

**RFI005**  
**REQUEST FOR INFORMATION**  
**Industry Call - Augmented Reality For Maritime Navigation and**  
**Situational Awareness Enhancement**

**RFI Title:** Augmented Reality For Maritime Navigation and Situational Awareness Enhancement

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## 1. Introduction

This RFI is not a bidding opportunity but a means by which industry can provide information. Any resulting procurement activity will be conducted competitively.

## 2. Background

The Royal Navy (RN) is aware of the exciting potential of Augmented Reality (AR) systems in support of many areas of its activity. This Industry Call relates specifically to the use of AR in support of bridge activity and navigation operations.

The RN seeks to enhance its understanding of AR systems and their ability to afford the Officer of the Watch, and other bridge watchkeepers, greater access to multiple information sources with the aim to increase their capability and contribute to risk reduction. The systems need to be sufficiently robust and unobtrusive to fit within the busy bridge environment. For Industry Partners with proposed solutions at a high Technology Readiness Level (TRL 7+ see Annex B) the RN would like to offer the opportunity for an equipment demonstration onboard an alongside RN platform in Q1 21. Industry will be required to self-fund all aspects of this opportunity. This Industry Call is not a bidding opportunity; the purpose of this demonstration is to inform the RN of the landscape of applicable bridge AR, and any subsequent procurement activity would be conducted competitively.

This opportunity will not just improve the RN's understanding of AR systems, but should represent a benefit to Industry as a forum where equipment is placed into the hands of the user allowing Industry Partners to gain feedback from that audience.

It is anticipated that proposed solutions may include, but are not limited to, features such as: chart overlays; landmark and vessel identification; pilotage support; multiple-display monitoring and data / video feed access such as that from flight deck cameras. Such features will deliver increased situational awareness and improved decision-making ability to the watchkeeper who is mobile across the bridge environment. The RN is also interested in potential solutions for weapons direction. For the demonstration, the equipment solution should ideally be stand alone, i.e. without connection to ship's systems. Proposals requiring feeds from ship's systems will be assessed on a case by case basis.

### 3. RFI intended outcomes

This RFI aims to achieve 3 outcomes:

- 1) A clear RN understanding of the potential benefits of this technology
- 2) Alignment of potential future MOD requirement with industry capability and processes for procurement of any required solutions that enables the implementation of an enduring solution.
- 3) Development of potential procurement strategy that would deliver best value for money for Defence.

### 4. RFI Procedure

Responses to this RFI will be reviewed by subject matter experts from different functional areas within Navy Command Headquarters.

Any details provided in response to this RFI will be used only for information purposes only and to select, arrange and conduct demonstrations. It will not be used to determine the potential Suppliers who will be invited to bid, should the Authority proceed to tender.

The results and analysis of this RFI shall not constitute any form of pre-qualification exercise.

Any formal procurement process will be undertaken in accordance with the relevant Procurement Law.

Nothing in this RFI, 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 the future requirement.

**For reasons of platform availability, it is necessary to limit this opportunity to six demonstrations. Should applications exceed this number, six proposals will be drawn at random.**

### 5. How to submit responses to this RFI

Respondents should provide responses in accordance with the format provided in **Annex A** including:

- Details of proposed technology including readiness level and previous case studies if available.
- Details of proposed demonstration including supporting personnel.
- Required level of support from the platform.

Once completed, please return electronically to the e-mail address(es) shown below in **section 9**, no later than **12:00, Friday 29<sup>th</sup> January 2020**.

Responses will be acknowledged electronically by return e-mail.

## 6. Confidentiality & Proprietary Information

No information included in your response, or in discussions connected to it, will be disclosed to any other third party.

Proprietary information, where included, should be kept to minimum and must be clearly marked.

## 7. Costs of preparing your RFI response

Any costs relating to the preparation and submission of a response to this RFI are the sole responsibility of the respondent.

## 8. Contact

Please submit i) any requests for clarification and ii) all responses to this RFI, to:

Isabel King – Commercial Manager, Pre-Sourcing [isabel.king@107@mod.gov.uk](mailto:isabel.king@107@mod.gov.uk)

Rosemary Wright – Senior Commercial Manager, Sourcing [rosemary.wright128@mod.gov.uk](mailto:rosemary.wright128@mod.gov.uk)

**Annex A to RFI for Augmented Reality For Maritime Navigation and Situational Awareness Enhancement**

Question	Answer
Company Name	
Company Address	
Name of Company representative completing the RFI	
Contact details (e-mail and telephone number)	
Company web site address	
Main products/services/line of business	
Main market sector	
Number of years in this market sector	
<b><u>QUESTIONS</u></b>	
1. What is the best technical solution currently available?	

**2. What technical solution might be available in 12 months?**

**3. What technical solution may be available in 5 years?**

**Innovative solutions are most welcome, even if they do not meet all of the requirements above, we would welcome the opportunity to consider the positives and negatives.**

## Annex B TRL Definitions, Descriptions and Supporting Evidence

TRL	Definition	SYSTEM			
		Description		Supporting Evidence	
9	Actual technology system qualified through successful mission operations.	Actual application of the technology in its final form and under operational conditions. Technology proven in-service. Successful operational experience.		ISRM reports, User validation. May be linked to FOC.	
8	Actual technology system completed and qualified through test and demonstration.	Technology has been proven to work in its final form and under expected conditions. In almost all cases, this TRL represents the end of true technology and integration development. Examples include developmental test and evaluation of the system in its intended platform to determine if it meets design specifications. All functionality tested in simulated and operational scenarios.		Results of testing the system in its final configuration under the expected range of environmental conditions in which it will be expected to operate. Assessment of whether it will meet its operational requirements. What problems, if any, were encountered? What are/ were the plans, options, or actions to resolve problems in-service? Usually linked to ISD.	
		HARDWARE		SOFTWARE	
		Description	Supporting Evidence	Description	Supporting Evidence
7	Technology prototype demonstration in an operational environment.	Prototype near or at planned operational system. Represents a major step up from TRL 6 by requiring demonstration of an actual system prototype in an operational environment (e.g., in an aircraft, in a vehicle, or platform in the field). The operational environment may be defined as that which exposes the technology to the physical, electrical, environmental and security interfaces that will be experienced in service.	Results from testing a prototype system in an operational environment. Who performed the tests? How did the test compare with expectations? What problems, if any, were encountered? What are the plans, options, or actions to address the delta of where the technology is now and that required for ISD (the next level)?	Level at which the program feasibility of a software technology is demonstrated. This level extends to operational environment prototype implementations where critical technical risk functionality is available for demonstration and a test in which the software technology is well integrated with operational hardware/software systems.	Critical technological properties are measured against requirements in a simulated operational environment. Full integration.



Term	Definition
Component	A single element of technology. The lowest sub-system that provides sufficient granularity to identify technical risks and opportunities.
High Fidelity	Addresses form, fit and function. A high fidelity laboratory environment involves testing with equipment that can simulate and validate all system specifications within a laboratory setting.
Integration	The systematic, structured and progressive activity of testing, validating and verifying the interactions between sub-systems up to the overall system.
Low Fidelity	A representative of the component or system that has limited ability to provide anything but initial information about the end product. Low fidelity assessments are used to provide trend analysis.
(Mathematical) Model	A functional form of a system, that begins to demonstrate the interaction of the (sub) system with the wider environment.
Operational Environment	An environment that addresses all the (UK) operational requirements and (UK) specifications required of the final system to include platform, packaging and personnel. This should be as close to mission operation conditions as circumstances allow.
Prototype	A physical or virtual model used to evaluate the technical feasibility or military utility of a particular technology, process or concept.
Relevant Environment	A testing environment that simulates the key aspects of the (UK) operational environment.