# **Royal Navy and Multi-Domain Integrated Systems (MDIS) Industry Engagement – RAS/AI[[1]](#footnote-1) Operational Experimentation (OPEX) 2024 (version 1.3)**

# **Industry Call**

**This call outlines Industry opportunities to participate in: REPMUS 24 (Robotic Experimentation and Prototyping using Maritime Unmanned Systems) to be conducted in Portugal in Sep 24.**

The Royal Navy Develop Directorate in concert with STRATCOM (through MDIS) will consider Industry proposals for Royal Navy/MDIS endorsement to attend live participation for **REPMUS 24.**

Proposals will be considered at a joint RN/MDIS board which will be run w/c 11 Marin order to inform planning considerations for REPMUS24. Successful applicants will be notified following the Board sitting for more detailed discussions including potential for limited financial support to cover some transportation and logistical costs. The intent is that this year the United Kingdom element of REPMUS24 will be conducted in parallel to the Maritime Autonomous Experimentation and Exercise Series (MAEES) which although focused on Autonomous Warrior 24 in Australia will be joined remotely to REPMUS in Portugal in Sep.

Proposals are required in outline by 0900 11 Mar 2024 and should indicate which element of the exercise participants would wish to take part in and what capability Industry is offering as a component into this significant maritime OPEX effort[[2]](#footnote-2).

## **REPMUS24**

REPMUS is a Portuguese national exercise conducted in the North Atlantic Portuguese Exercise Areas, designed to push forward capability development of NATO and partner nations, Maritime Uncrewed Systems (MUS). Nations are invited to take part with a mix of government and industry assets and enablers with a focus on developing MUS capabilities to overcome warfighting needs. A strong focus is upon improving interoperability of systems as they proceed through development and into operational service. REPMUS 24 will take place between 9th and 27th Sep 2024. A key UK theme this year will be to link REPMUS activity to AUKUS with network connectivity between distributed components facilitating shared Situational Awareness and asset tasking. Industry participation is recognised as a key element of this event and industry is invited to make proposals to contribute. The REPMUS24 conference schedule, below, at which sponsored industry will be expected to attend and contribute. Industry must be prepared to commit to the OPEX timeline for the duration.

The exercise has three focus areas for the 2024 edition:

* Multi- Domain Operations, with a focus on STANAG 4817 to deliver interoperability and achieve Allied F2T2EA (Find, Fix, Track, Target, Effect, Assess).
* Underwater Battlespace – to encompass Anti-Submarine Warfare Barrier, Protection of Critical Undersea Infrastructure and Naval Minewarfare.
* Counter – Maritime Uncrewed Systems across all domains.

REPMUS will consist of experimentation at varying levels of maturity, within operational scenarios across the following disciplines.

* Anti-Submarine Warfare
* Naval Mine Warfare
* Maritime ISR and Situational Awareness
* Force Protection & Anti Surface Warfare (ASuW)
* Support to Amphibious Operations
* Military Data Gathering and Rapid Environmental Assessment
* Underwater Search and Rescue
* Protection of Critical Undersea Infrastructure

These disciplines will not be worked in isolation but collaboratively across warfare domains.

A pre-requisite of UK sponsorship is that all MUS/ RAS assets are integrated into the exercise Command and Control architecture: using either the established StrikeNet standards, which will be made available upon request, or other supported standards (such as STANAG 4568 or CATL). Navy Develop’s StrikeNet Team will be facilitating this integration of UK sponsored assets.

## **Maritime Autonomy Experimentation and Exercise Series**

For context, the following extract relating to MAEES was announced in a joint statement by the AUKUS nations in December 2023.

“AUKUS Maritime Autonomy Experimentation and Exercise Series. The AUKUS partners will undertake a series of integrated trilateral experiments and exercises aimed at enhancing capability development, improving interoperability, and increasing the sophistication and scale of autonomous systems in the maritime domain. The experiments and exercises will provide opportunities for defence industry to participate in capability demonstration, development, and delivery. Through these experiments and exercises, the AUKUS partners will also further test and refine the ability to jointly operate uncrewed maritime systems, share and process maritime data from all three nations, and provide real-time maritime domain awareness to support decision-making.”

## **OPEX Aims 2024**

The high-level aims for Operational Experimentation for MUS/ RAS for 2024 are as follows:

* To understand how a combination of crewed and uncrewed (RAS) capabilities can be integrated into a maritime operational force mix and how to overcome the C2 and C5I challenges in gaining operational advantage from their collective use.
* To develop the intra and inter force digital backbone that will enable the exchange and exploitation of data between a mix of crewed and uncrewed assets in an integrated force.
* To develop the User Requirements and Concepts and Doctrine of operating and exploiting a geographically dispersed set of sensors, deciders and effectors.
* To understand and establishing the key data exchange ‘services’ and Command & Control requirements required to enact the envisaged operating model, including within in a C2D2 environment.
* To understand how maritime RAS and AI capabilities can contribute to and benefit from wider UK defence integration and battlespace information exchange.
* To understand how developing RAS capabilities can be adopted and enhanced to meet UK maritime operational needs and investment priorities capitalising on the advantages offered by novel technologies whilst understanding the risks.
* As a vehicle to better understand the uncrewed capabilities that Industry are developing and how they might be developed and integrated into a military platform or task group environment.
* To strengthen international collaboration in the area of RAS and AI experimentation to realise the advantages of Allied cooperation and explore how RAS systems can be integrated and bring operational advantage, through best practice exchange and interoperability, and interchangeability in an Allied context. This should be done using AUKUS collaboration as a kernel but extend to wider NATO community, especially where UK has a leadership role such as ASW.

**Opportunity**

Whilst REPMUS presents opportunities to showcase technology with opportunities for industry contributions to be highlighted during the exercise to an appropriate audience, including a Distinguished Visitors Day, it must be understood that this is a development exercises and not just a marketing opportunity. The focus has to be on accelerating capability delivery by addressing the capability blockers listed below.

UK industry participation requires national sponsorship into the exercise. This sponsorship is expected by their home nation. Participants will be required to attend specific and pertinent planning and operational briefings and will need to contribute to a drumbeat of remote planning events in addition to the in-person conferences detailed below. Contribution to these meetings is a condition of national sponsorship and ensures successful exercise planning.

A notional contract will be required to cover Non-Disclosure and provision of the GFX required for integration. In some cases a Memorandum of Understanding (MOU) covering data sharing, IPR and liabilities will be required.

Proposals are required in outline by 0900 11 Mar 2024 and should indicate which element of the exercise participants would wish to take part in and what capability Industry is offering as a component into this significant maritime OPEX effort.

Applications will be considered against their ability to meet the goals and objectives set out below and additionally, their ability to integrate and contribute to the exercise serials currently under development.

The ability of the Authority to support an activity will be an entry criterion. For example, while possession of a Security Clearance is not a mandatory requirement, personnel without clearance will require an escort at all times which may be impractical and will be assessed on a case by case basis.

### **Strategic RAS &AI Capability Blockers**

The following key capability blockers have been identified which to be addressed if the
potential of RAS & AI solutions are to be realised:

* Multi-Domain C2 & C5I Integration
* Secure and Reliable Comms Bearers, with pathways to integrate into ICS systems.
* Data exchange management and availability for exploitation, out with stove-piped systems (breaking down of siloed information barriers) and sharing data, and curating data for real time and post exercise processing.
* C2 Integration into conventional warfighting platforms and structures.
* Operations in C2D2E (C2 Disrupted or Degraded Environments).
* Counter countermeasures to adversary RAS operations.
* Persistence of surveillance in all domains utilizing RAS/MUS.
* Realising the benefits RAS Autonomous behaviors.
* Overcoming Legal and Regulatory hurdles.
* Understanding and accessing Data Exploitation Paths.
* People Issues – Building and maintaining Trust.
* Overcoming Stoved-piped independent solutions
* Joining Legacy with novel RAS solutions – Human Machine Teaming.

Some particular focus areas for OPEX;

* RAS solutions with Anti-Submarine Warfare sensors. (USV / AUV / UUV)
* Maritime organic ISR / MSA solutions utilising RAS (UAS / USV)
* Advanced autonomous/unmanned solutions - capable of operating in a ‘system of systems’ architecture.
* Solutions to support ’system to system’ integration including across security domains
* AI & ML tools and edge processing solutions to provide mission advantage
* Novel communications solutions in bandwidth constrained environments (Acoustic and RF)
* Long endurance systems. Solutions to enhance sensor and power performance. Novel power and energy solutions
* Low signature autonomous/unmanned platforms
* Unmanned Surface Vessels with wide-area search capabilities
* Unmanned system Launch and Recovery solutions.
* Data management solutions – harvesting/fusion/exploitation across data types

The ability of the Authority to support an activity will be an entry criterion. Industry bids should be as logistically self-reliant in theatre as practical.

### **Funding**

Funding participation is an Industry responsibility, however, It is recognised that deployments of this nature entail significant cost in workforce, logistics, travel and subsistence. In recognition of this, MDIS and the RN are willing to open discussions on how some of the costs might be mitigated. Particularly, the RN is open to discussions of how we can provide logistics support to companies that meet the government definition of a small enterprise[[3]](#footnote-3), should they be selected.

Outline of these expectations associated with submission should be detailed in the response proposal, selection of successful submissions does not represent commitment from the Authority.

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| **Outline Schedule** |
| 0900 11 Mar 24 | Register interest window closes |
| 12-15 Mar 24 | Board consideration |
| 18-20 Mar 24 | Industry informed. |
| Early April (TBC)  | UK Planning Meeting - NAVY Command HQ. |
| w/c 6th May 24 | Main Planning Conference, Lisbon, Portugal |
| w/c 24 June 24 | Final Co-ordination Conference, Lisbon, Portugal |
| w/c 2nd Sep 24 | Staging and Infrastructure Week |
| 9 – 27 Sep 24 | REPMUS24 LIVEX, Troia Peninsula, Portugal |
| TBC | MAEES LIVEX, Jarvis Bay, Australia |
| 4 -5 Dec 24 | Post Exercise Discussion |

The host nation may levy a charge to cover support costs during the exercise, and this will be borne by the participants themselves. In 2023 this was €18 per day, per person but may change in 2024.

A collegiate approach and high professional standards are required across the UK contingent. At the sole discretion of the Authority, endorsement to attend may be withdrawn at any stage. Entities retain responsibility to ensure their activies are safe at all times.

For the avoidance of doubt: **Endorsement does not come with any financial or resource commitment from the Royal Navy or NATO.**

Any formal procurement process will be undertaken in accordance with the relevant Procurement Law. Nothing in the event or any other engagements with Industry prior to a formal procurement process, shall be construed as a representation as to the Authority’s ultimate decision in relation to any future requirement.

**Submissions**

Submissions should be made to the RN NCHQ Multiuser: NAVYCOMRCL-MEPG@mod.gov.uk prior the deadline of 0900 11 March 2024.

1. Robotic and Autonomous Systems & Artificial Intelligence [↑](#footnote-ref-1)
2. Please note there may be an opportunity to deploy a small number of assets to MAES/AW24 in Jervis Bay AUS in Oct 24. Discussions on this issue will be addressed with Industry on a case-by-case basis. [↑](#footnote-ref-2)
3. Turnover or balance sheet total less than or equal to £10 million or €10 million, headcount less than 50. [↑](#footnote-ref-3)