

# Future Capability Group



## Drone Industry Action Group Update 18 Nov 2022

# FCG - Cross Front Line Command Portfolio

Individual Projects Assessing Individual Capabilities



Experiment

Explore

Exploit



Nano-UAS



Medium-UAS



Large RW-UAS



Swarming-UAS



Logistics & others



High Alt UAS



UUV



UGV/RPV



Remote Ops



Advanced



HMI



Aligned with C-UAS

**System of Systems are emerging:** HMT and MDIS Programmes are enabling and Exploring

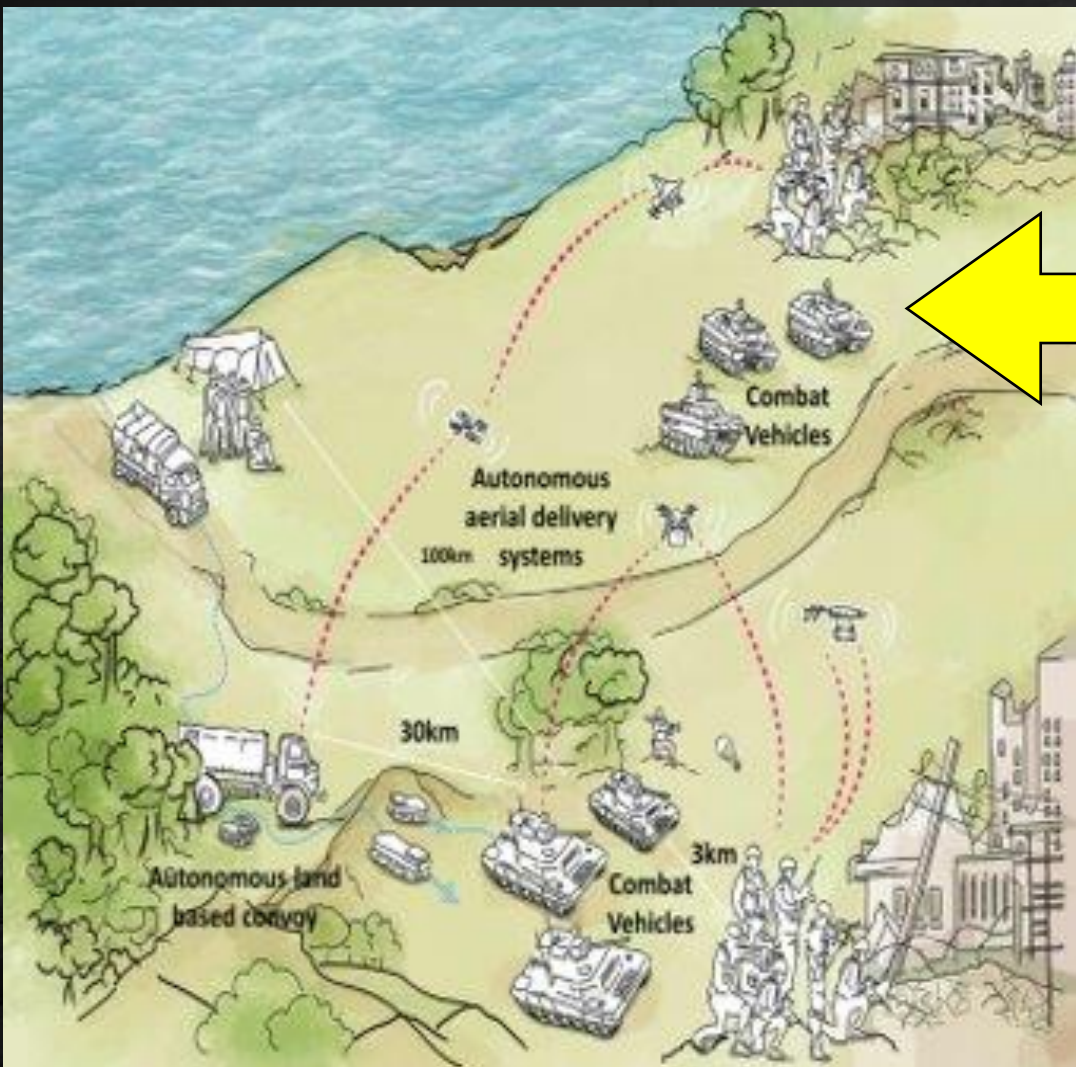
# FCG Rapid Experimentation – Spiral Iterations

BATS(O) Commercial Model (Think Big, Start Small, Iterate Often)



# Project Theseus – Last Mile Resupply Use Case

## Commencement of RAS Integration and Coherence



Theseus Use Case Scenario built on the premise of 'Last Mile Resupply' to look how such technologies can interact and autonomously operate as a cohered capability.

For Theseus this was a system that would receive tasking from front line troops, and then autonomously decide whether a land or air platform most suitably delivery mechanism, and task accordingly.

This was the first steps towards the Army's Human Machine Teaming (HMT) Project.



# Project Theseus – Considerations for Integration

## 2 Layers of Activity

### HMT – Army Experimentation and Exploitation Layer



BATS(O) Experimentation and Trials activity with Army stakeholders and HMT Data/Integrator partners.

Critical in spirally iterating the potential requirements and use cases of technology whilst capturing the relevant evidence to support IR25 decision.

Practical trials and integration activity key to demonstrating potential capabilities, and sustaining tempo of HMT.

### HMT - Key Enabling Underpinning Layer

Concurrent to practical experimentation and trial activity, demonstrating and exploring value of the technologies in question, with support of Industry experts and academia, ERCoE to explore the challenges presented, and the supplementary enabling work.

With the potential exploitation into service of RAS, there is an urgent requirement to develop and mature the ERCoE and Army's expertise and delivery plans in areas such as Ethics, RAS Safety definition, Cyber resilience, RAS Architecture, GNSS resilience etc.

With support of Academia (through MOU's) and Niche Industry Support (Technical & Advisory Partners) the ERCoE can ensure that access is enabled to both the right expertise, and in the timely manner required for the delivery of HMT outcomes.



# Exploitation Pathway – Collation into Human Machine Teaming

Generate Operational Advantage for Land Forces, by integrating adaptable Robotic and Autonomous Systems within Human Machine Teams, to generate Mass and Tempo whilst reducing risk.

## Systems Integrator

OEM	OEM	OEM	OEM

Think big, start small, iterate often.

- Transformation Funded Projects
- nUAS**  
Nano Unmanned Air Systems
  - RPV**  
Robotic Platoon Vehicle
  - Theseus**  
Autonomous Last Mile Resupply
  - ATLAS**  
GNSS Denied Navigation



Governance	Regulation
<b>Data Service</b>	Curation
	Storage



Minimum Viable Products

Personnel		Technical integration
Hardware		
Software		
Networks		
Data		



HMT - RAS Integrator

HMT – RAS Data

HMT Sponsored DASA/DSTL Tech Acceleration

HMT – Academic Outcomes/Recommendations

HMT – Potential Rapid Exploitation into Core EP(s)

RAS  
Enhanced  
Combat  
Brigade –  
  
%  
Effectiveness  
and Efficiency  
Evidence

Defence  
Equipment  
& Support  
  
Delivery  
Teams



DASA / DSTL

QinetiQLTPA

Academia – Memorandums of Understanding

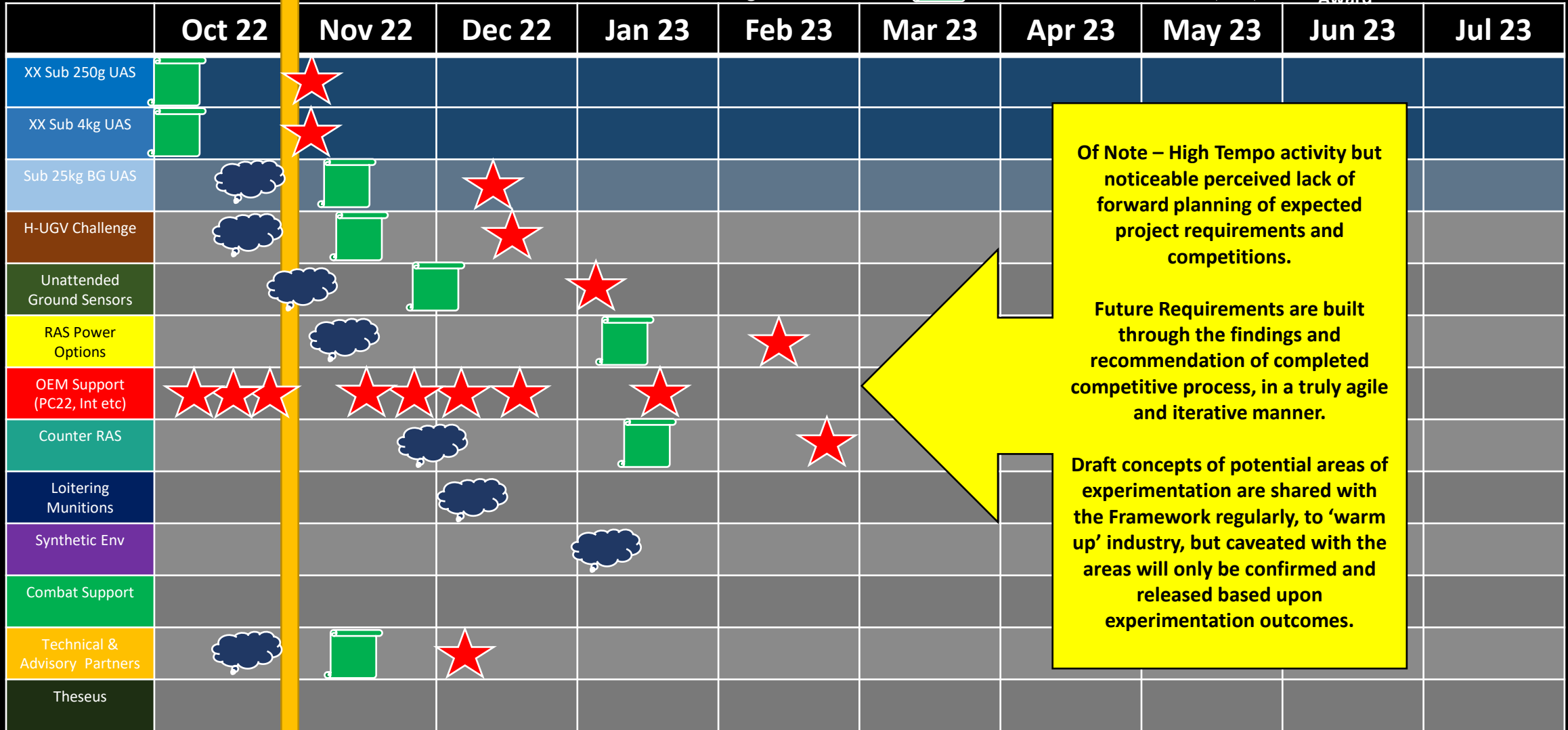
RAS Technical and Advisory Support Partners

Core Priority Outcomes for Human Machine Teaming (HMT) remain the collation of detailed and physically demonstratable evidence (for IR25) of the increase in effectiveness and efficiency of UK Military through the utilisation and adoption of Robotic and Autonomous Systems (RAS).

This will be delivered through the HMT Data and Integrator services accelerating the potential expeditionary capabilities of these technologies, whilst identifying and mitigating the key challenges (technological, procedural, enabling) to deployment of RAS.

Due to scale, scope and ambition of HMT, secondary activities can additionally add value to British Army and UK Defence, through rapid exploitation of mature technologies, and detailed exploration into challenges and opportunities in areas such as AI, broader Autonomy applications, and pan Gov utilisations.

# Human Machine Teaming (HMT) – Tempo Of Activity



Of Note – High Tempo activity but noticeable perceived lack of forward planning of expected project requirements and competitions.

Future Requirements are built through the findings and recommendation of completed competitive process, in a truly agile and iterative manner.

Draft concepts of potential areas of experimentation are shared with the Framework regularly, to ‘warm up’ industry, but caveated with the areas will only be confirmed and released based upon experimentation outcomes.



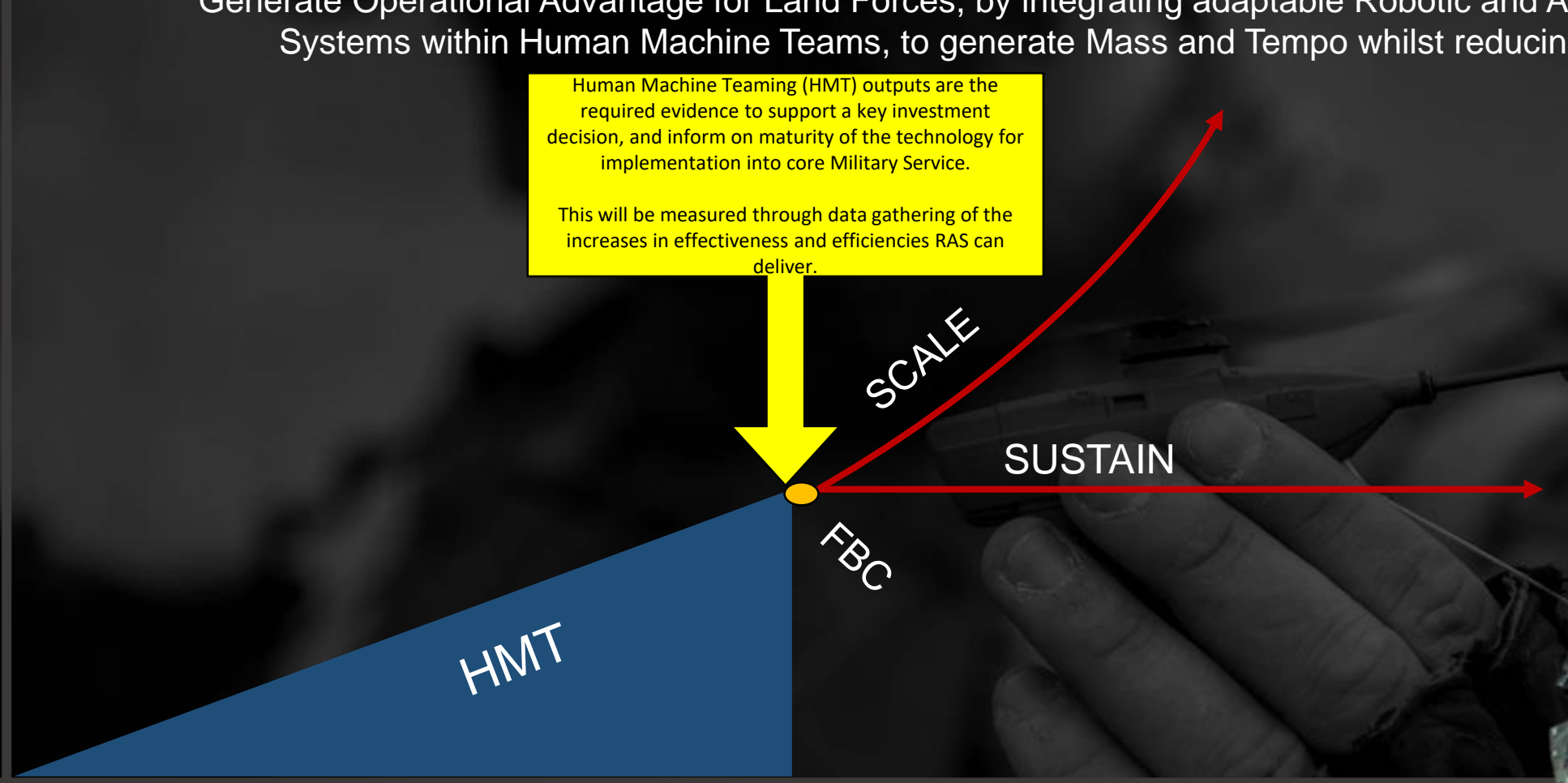


# Human Machine Teaming (HMT)

Generate Operational Advantage for Land Forces, by integrating adaptable Robotic and Autonomous Systems within Human Machine Teams, to generate Mass and Tempo whilst reducing risk.

Operational Advantage

Human Machine Teaming (HMT) outputs are the required evidence to support a key investment decision, and inform on maturity of the technology for implementation into core Military Service.  
  
This will be measured through data gathering of the increases in effectiveness and efficiencies RAS can deliver.



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FUTURE CAPABILITY GROUP

EXPERIMENT • EXPLORE • EXPLOIT



# Questions

