



Under Water Battlespace Transformation

NATO & UK

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Three Focus Areas

- ASW Smart Defence Initiative (SDI) & REPMUS 24
- Allied Underwater Battlespace Mission Network (AUWB-MN)
- UK OpEx Initiatives plus Project CABOT





The Burning Platform

- Retention of ASW Advantage in SACEUR's AOR
- Detection / Classification and tracking of new generation peer competitor submarines and UUVs
- Wide Area Ocean Surveillance - re-instating maritime mass
- Monitoring and change detection of CUI – Shallow & Deep
- Intervention in CUI – Shallow and Deep

NATO ASW BARRIER SDI PROGRAMME ON A PAGE

Work Package A ITA

MUS Concept and Capabilities -
Performance Assessment

Work Package B UK

Command Control (C2)
and Interoperability

Work Package C ESP

Data, AI, Security and
M&S

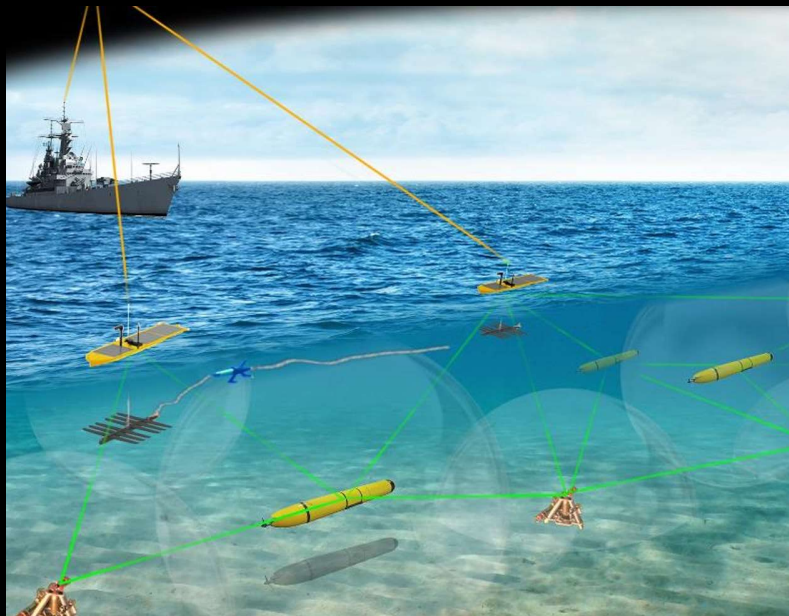
Work Package D All

Maturity Framework and
Analysis Tools

Work Package E CJOS

Doctrine and Key User
Requirements

Mission: To develop a technical demonstrator comprising both legacy and interoperable MUS solutions to securely provide a force multiplying ASW capability. **'Hold at Risk'**



ASW SDI Nations

Australia, Canada, Denmark,
France, Germany, Italy,
Netherlands, Norway, Portugal,
Spain, UK, US, Sweden.

Approach

Collaboration through National Programmes
Exploiting Operational Experimentation
Funded Industry Challenges

Benefits

Accelerating capability delivery
Realising economies of scale
Sharing cost and risk
Developing common standards
Ensuring interoperability
Reducing stove-pipe solutions
Developing common tools

Need for Explicit Concepts (Use Cases) to Guide Direction

Hold at Risk

Sea Shield –
Protecting High
Value Assets

Protected
Passage

Seabed
warfare

Using the Common Maturity Framework to Plan for OPEX Events

Concept R&D

What can it do?

Minimum Viable Product

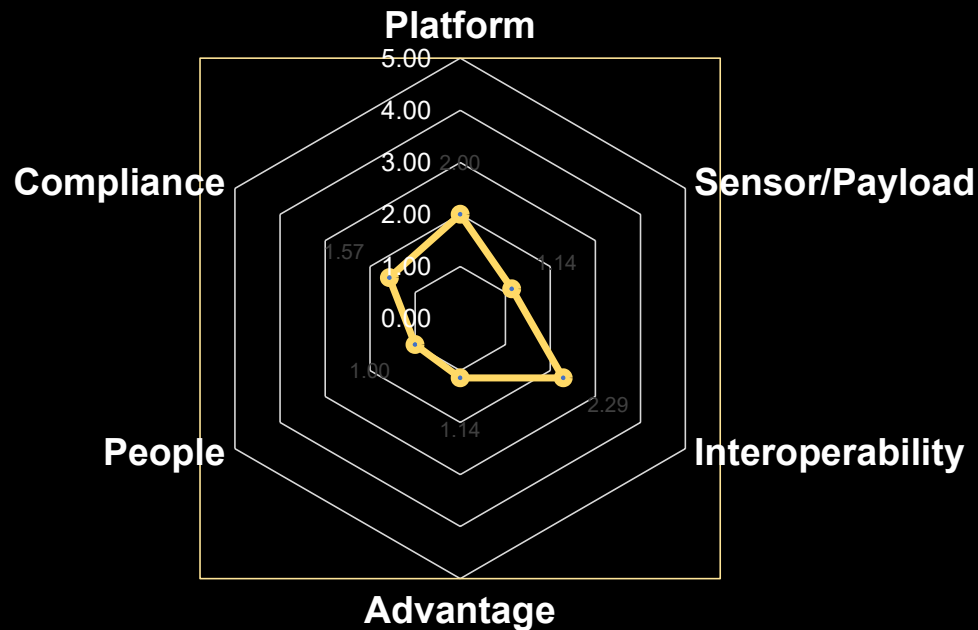
Will it do the job?

Minimum Viable Capability

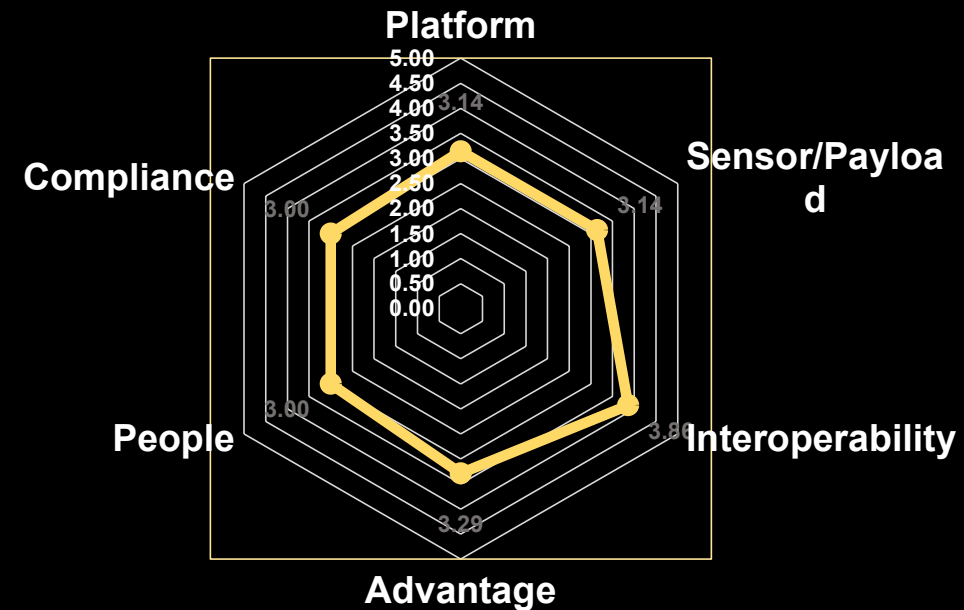
Make it useful?

War Winning Capability

Make it threatening?



REPMUS 24



Key Building Blocks

- Seabed to Surface to Space Sensors
- Uncrewed Sub-Surface, Surface, Airborne and Space
- Fused together with AI and Big Data Algorithms
- Processing at the Edge - Data in the Cloud



REPMUS 24: >3000 PEOPLE, 26 NATIONS, 140 COMPANIES

UAVs	USVs	UUVs	UGVs	Warships	Research Ships
40	20	40	2	10	8

- Warfighting Vignettes – Increasing complexity
- Multi Discipline – Multi Domain
- UK Components taking part in :
 - Anti-Submarine Warfare (Remote connection to Australia – AUKUS lead signatories AS Barrier project)
 - AWW (Support UK/US led development of NATO standard 4817)
 - MCM (UK Strike Net / US CCS integrate UW into RAS AI networks)

- Focus is on RAS AI networks for NATO Interoperability
- ASW Barrier Maturity Assessment
- Data Exploitation
- UK Strike Net – US & AUS Common Control System CS C2 / C5I systems
- Link to UK SinfE



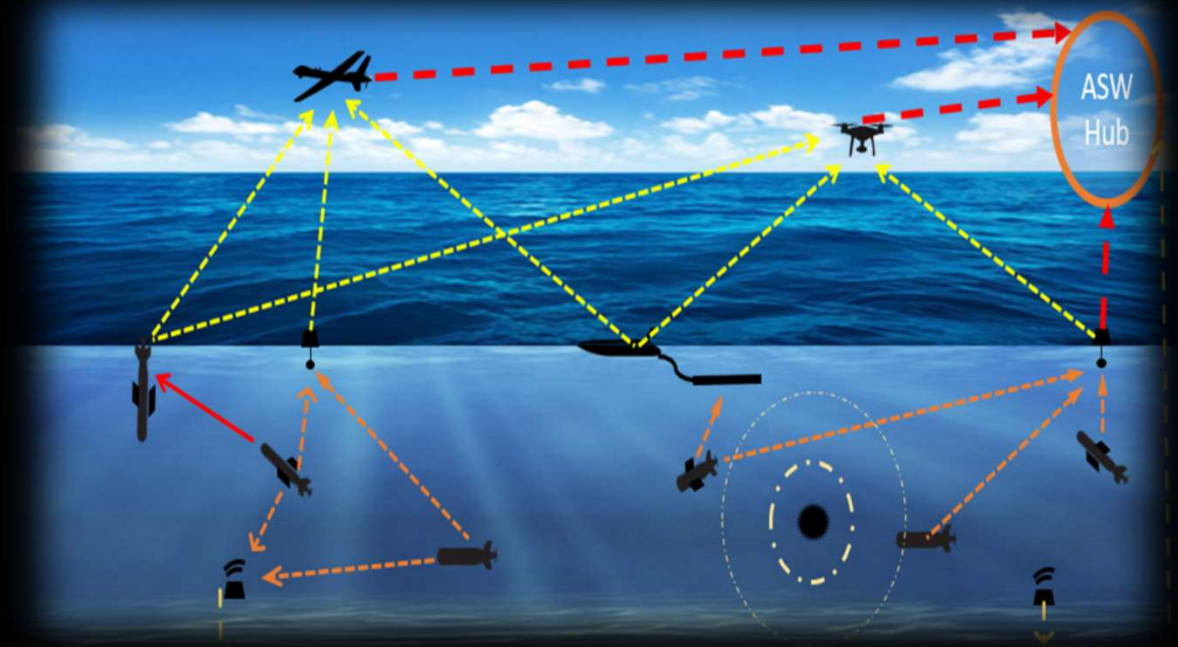
Virtual and Operational Ship Network:
VS London & VS Washington + NATO Virtual and real ships





Maritime Big Play (MBP) & REPMUS 25 - 2 x Industry Calls - Coming-up from UK

- MBP – Focused on specific problem statements related to: ASW, Strike, CUI and Digital Backbone – Funded
- REPMUS – Generic problem areas – Self Funded



AUWB-MN - Objective:

The **Allied Underwater Battlespace Mission Network (AUWB-MN)** will exploit both acoustic communication and more novel techniques to deliver an UWB Reference Architecture and initial Reference Environment to provide:

- Reliable underwater communications.
- Interface above water terrestrial & satellite comms
- Effective C2
- Backbone for data harvesting, data fusion, & exploitation.
- Policy, Procedures, Technologies and Standards

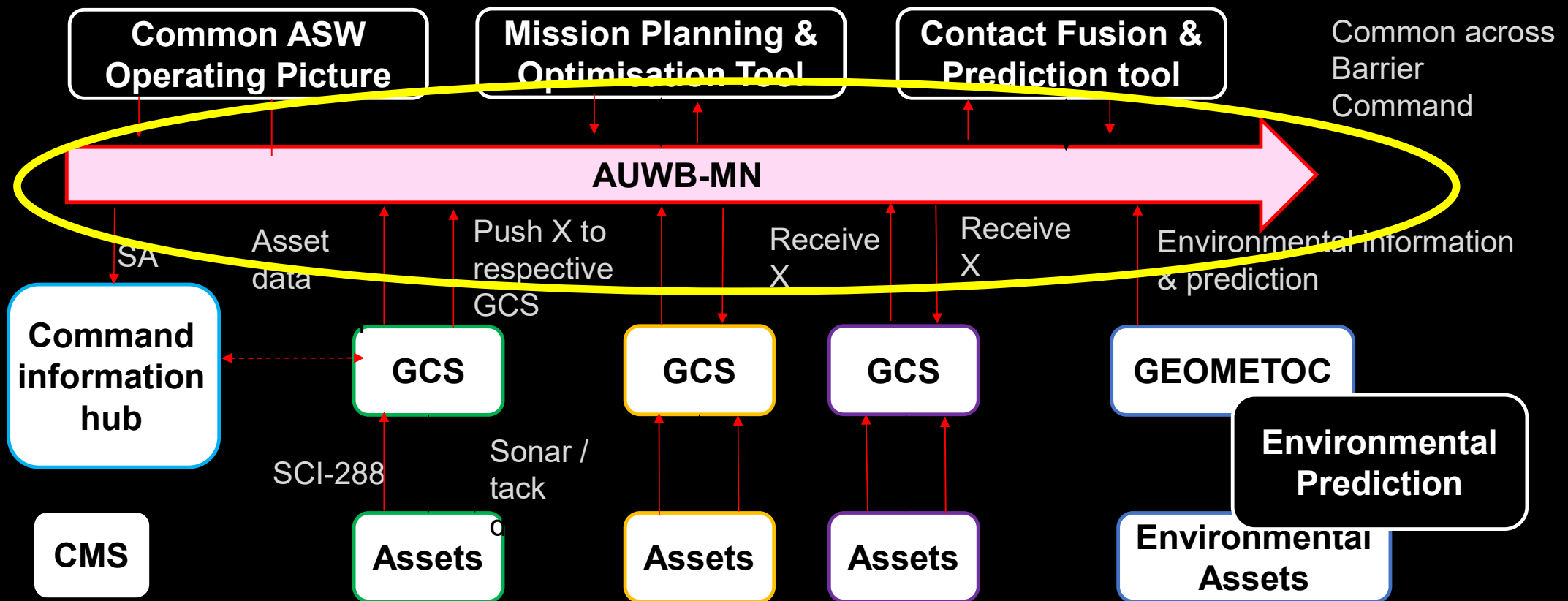


A REFERENCE
ARCHITECTURE



A REFERENCE
ENVIRONMENT

ALLIED UNDERWATER BATTLE SPACE - MISSION NETWORK – ARCHITECTURE COMPONENTS



X = Duplex mission plan (incl path & ping co-ord) for barrier assets

Y = national asset mission plan

AUWB-MN – So Far

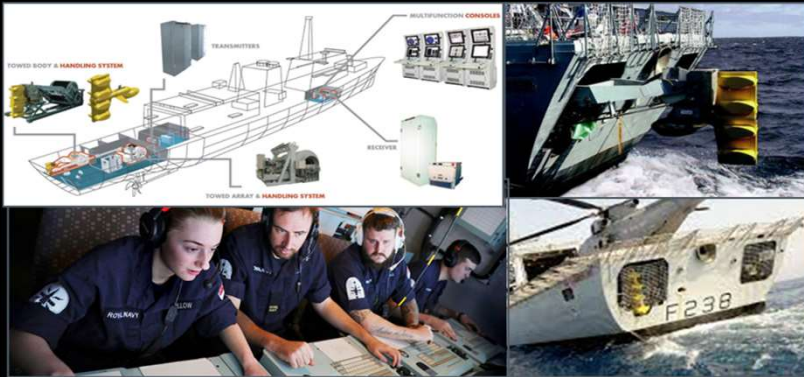
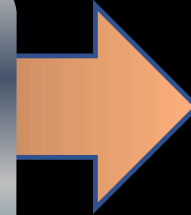
- Importance of ongoing National & Industry Support
- Industry Engagement – To date
 - 18 White Papers Received
- National/NATO ongoing investment
 - ITT Responses back Mar 25
- Importance of Linkage to Digital Ocean – Phase 2



UK ASW Spearhead - What are we scaling?

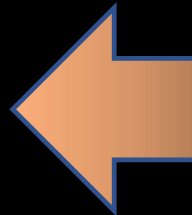
Merlin Multi-Static Active (MSA)

- Step change in sonobuoy field coverage allowing Merlin crew to process 32 sonobuoys concurrently (from 8).
- Capability developed and trialled through Spearhead and being rolled out to the frontline Merlin fleet. IOC declared Mar 24.



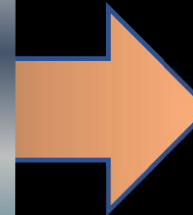
Type 23 Towed Array Sonar Spiral Development

- Mitigating decades of stagnation, this project has designed and is rolling out a range of enhancements to improve this critical ASW sonar capability.
- New agile contract placed with Thales (as prime) for capability insertion through to end of Spearhead (Mar 26) but also enables harnessing of SME capability insertion.



PROTEUS (Rotary Wing UAS)

- Largest Rotary Wing UAS under development. Modular payloads but driving use case is ASW. Trials in Jul 25.
- Key enabler of Navy's Future Maritime Aviation strategy and transition to uncrewed. Contractual delivery of evidence.
- Forefront of Autonomy, collegiate, CAA/MAA engagement.



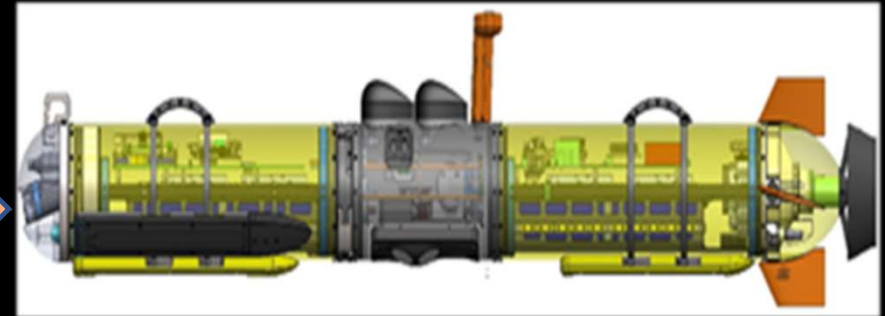
SPEARHEAD
Defence Capability Accelerator

OFFICIAL

What are we scaling?

SM torpedo tube launched UUVs (AUKUS LOE1)

- A paradigm shift in SM organic capability – the biggest since TLAM.
- A key AUKUS USW Workstream, UK trials delayed owing to platform non-availability. Q3 24 Trial delivered.
- ABC24 Option for core programme inc Extended duration trial.



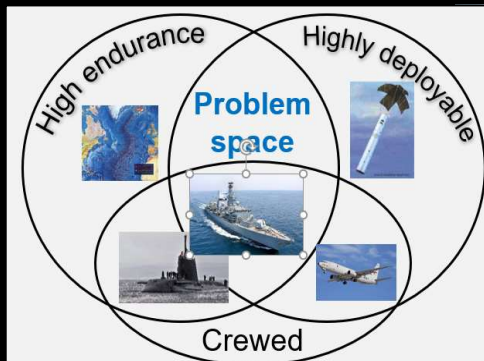
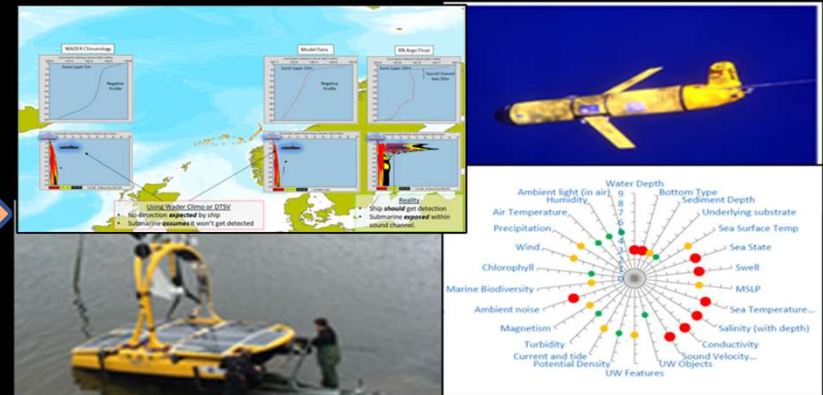
P8 AI/ML for Acoustic Analysis (AUKUS LOE2)

- Rapid creation of AUKUS AI/ML Common Development Environment gateways and processes.
- UK project team has created initial models for P-8A – trialled on US aircraft during EX BLACK WIDOW 23.
- Procuring MIGHTY ORION sandbox hardware for a UK P8-A.
- Deployment Milestones 24/25 AW, BW,
- Exploitation opportunity – Merlin Mk2

What are we scaling?

ASW Decision Aides

- New ASW decision support software being rolled out across surface and submarine fleet starting next FY.
- Greater automation for better sensor deployment.
- Spiral approach: bronze (laptop), silver (S-LAN), and gold (CS).



Uncrewed ASW Surveillance

- Introduction of new layer in Theatre ASW defence for greater persistence and force mass. Phase 1 harnessed 26 industry concepts and assessed maturity of technology. 10 key themes.
- Phase 2 will mature most promising tech: Anchored sensors (UK and US) and Large USV. Proteus and CETUS use cases.
- Also enables UK leadership of NATO ASW Barrier SDI.

CETUS (Extra Large UUV)

- Europe's most complex XLUUV designed and under manufacture. Available for initial trials in Apr 25.
- 5 days endurance and large modular payload.
- Primary use cases: ASW, Seabed warfare, and ISR.



PROJECT CABOT – ASW - BUILDING BASTION ATLANTIC

Atlantic Net 2027

Operationalise experience from CHARYBDIS, ASW Spearhead and the NATO Smart ASW Barrier Initiative

Integrate commercial Mission Partners to provide **'ASW as a Service' COCO** to increase mass and persistence within 2 years

Atlantic Bastion 2030

Scale autonomy with T92 USVs, T93 AUVs and develop Underwater Battlespace Area Denial (UBAD) capability to deliver mass and persistence, alongside existing platforms and systems

GOGO

Data First and Data Driven

Underpinned by AI/ML and Edge Compute

An operationalised and partnered ASW Fleet to free up high value platforms

Industry Day – 05 Mar 2025

(venue HMNB Portsmouth, Dockyard, Boathouse 6); an opportunity for Navy DEVELOP to set out its vision and a high-level overview of aspirations for CABOT to allow Industry to determine if they have capabilities in this field which the Royal Navy maybe interested in.

A suite of UXVs over, on and below the water, able to integrate novel effectors to increase lethality

Real time undersea data at value for money cost

Complement existing crewed and fixed systems

Takeaways



- **Transformation through Experimentation:**
 - Importance of REPMUS and other OpEx events
 - Bravo Portugal
- **AUWB-MN**
 - Nations & Industry - Thank you for continued support
 - Recognise the importance of a multinational approach
 - Stepping Stone to the NATO Digital Ocean Vision
- **UK**
 - 2 x Calling Notices coming-up
 - Cabot - Industry Day 05 Mar 25