actual technology qualified through successful mission operations

Available funding and support

- competitions (to TRL6)
- access to customers (for funded projects)

- business mentoring
- access to growth and higher TRL funding

Key facts

125
Competitions

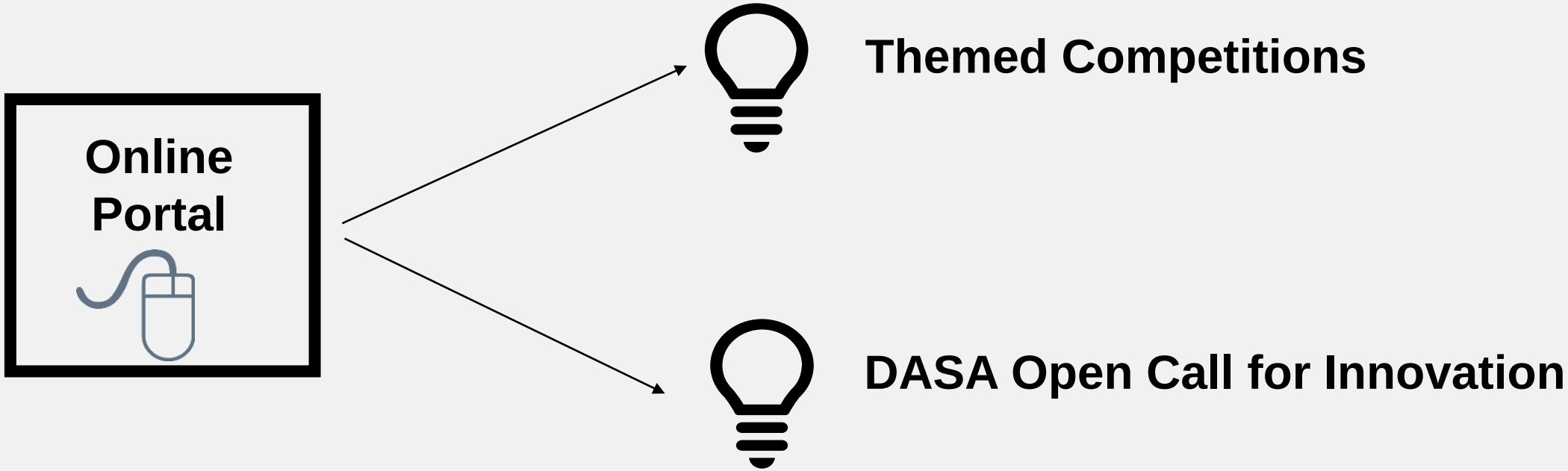
629
Innovators supported

1547
Ideas accelerated

£292m
Invested

57% of funded projects are from the small business community

DASA competitions



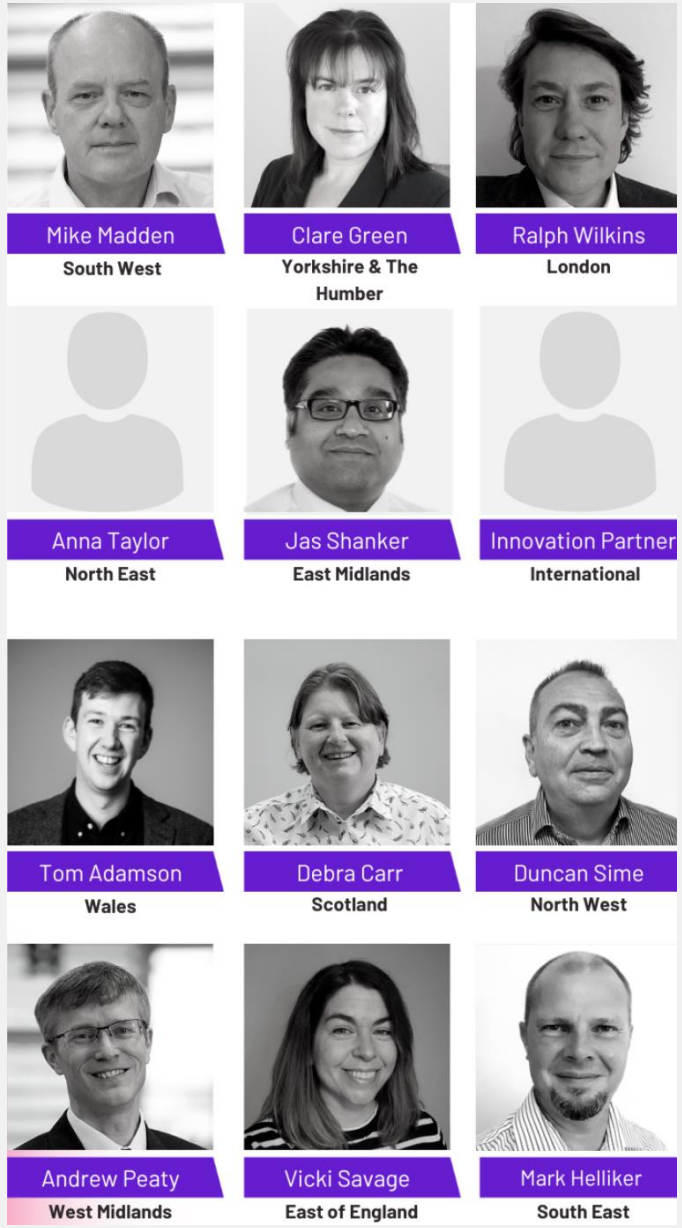
Market Explorations

Why apply?

- anyone can apply (businesses and academia)
- no partners required
- 100% FEC funding
- intellectual property stays with you
- simple application and assessment processes
- R&D tax credits for businesses

Who do I talk with?

- DASA Outreach Team – Innovation Partners
- Devolved Administrations
- English Economic Regions



Keep in touch

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accelerator@dstl.gov.uk

Email alerts

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DASA call - Innovations in Dermal Protection against liquid chemicals

Dr Corinne Stone

Principal Scientist, CBR Division

Ministry of Defence

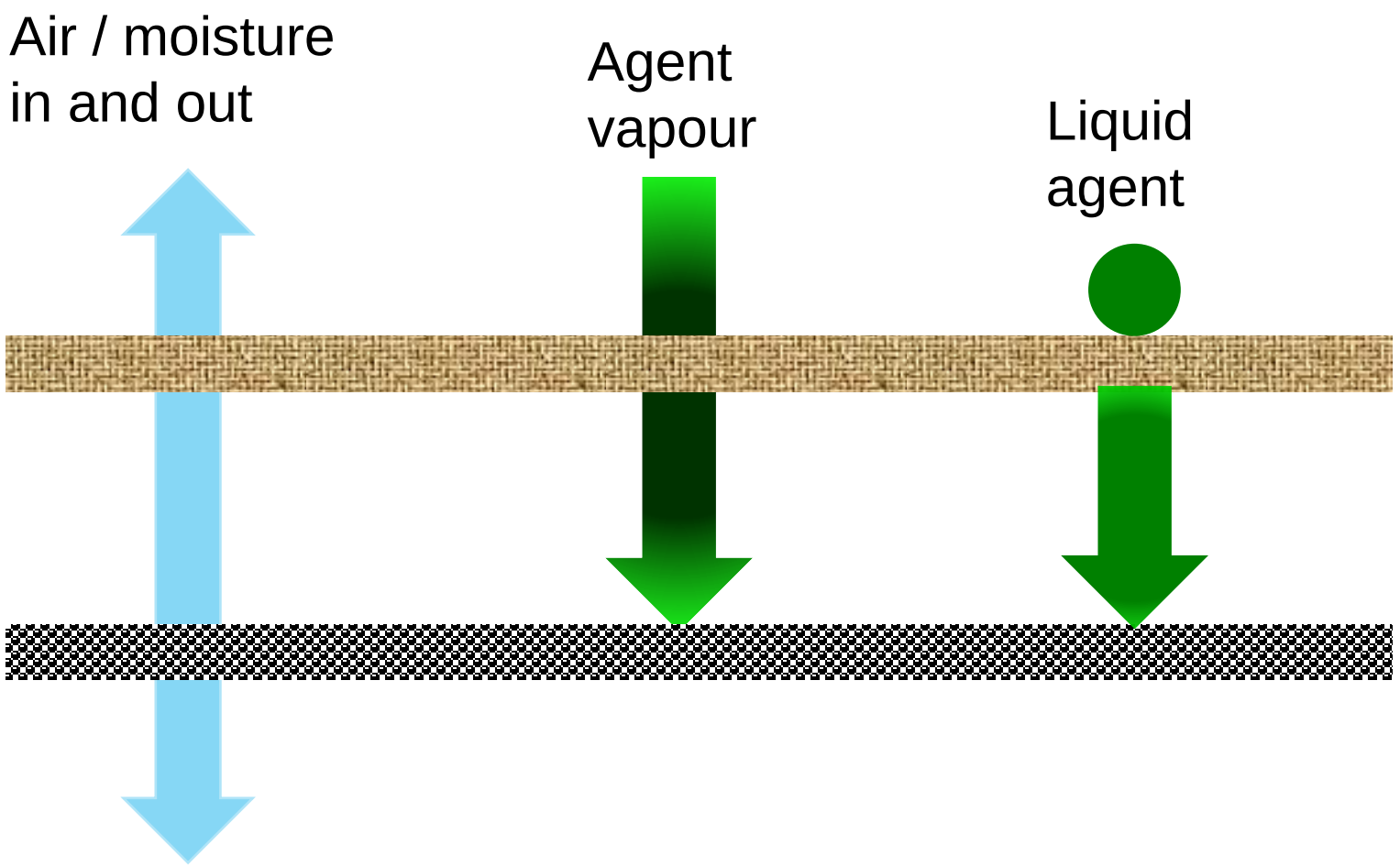
The Opportunity

- Seeking proposals that will address the future challenges for providing dermal protection against low surface tension liquid chemicals
  - Chemical Warfare Agents (CWAs) are low surface tension liquids
  - Petrol, oils and lubricants are also low surface tension liquids
- Exciting opportunity to develop and demonstrate novel approaches for achieving dermal protection

Areas of particular interest

- Novel technical solutions that can, or have potential to, mitigate permeation of liquid CWAs and other low surface tension liquids (as low as ca. 20 mN m^{-1}) through under applied mechanical pressures of 20 kPa or more
  - e.g. Textile or other structures; surface effects and treatments
- Technical solutions that give consideration to ensuring the thermo-physiological burden of the resulting system is minimised
  - maximising conductive and evaporative cooling
- Novel approaches that can prevent permeation of liquid CWAs through highly air-permeable fabrics
- Additionally, if the technical solution has the ability to mitigate the effects of flammable liquids and reduce the potential of ignition that is also interesting to us (although not the main focus of the call)

Background



Liquid-repellent fluoropolymer-treated outer fabric – prevents gross liquid contamination of carbon layer

Carbon impregnated fabric – absorbs vapours

Scope

- Explicitly NOT asking for repellency in this call
  - Although if repellency can be achieved we are definitely interested
- The changing regulatory landscape makes achieving repellency to low surface tension liquids challenging
  - Although any chemical treatment which is able to render the surface both hydrophobic and oleophobic within the constraints stated are also of interest!
- Therefore, the focus of this competition is technical solutions which provide dermal protection against liquid chemical warfare agents
- At this point we are not interested in suits, this is purely a call for technical solutions

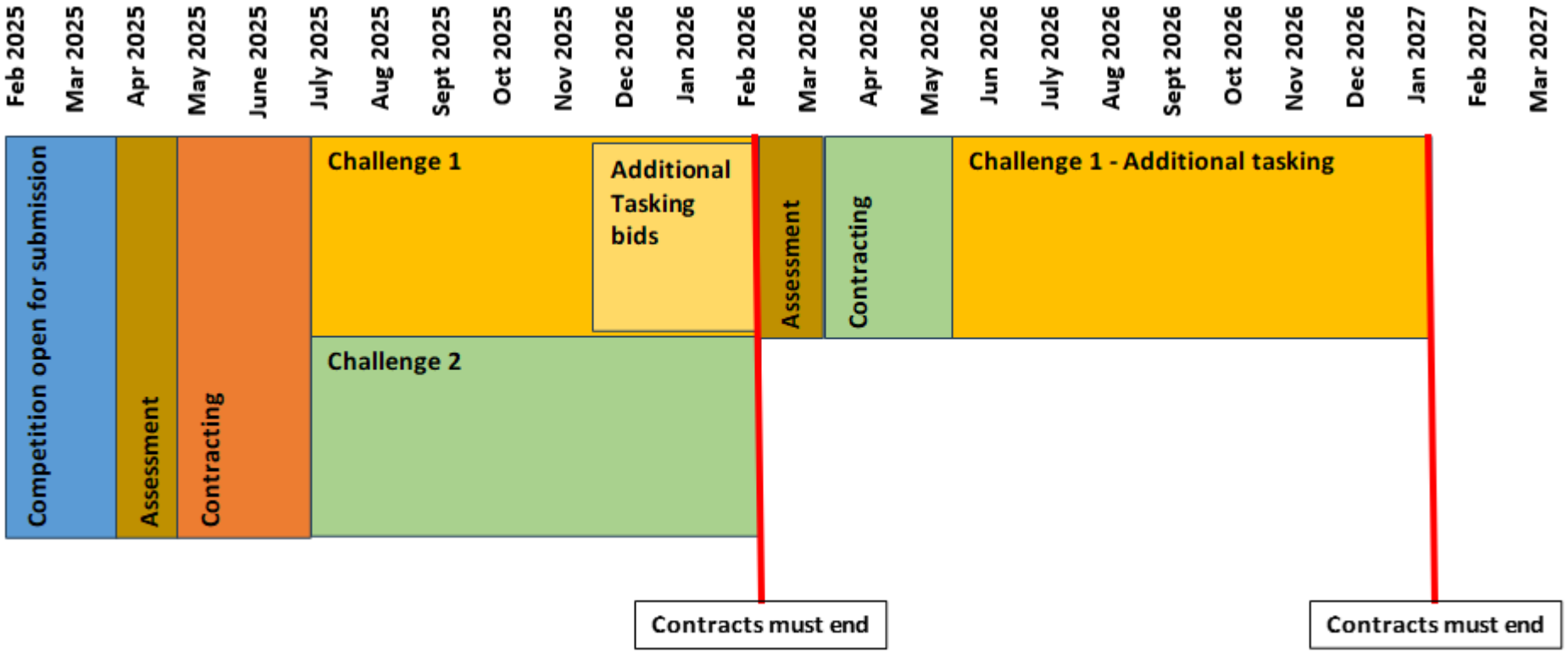
Possible ideas

- We can envisage several different approaches that could be considered
  - highly wicking surfaces
  - reactive coatings
  - novel fabric compositions and fibre structures
  - any other technical approaches which prevent the chemical causing harm to the wearer's skin
- This list is NOT exhaustive and we are open to any ideas which have a sound scientific and technical basis!

Structure of the call

- 2 separate but concurrent challenges in this competition
- Challenge 1
  - Lower technology readiness level (TRL), 1-3
  - 8 months, £100k
  - Technical solutions which can be developed to demonstrate basic liquid protection to the test method that has been given in the competition document
- Challenge 2
  - TRL up to 5
  - 8 months, £200k
  - Entry into Challenge 2 is for technical solutions which can be shown to pass the supplied test method
  - Potential to be developed further such that it passes the specified chemical warfare agent and robustness tests

Competition timeline

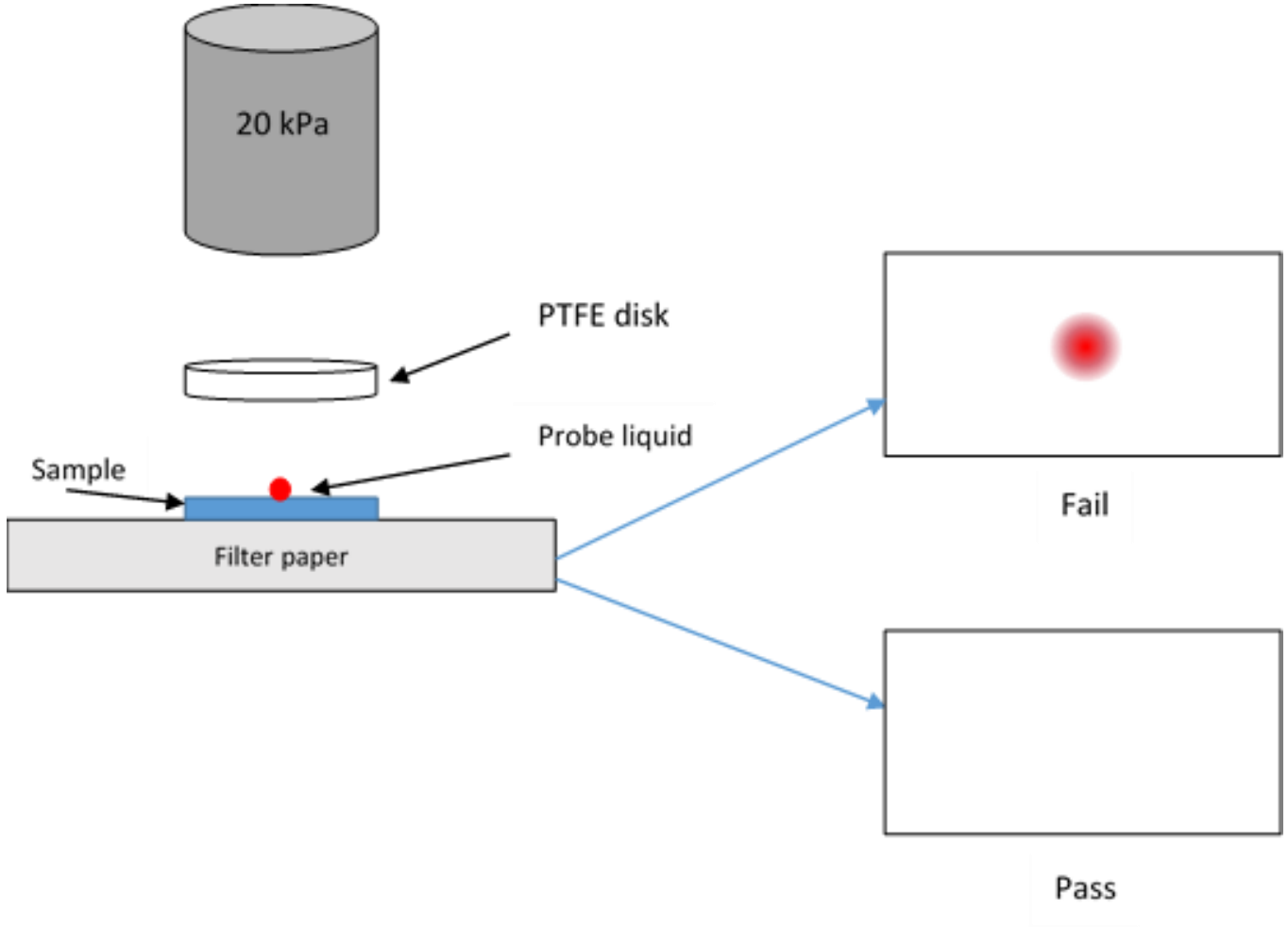


Challenge 1

- Challenge 1 is for technical solutions that can be developed to demonstrate basic liquid protection properties with potential to progress towards specific chemical warfare protection requirements (TRL 1-3)
- By the end of Challenge 1 you must provide pass/fail evidence against the basic liquid penetration test detailed in the competition document
- Proposals submitted under this challenge should be for research projects lasting no longer than 8 months
  - Final deliverable is a material that meets the criteria specified in the bid and required report
- Challenge 1 also allows for the possibility of a project extension to meet the specification described in Challenge 2
  - Subject to meeting entry requirement (see competition document)

Testing for Challenge 1

- Designed to demonstrate that any technical solutions developed have the ability to prevent liquid being forced through the fabric when pressure is applied
- This will give an initial indication of efficacy of the technical solutions and give confidence that Challenge 2 could be achievable
- Four probe liquids specified to probe a range of liquid characteristics
- Photographs must be supplied in final report



Challenge 2

- Challenge 2 will seek to evaluate materials at higher TRLs (5)
- To enter Challenge 2 you must provide evidence in the bid that your technical solution passes the test method supplied detailed in Challenge 1
- The target for Challenge 2 is to demonstrate technical solutions that provide protection against chemical warfare agents and meet various textile standards
- Innovators must include costs for these tests and approach suitable accredited / specialised test houses in advance
- All test standards are described in the competition document
- Proposals should last for no longer than 8 months

Support

- We have a collaboration survey available where you can register your interest in the competition and this will be circulated to other organisation who have also signed up
- All successful bids will be assigned a technical partner to oversee the work
- We look forward to working with you

Delivering Mission Success

Discover more

Submitting Questions

Please submit or upvote any questions via slido

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

Closing remarks

- Thank you for attending this Q&A event
- The slides from today's event along with the anonymised questions and answers with be uploaded to the competition page on the gov.uk website in the coming days.
- If you still have questions that you do not want to ask in this open forum we invite you to book a 1 to1 session with the customer team. Please supply us with as much information as possible when booking your session so that we can make sure the correct people are on the call.
- Slots are available on: -
  - 1 to 1 Session **12 March 2025**
- The link to these sessions can be found on the competition page on Gov.uk from 7 March 2025.

Thank you for attending!

We look forward to receiving your submissions by 12:00 Midday on 15 April (BST).