Ministry of Defence

de&S

Ships Maintenance Management (SMM)

"Future Maintenance Management System (FMMS)" for Maritime / Ships Domain Market Survey Questionnaire

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Defence Equipment & Support

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Bristol Town

BMfS - Early Title of notice

Section (DIO only)

Section 2: Contracting Authority

Name of Institution

Ministry of Defence

MOD Organisation

Ships

Integrated Project Team (IPT)

Ship Maintenance Management

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Deadline for Submission of response to MSQ: **27 February-2022**

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Future Maintenance Management System (FMMS) Project Market Survey Questionnaire (MSQ)

Disclaimer:

The information requested within this MSQ is to inform the future procurement planning of FMMS. No formal procurement process has been launched. Any resulting procurement will be conducted competitively, and all information provided in response to this MSQ will be held in confidence by the MOD. The authority will not bear any cost for the provision of information requested below.

The MOD has developed a pan-Defence strategy to modernise support, namely 'Business Modernisation for Support' (BMfS) which will be stood up iteratively through to 2027. In parallel, BMfS is running an early market engagement exercise, including a further set of RFIs released mid-February 2022, and information collected through this MSQ exercise will be shared with BMfS to support the development of an accelerated pan-Def Engineering and Asset Management (EAM) Engineering Through Life Support (ETLS) solution and commercial approach. The Maritime Domain's requirements (FMMS) would be consolidated within the pan-Def EAM ETLS to provide a holistic defence requirement. The Maritime Domain's delegated authority (SMM), BMfS and NCHQ will be working together to finalize the FMMS inclusion in the coming months.

Executive Summary:

1. Navy Command Head Quarters (NCHQ) has a requirement to introduce a 'Future Maintenance Management System (FMMS)' solution for the future platforms as well as to progressively introduce the same to some of the in-service platforms to replace the current Maintenance Management System called UMMS (Unit Maintenance Management System). A list of FMMS Outline Technical Requirements (OTR) has been provided at Annex A; a slide pack showing FMMS indicative Architecture, FMMS interface requirements accompanies this MSQ. The FMMS project is close to the commercial initiation stage of the acquisition lifecycle, and we anticipate issuing the Contract Notice and Pre-Qualification Questionnaire in early next FY and Invitation to Negotiate as early as possible in next FY (subject to change).

2. The aim of the FMMS solution is to introduce an 'integrated Asset Management System' and improved in-service support capability to the front line which sit within the existing support policy. The FMMS solution will make a difference in the 'user experience' and is expected to bring in the next generation of technology to manage the maintenance requirements and "end to end maintenance delivery" for each asset / system / platform following MOD Maintenance Strategy as may be applicable (e.g. Reliability Centred Maintenance (RCM) / Dynamic Reliability Centred Maintenance (DRCM) / Condition Based Maintenance (CBM)) delivery / Predictive Maintenance delivery as applicable for a particular equipment or system). FMMS is expected to have the front-end capability to manage the 'Maintenance Management Baseline (MMBL)' for each Platform and 'Dashboard driven front end capability' to monitor Maintenance Performance / Maintenance KPIs.

3. The new FMMS solution is envisaged to efficiently interface with other logistic support systems (such as inventory systems, central purchasing systems) and platform configuration management system, providing significantly improved operational availability and user functionality. This is expected to be achieved through the integration of the new system (FMMS) and IKM (Information

Knowledge Management) Digital Data Library (Maritime) / other IKM applications where assured baseline data are currently being held.

4. The SMM Team aims to support DE&S and NCHQ to procure a comprehensive 'asset management system' capable of managing and providing visibility in 'end to end maintenance delivery' and monitoring Maintenance Performance / Maintenance KPIs as defined in the OTRs. If the decision is taken to introduce FMMS to any of the in-service platforms, then it is expected that FMMS will replace the current system UMMS and will take over all Maintenance history data from UMMS to FMMS.

5. As Maritime is a highly regulated industry, both for Complex Warships and Commercially Supported Ships, and FMMS is expected to be introduced in both areas, FMMS is to be a 'type approved' product for 'Maintenance of Ship & Equipment' meeting the relevant regulatory requirements such as IMO / ISM Code Regulation-10 / Reg.10.1-10.3 by one of the IACS (International Association of Classification Societies) Class Societies, such as Lloyds Register (LR), Det Norske Veritas (DNV) etc.

6. This MSQ invites the maritime industry's providers of approved 'Asset Management System' / 'Maintenance Management System', without any binding commitment or obligations at this stage to outline what their system can offer and how their system meets the requirements of FMMS as outlined in this MSQ and supporting documentation together with their cost model for the proposed Asset Management System.

7. Initial set-up of the new asset management system / maintenance management system (FMMS) for any platform including setting up of the asset tree up to component and maintenance task level with all relevant data available at the maintenance task level' would be the responsibility of the system provider. Therefore, a separate cost proposal is needed for the initial set-up of the system / roll out cost in addition to the cost model for procurement of the asset management system (software and hardware) proposed. Please provide separate cost model per platform / other options for initial set-up of the system.

8. FMMS must meet the Defence security requirements and needs to be approved by Defence Security Regulator. Therefore, the respondents are expected to allow in their indicative cost proposals modelling to cover the costs / time required to get through security approval process.

9. Please provide different cost model / options available for your proposed asset management system, such as a) License fees and number of users option per year, b) Cost per platform per year, c) initial set-up cost (one off cost) per platform and d) in-service technical support cost per platform per year, e) Software routine refresh / version upgrade cost per platform per year?.

<u>Questions</u>

10. DES Ships Eng. SMM-TL (Ships Maintenance Management Team Leader) is requesting responses to the following questions:

a. Do you have an existing Commercial or Modified Off-The-Shelf (COTS / MOTS) asset management system / maintenance management system within your software portfolio that meets the requirements listed in Annex A and the supporting slide pack. Please provide any outline information / datasheets. Please state whether your proposed system will meet the requirements or would be able to with some modifications If modifications are required, what level of modifications would you anticipate?

b. As Maritime is a highly regulated industry both for Complex Warships and Commercially Supported Ships and FMMS is expected to be introduced in both areas, FMMS is to be a 'type approved' product for 'Maintenance of Ship & Equipment' meeting the relevant regulatory requirements by one of the IACS Class Societies. Please advise if your proposed 'Asset Management System' has a type approval certificate by one of the IACS Classification Society (LR / DNV).

c. What is the average implementation period / roll out period for your system per platform taking account of time required to go through any Defence Security compliance accreditation process?

d. Please provide different cost model / options available for the procurement of your proposed 'Asset Management System', such as a) License Fees and number of users option per year, b) 'Cost per platform per year,

e. If modifications would be required to your proposed system to meet all requirements of FMMS as outlined in Annex-A, please provide indicative costs / options for such modifications ?

f. Please provide cost model for initial set-up cost (one off cost) per platform.

g. Please provide in-service technical support cost per platform per year. Please provide in your cost model any software refresh / upgrade cost per year (if not included in the in-service technical support cost).

h. Please provide estimated training cost for end users for your proposed system.

Other Information

11. Release of this information is provided in good faith and in confidence and must not be distributed further without the express written permission of SMM-TL and the UK MoD. The benefit from early visibility of this information has been balanced with an acceptance that these requirements are developing and subject to change. They should therefore be considered only as indicative at this stage and do not form part of any resultant procurement process.

12. In some cases SMM / SMM-appointed MOD Industry Partners has been provided with previous information on COTS equipment supplied by industry. However, SMM / MOD is keen to ensure we have the most up-to-date and relevant information. Therefore, please make no assumptions in your response regarding any information you think SMM may already hold.

13. Completion of this market survey questionnaire (MSQ) is voluntary and does not start the official procurement process for this project. Participation cannot and does not guarantee any inclusion in resultant procurement processes. It should be noted that all information released as part of this market engagement process is subject to change and may not form part of any resultant procurement process.

14. Your responses will be stored as submitted in the MOD / SMM secure data repository. Access to this repository is provided on a need-to-know basis and is accessible only by SMM team members.

15. Your market survey questionnaire response is requested by **27 February 2022**.

16. Please send your completed response to Matthew.Bissett100@mod.gov.uk

17. Any technical questions you may have should be sent shipoak.saikat100@mod.gov.uk

18. If your total response exceeds 10MB please split your response. Where possible, please use links to brochures etc.

ANNEX A

Indicative Delivery Program and Technical Requirements

Please find below the proposed delivery program and the outline Technical Requirements.

Delivery Program

1. Indicative Timeline (Subject to change),
(Financial Year is assumed as 1st April to 31st March)

FMMS PQQ	– FY22/23
FMMS ITN	– FY22/23
FMMS Procurement & Roll Out	– FY23/24 – Onwards

2. Outline Technical Requirements

To assist us with our evaluation, can you please identify those OTRs that are either unachievable and / or significant cost drivers.

ID	Description
OTR1	FMMS is expected to have the capability to set-up an Asset Tree up to component and Maintenance task level with all relevant data available at the 'Maintenance Task Level' and able to establish Maintenance Management Base Line (MMBL) for each Platform.
OTR2	FMMS will have capability to manage and track critical assets.
OTR3	FMMS will have capability to track and assure continued Platform Safety by tracking the health status of all safety critical Assets.
OTR4	FMMS will have capability to search your Asset and Asset History through the Dashboard.
OTR5	FMMS will be capable to monitor and track overall Asset Health Status / Overall Equipment Performance status through configurable Dashboard.
OTR6	FMMS will have capability to collect real time / near real time equipment performance data, events data and feeds it into a shoreside digital twin model to develop predictive failure model, predictive maintenance.
OTR7	FMMS will have capability to plan, schedule and manage preventative and planned maintenance routines.
OTR8	FMMS will have the capability to manage defects and unplanned maintenance, capability to register defect under the relevant Asset Tree, issue Work Order *and track it until close.*
OTR9	FMMS will have capability to pier to pier experience sharing / communication.
OTR10	FMMS will have capability for training mate to access to 'maintenance training videos'.
OTR11	FMMS will have the capability to issue materials / parts ordering and track parts delivery until received on board.
OTR12	FMMS will have capability to manage on-board spares inventory through its own inventory module and capable to exchange data with outside inventory system, auto track spares delivery status.
OTR13	FMMS will be capable to deliver maintenance and capable to capture data at each step of maintenance delivery including electronic calibration reporting template available from the system.
OTR14	FMMS will have capability to upload maintenance reports, calibration reports, maintenance photos and videos.
OTR15	FMMS will have the capability for maintenance contracting – to allow *MOD Industry partners (IPs) to participate in the Maintenance Program, IPs will own the plan to*

ANNEX A

	completion, report back to FMMS for work order / task closing, therefore all maintenance history including any calibration reports will be available from FMMS.
OTR16	FMMS will have capability to optimise equipment maintenance costs by analysing historic Maintenance Data.
OTR17	FMMS will have capability to manage 'maintenance concessions' and track concessions until close.
OTR18	FMMS will have capability to administer maintenance for pooled / embarked Assets without losing any Maintenance history.
OTR19	FMMS will have capability to collect event data from equipment condition monitoring systems, equipment PMS and exploit data.
OTR20	FMMS will have capability to interface with Maritime IKM Digital data library, other IKM dBs and exchange data as per MOD business requirements.
OTR21	FMMS will have capability to receive digital instructions for a 3D printer on board, which will then print a new replacement part within hours to handle events such as when there are no replacement parts on board.
OTR22	FMMS will be able to comply with MOD Policy, Standards and Protocols.
OTR23	FMMS will have front end capability to track and monitor Maintenance KPIs through configurable Dashboard such as – Equipment Availability, Equipment Reliability, Equipment Performance Quality, Maintenance Schedule Compliance, Overdue WOs, MTBF, MTBR etc. as may be defined by MOD Maritime Maintenance Strategy.
OTR24	FMMS will be a 'type approved' product for 'Maintenance of Ship & Equipment' meeting the relevant regulatory requirements such as IMO / ISM Code Regulation-10 / Reg.10.1-10.3 or relevant Naval Regulations and must be type approved by one of the IACS Class Societies (such as Lloyds Register / LR)
OTR25	FMMS will be able to meet the Defence security requirements and needs to be approved by Defence Security Regulator, i.e., accreditation (authority to operate / ATO) to operate in MOD IT infrastructure and to be installed on board Royal Navy Platforms.
OTR26	FMMS will have capability to manage role-based access control in compliance with MOD Security Regulator's requirements.
OTR27	FMMS will have mobile capability to access to FMMS through FMMS App in a hand-held device and execute maintenance delivery through hand-helds.
OTR28	FMMS will have capability for Engineers to upload their job logs, maintenance records digitally executed through their mobile device onto the FMMS main portal / FMMS Dashboard.
OTR29	FMMS will have capability to receive Alert triggered by shoreside Digital Twin model and will generate automatic schedule appointment for the Platform Engineering Team delivered on their mobile device.
OTR30	FMMS will have capability to track inventory usages, track minimum stock level on board, provide predictive usages trend and **automatically generate demand for the required stores** based on predictive inventory usage trends, **predicative failure** rates etc. with option to accept or amend the automatically generated demand.