

ALT PNT – eLORAN RFI

Introduction

Following on from our recent Industry Day on 1st March 2024, and subsequent update provided in June 24, we thank you again for the engagement and RFI information provided, this has helped to steer our planning for the next stage of the Alt PNT project. As we look to progress the project, we are interested in investigating the Deployable eLoran technology in the first instance. We are therefore seeking RFI responses to inform our understanding as we look to progress the Alt PNT project and enable us to carry out a study to inform future requirements and improve our understanding of deliverability of work across industry.

Deployable eLoran

Background:

- The DE&S Alt PNT Programme assessment phase is focused on maturing diverse and complementary alternative PNT (non-GNSS) technologies, in order to develop a suite of information & options to inform subsequent exploitation by the UK MOD. In particular, the project is intending to mature technologies that are currently in prototype form, through to a stage where representative demonstrators & supporting information exists.
- As part of achieving the aims for the project, a deployable eLoran infrastructure (transmitter network) has been identified as a capability that the project is keen to mature to meet MOD's needs.
- The high-level aim for our development of deployable eLoran is to establish and demonstrate what is required to enable a practical network of deployable eLoran transmitters to provide time and position information to compatible eLoran receivers, within a GNSS denied environment.

Aims:

- The MOD intends to let a single contract to mature the development of a deployable eLoran transmitter network that will meet UK MOD requirements (currently unavailable to share).
- Alongside the development of the deployable eLoran infrastructure, the MOD aims to simultaneously generate:
 - o The necessary assurance evidence to enable any subsequent exploitation of the design.
 - o A modelling capability, which will allow for theoretical analysis of capabilities and informing the concept of employment.
 - o An assured capability within the Loran Data Channel
 - o Information and demonstration of the resulting capability to stakeholders

Intended outcomes:

The key intent is to meet all of the above aims. To do this, an indicative work-breakdown structure is shown in Figure 1 and supporting outcomes are listed below:

- Design and development of deployable eLoran transmitters, including the manufacture of representative prototypes. The resulting prototypes are expected to be of sufficient maturity, that they allow for physical testing & demonstration to be the primary method of verification against the requirements listed below. The design shall be such that changes to the transmitted waveform can be achieved via software modifications only.

- All development is to comply with applicable MOD policies and standards (e.g. safety & security etc.), with sufficient evidence of compliance being provided by the supplier.
- Alongside the development of the transmitters, the supplier will develop and deliver a modelling capability. It is expected that this model provides sufficient fidelity and realism to inform decisions on both the employment of the capability by the UK MOD, as well as any future development.
- To support the exploitation of the developed capability, the supplier will deliver in-person and real-time demonstrations of the capability in GNSS denied conditions.
- To support the exploitation of the developed capability, the supplier may potentially be required to engage with wider DE&S Delivery Teams, the End User community, and exploiting platforms to better understand the requirement in an operational context.

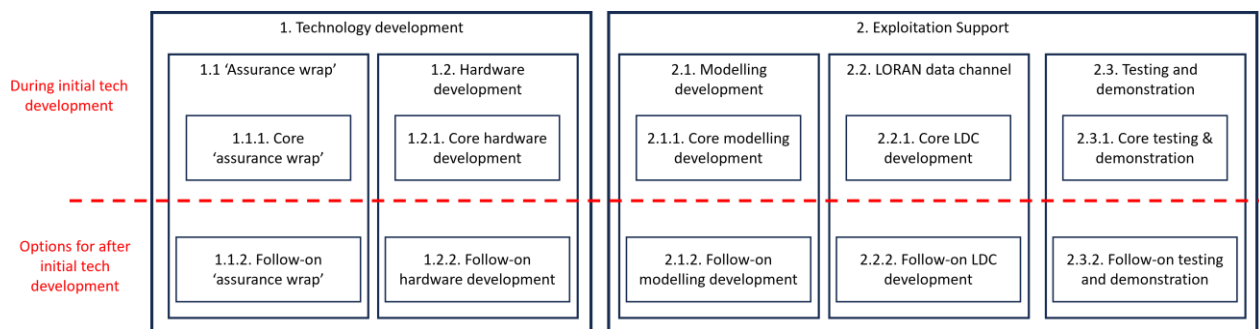


Figure 1 - Indicative work-breakdown structure

Summary of high-level requirements:

In support of this request for information, the MOD has included a number of high-level requirements that are intended to provide context to suppliers. The letting of this contract will follow the typical MOD process of being support by an Invitation to Tender and subsequent down-selection. During those stages, further detail on the requirements will be provided by the MOD.

ID	Requirement	Supporting detail
1	All development is to comply with MOD policies and standards, including but not limited to:	Compliance with the activities required by the Acquisition Safety and Environmental Management System. Compliance with activities required by policy for Secure by Design. Compliance with activities required by policy for exportability and capability protection Def Stan 00-056 (Safety Management Requirements for Defence Systems) Def Stan 00-055 (Requirements for Safety of Programmable Elements (PE) in Defence Systems) Def Stan 00-600 (Integrated Logistic Support Requirements for MOD Projects)

ID	Requirement	Supporting detail
		<p data-bbox="906 232 1342 331">Def Stan 05-139 (Cyber Security and Resilience of Products, Systems and Services (PSS))</p> <p data-bbox="906 331 1382 398">Def Stan 05-138 (Cyber Security for Defence Suppliers)</p>
2	The demonstrator system shall include a minimum of 3 transmitters, to enable a live demonstration of position and time determination from the system by a suitable receiver.	
3	Across the coverage area, the system shall transmit a signal that allows for receivers to achieve a position and timing accuracy that is in line with the needs of defence platforms.	
4	The system shall be able to operate both with and without access to GNSS.	
5	The system shall be able to operate both with and without access to eLoran signals from eLoran transmitters outside the deployable system's group.	
6	The system shall be capable of maintaining performance & accuracy for prolonged periods, including without access to eLoran and GNSS signals.	
7	The system shall be interoperable with fixed transmitters (which will use either Eurofix and/or 9th Pulse) and implement correction factors when available.	
8	The system shall be able to be contained and transported in an ISO container.	
9	The system shall be able to be assembled, initialised, disassembled by as small a team as possible.	
10	Development and delivery of a software model (simulation) that can be used to assess options for locations & geometry of transmitters.	To include the associated coverage area.
		To include the effects of different terrains and environmental features.
11	The model shall be capable of informing recommendations for future work.	
12	The system shall implement techniques & capabilities within the LDC, to support the justification for UK Defence platforms to exploit the resulting capability.	
13	Testing is required to provide evidence of verification against all requirements, including performance and transportation.	
14	Real-world demonstration of resulting capability to key stakeholders.	

Questionnaire

1. Brief overview of company
2. What is your company's heritage in providing eLoran?
3. Estimate of time/cost to solutionise the above?
4. High Level concept to meet the technical requirements.

Submission guidelines

Please submit your response by 18th October to DESSpace-Comrcl@mod.gov.uk . Responses received after this deadline will not be considered.

Note: This is very much an information gathering exercise, the time allocated for responses is being driven by internal approval processes, as such please provide whatever information you can within the aforementioned time in the most convenient format.

For the procurement of this requirement, a Contract Notice will be published in the future (date TBC but the aim is to release an ITT in April 2025). The Contract Notice will request expressions of interest for provision of the requirement, if no further interest is received an ITT will be issued to only those who have responded to this RFI.