



Defence and Security
Accelerator

“It’s Good for Missiles to Talk Phase 2”

Briefing and Q&A Session

12th December 2023



Innovation for a Safer Future

Introduction to DASA

Tom Adamson

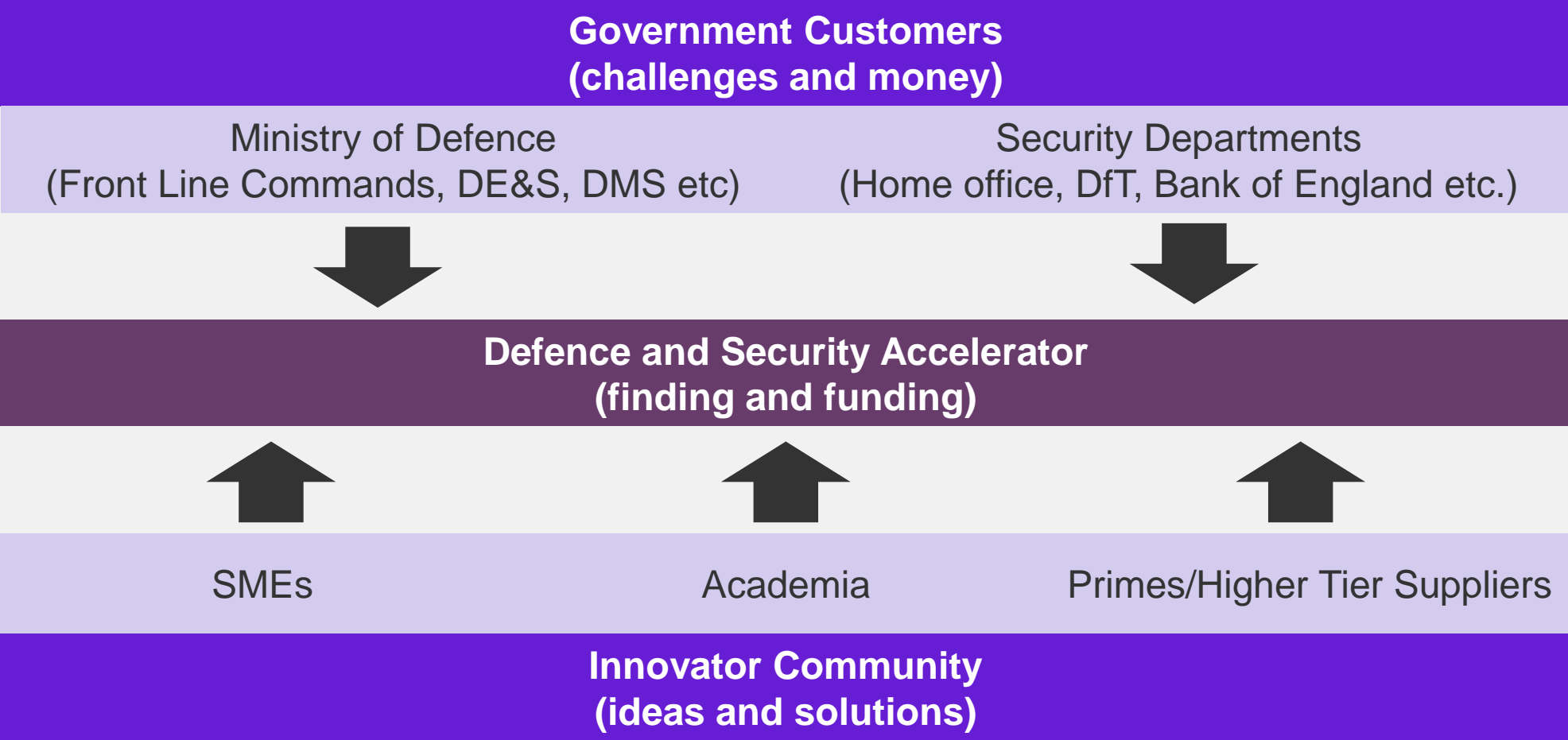
DASA Innovation Partner



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.

How do we work?



Since 2016...



111

Funding
Competitions



574

Innovators
Supported



1378

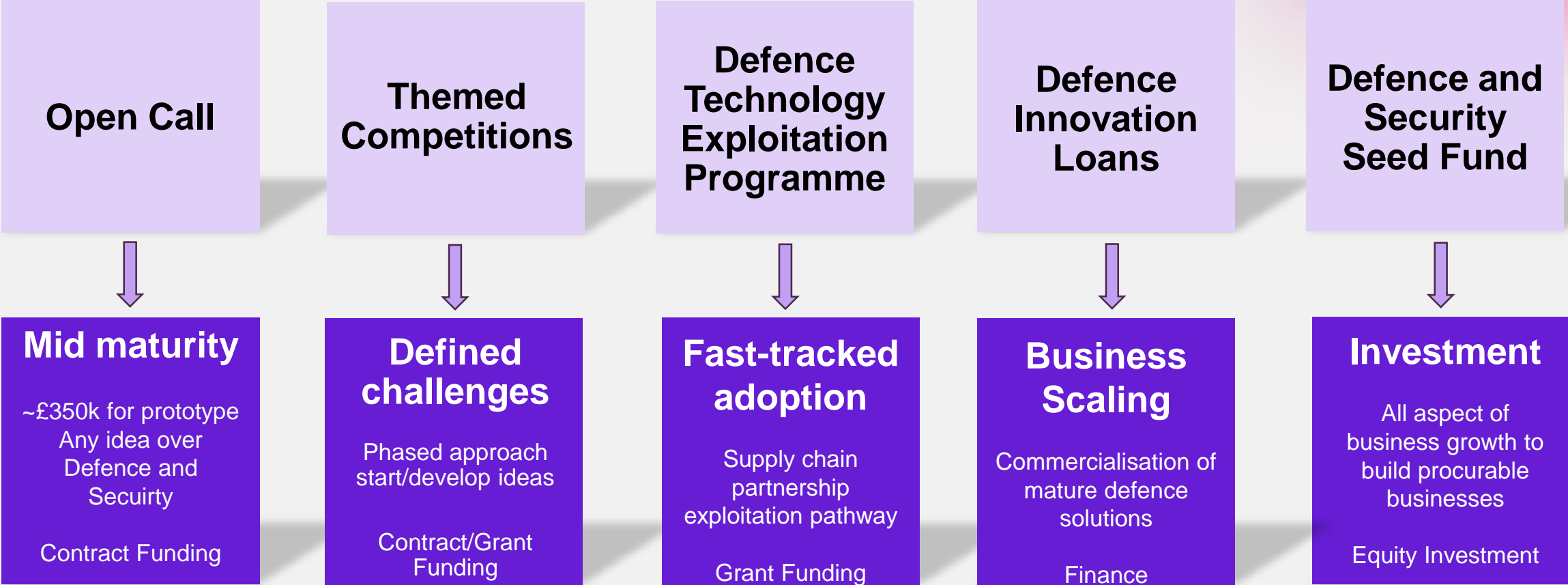
Ideas
Accelerated



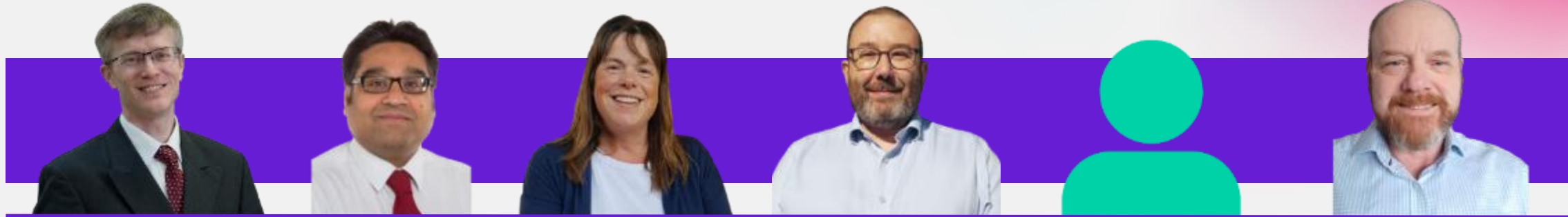
£246m

Invested in
innovation

Funding Innovation



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

Innovation Partner
International



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“It’s Good for Missiles to Talk!” Phase 2: Customer Challenges

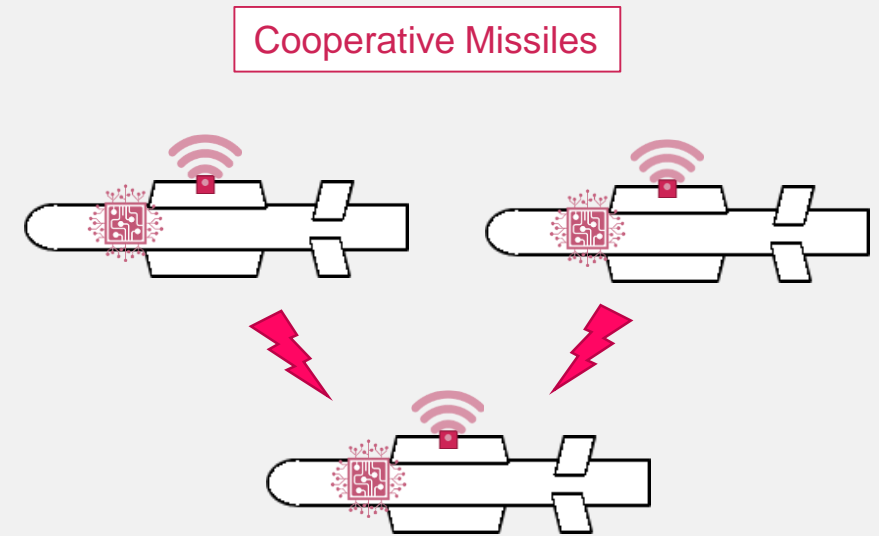
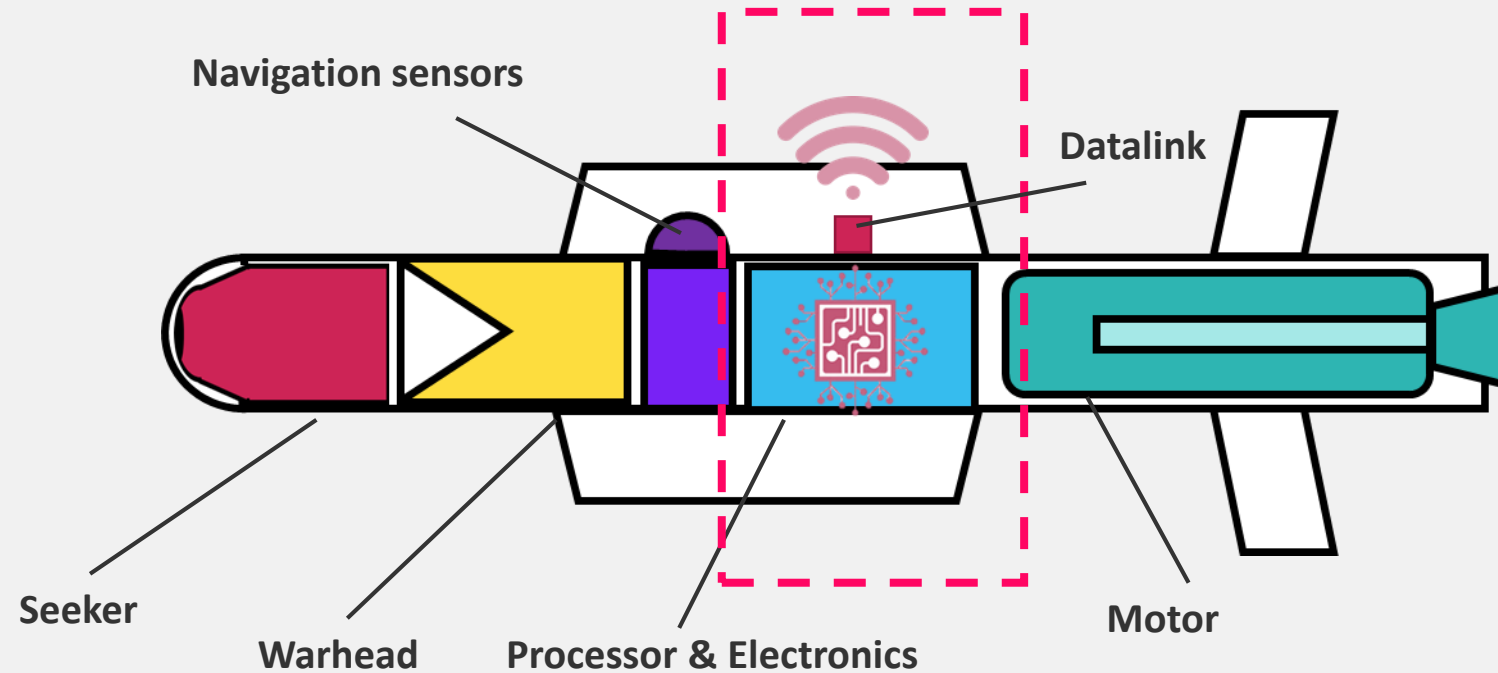
Charlie Maslen & James Holder

MOD Customers



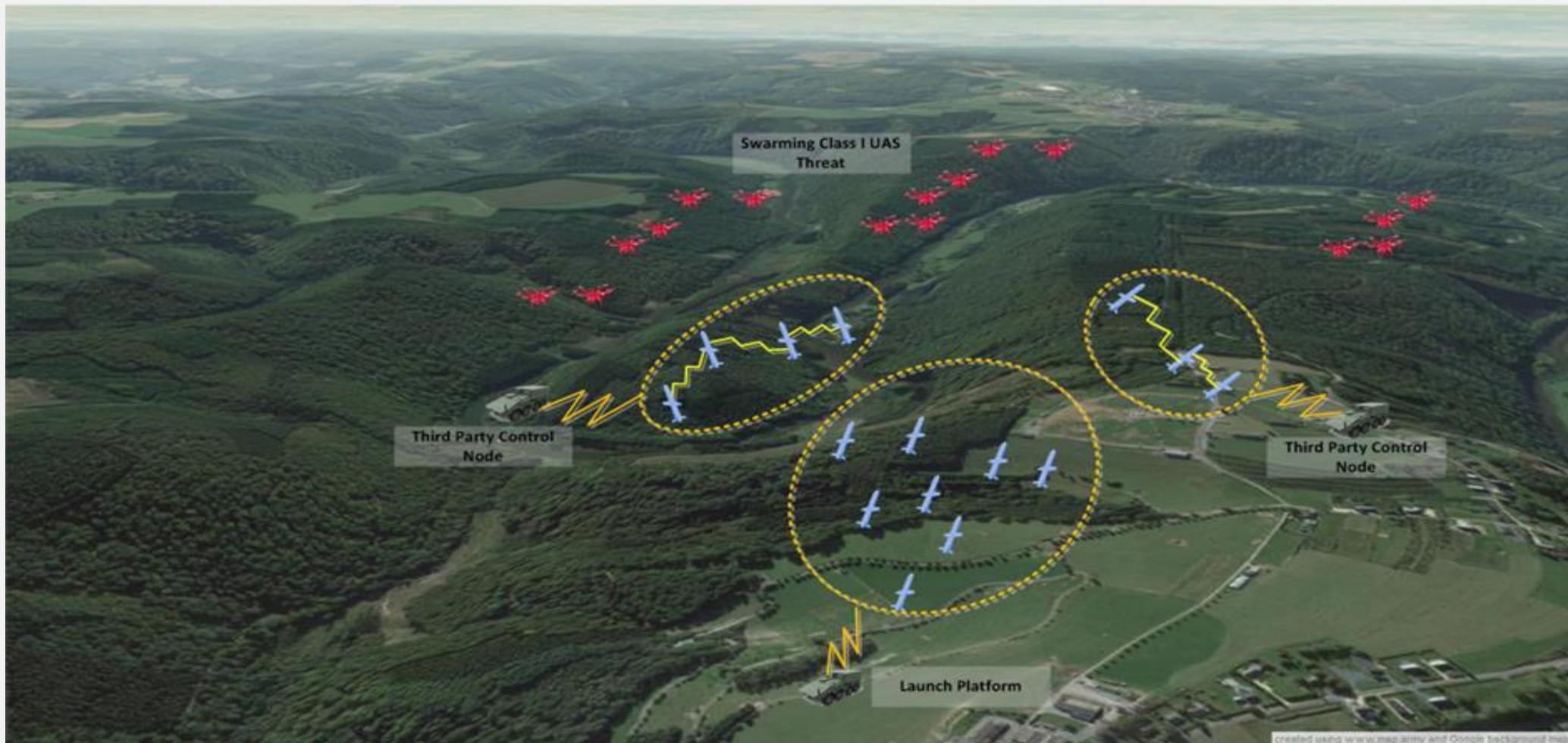
What are Cooperative Missiles?

- Cooperative missiles are that share situational awareness and 'work together' to maximise the probability of mission success.



*UK defence systems enabled by AI, including missiles, will always be subject to context appropriate human involvement.

Operational Concept



Competition Challenges

This Phase 2 Competition has five challenges:

* New challenge to Phase 2

1. Distributed target detection and identification.
2. Data processing on board and between missiles
3. Enhanced navigation through cooperation
4. Finding and engaging multiple targets distributed over a wide area *
5. Novel Missile Communication Systems *

Expect Technology Readiness Level (TRL) output: 3-5.

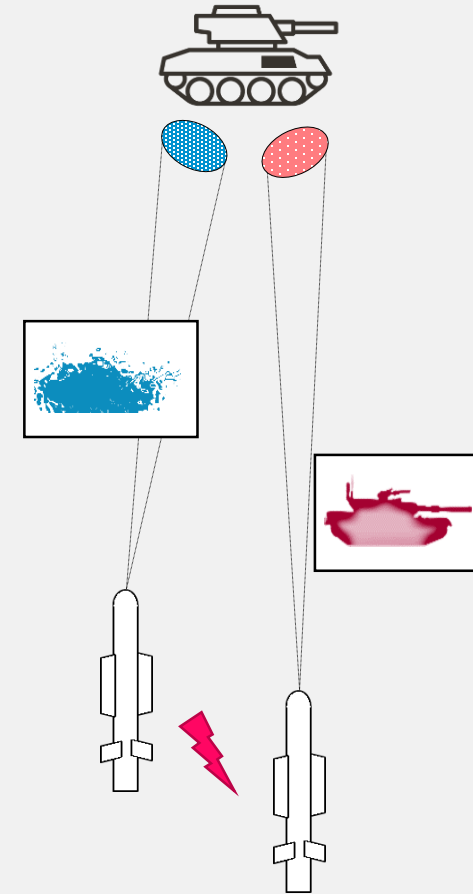
- **Demonstrate key components** (possibly not in their final form factor) within a lab or battlefield environment relevant to a missile application. (Not just theoretical principles)
- Initial interface specification with other missile subsystems established.

Challenge 1: Distributed target detection and identification

This challenge is looking for novel ways to detect, recognise and identify intended targets using multiple missile sensors distributed over a cooperative group.

Interest areas:

- Combining sensor data to build a shared image of the target area,
- Increasing detection and identification range through use of multiple, distributed lower cost sensors.
- Improving the accuracy of target tracking in a complex scene by combining data from multiple sources.
Homogenous and/or heterogeneous arrays of sensors



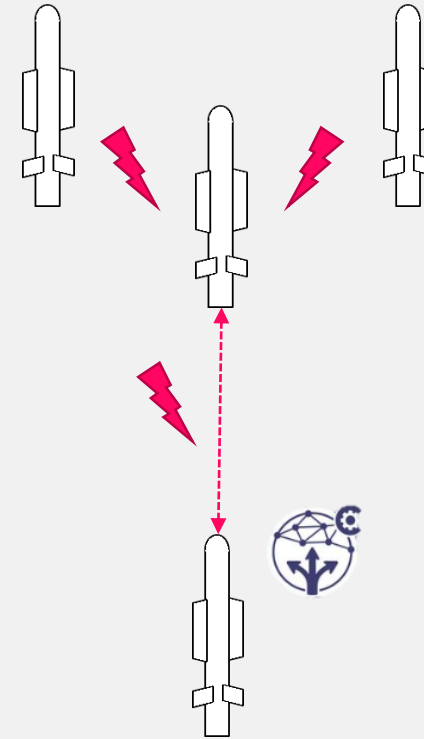
Improved detection range, confidence and scene picture.

Challenge 2: Data processing on board and between missiles

This challenge is concerned with the processing of large quantities of data across cooperative missile networks for particular missions.

Interest areas:

- Distributed processing
- Distributed database systems
- Edge processing
- Transmission of data within a limited bandwidth cooperative missile network.
- Building a shared data picture across all missiles in the group.

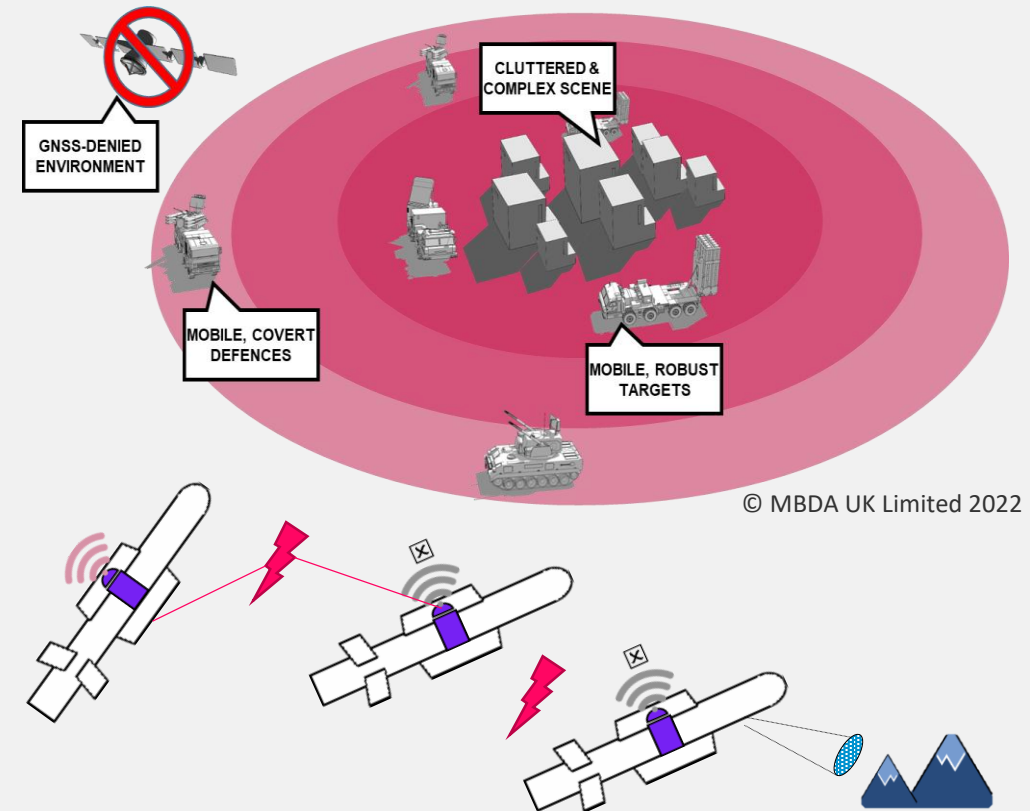


Challenge 3: Enhanced navigation through cooperation

This challenge is concerned with novel alternative navigation (AltNav) technologies using distributed navigation systems.

Interest areas:

- Multiple low cost sensors across the cooperative missile network to improve group navigation.
- Use of multiple GNSS feeds across the cooperative missile network when some are jammed or degraded to improve group navigation.
- Geolocation using diverse technologies that are distributed across the cooperative missile network.
- Synchronisation of timing information within the cooperative missile network.
- Enhanced scene matching over multiple wavelengths (EO, IR, RF) and identification of key signatures.

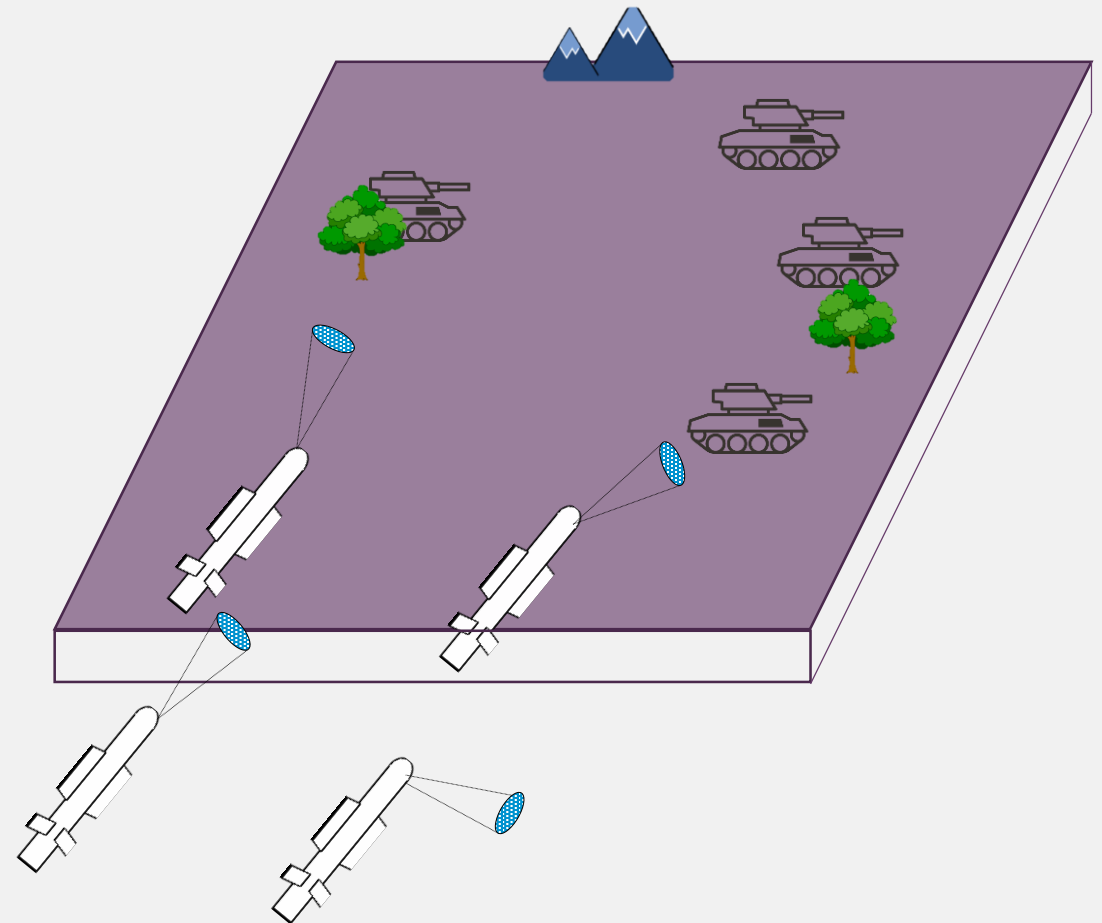


Challenge 4: Finding and engaging multiple targets distributed over a wide area

In this challenge we are interested in techniques that could maximise the combined search area of a group of collaborating missiles in order to improve the likelihood that mobile targets will be acquired

Interest areas:

- The way the target area is divided up and apportioned to each missile.
- Guiding the missile to quickly and efficiently dividing/searching the target area.
- Simultaneously balancing (without third party support):
 - Coverage of target area
 - Enabling target detection and acquisition.
 - Ensure missiles reach their target.
 - Reduce exposure to threats.
 - Reduce time spend searching the area.

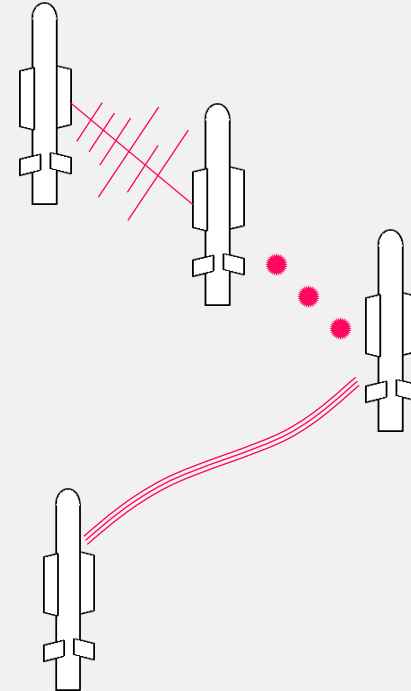


Challenge 5: Novel Missile Communication Systems

This challenge explores alternative communication media, techniques and technologies for missile-to-missile communications for Generation After Next applications.

Interest areas:

- Novel technologies or techniques for communications (including non-RF) suitable for missile environments.
- Technologies which could make missile communications very difficult to detect by an observer.
- Enabling large over-the-air data rates reliably while maintaining resilience to high missile velocities (up to Mach 4) and congested electromagnetic environment.
- Techniques to infer communications information (for example from missile behaviour) rather than direct transmissions of data.



Development Path



Customer guidance

We are interested in

- Solutions that address one (or more) of the 5 challenges.
- How low TRL demonstrators transition to exploitable technologies.
- Innovative or a creative approach, with ambition to deliver workable demonstrations of new concepts and/or new technologies.
- Clear demonstration of how the proposed work applies to the co-operative missile context.
- Use of AI and emerging technologies as part of the proposal.

We are not interested in

- Proposals that are reliant on MBDA and Thales to deliver (they will be part of the team post proposal selection)
- removing human involvement from the operation of missile systems.
- Proposals that focus solely on new missile concepts
- Paper based studies or literature reviews.

Contribution of UK Missile Primes – MBDA and Thales



- Have provided technical support to the competition document.
- May also support the following areas:
 - technical assessment of proposals
 - advice to the MOD competition team
 - technical support to the MOD Technical Partner.
 - identifying any follow on activities.
- Provision of advice on any possible exploitation route within this competition.
- Will be covered under appropriate confidentiality agreement
- No correspondence relating to this competition with them

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 19 December 2023**
 - 1-2-1 Session **Tuesday 16 January 2024**
- The link to these sessions can be found on the competition page on Gov.uk



Contact us



www.gov.uk/DASA



@DASAccelerator



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Thank you for attending!

We look forward to receiving your submissions by
12:00 hrs (GMT) on Tuesday 20th February 2024.