

## Order Schedule 20 (Order Specification)

This Schedule sets out the characteristics of the Deliverables that the Supplier will be required to make to the Buyers under this Order Contract

### 1. Background

1.1 Maritime security is a key enabler to Homeland Security, surveillance of the Maritime domain for UK security requires a multi-layered approach. Satellite surveillance products provide longer range coverage but lack persistence, whereas terrestrial sensors such as RADAR provide persistence at shorter ranges. [REDACTED]

[REDACTED]

1.2 [REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]  
[REDACTED]

1.3 The Joint Maritime Security Centre (JMSC) delivers accurate and up-to-date Maritime situational awareness, [REDACTED]

[REDACTED]  
[REDACTED]

[REDACTED] To ensure UK Maritime Security, all non-permissive contacts need to be identified and classified in order to enable executive action at sea, where required.

1.4 This Statement of Requirements (SOR) seeks to enhance operational services and support operational tasking via the provision of space-based Intelligence Surveillance Reconnaissance (ISR) products.

### 2. Service requirements

2.1 The requirement is for a turnkey service. Suppliers shall be responsible for owning, siting, installing, securing, and operating any hardware.

2.2 The current operational requirement is a 24/7/365 service availability. Suppliers shall ensure the system is supported with UK office hours support, typically 9am-5pm, to resolve any issues promptly.

2.3 The service must be flexible enough to respond to changes in operational demand, which will be determined between the Buyer and Supplier.

#### 2.4 Service acquisition baseline

2.4.1 Suppliers must deliver multi sensor input via provision of at least the following to satisfy the MDA and dark target Identification need in a timeframe that is as rapid as technically achievable:

- i. Synthetic Aperture Radar (SAR),
- ii. Electro Optical (EO) and
- iii. Radio Frequency (RF) reception, classification, and identification products.

[REDACTED]

[REDACTED] The aims of surveillance are to identify vessels of interest (VOI) (especially dark targets), determine patterns of life (POL) and to enable cueing of other sensor capabilities and patrolling assets, to direct other capability/assets to the target VOI in order to undertake further surveillance or to intercept, therefore delivery of agreed products/analysis should be as near to real-time as is possible. The products will be delivered as Vessel Detection report (VDR) or short notice Emergency Vessels Detection reports (eVDR).

2.4.4 RF acquisition should cover X/S band navigation RADAR detection – [REDACTED]. With RF being a relatively new space modality, it is recognised that coverage is comparatively lower than that of SAR and EO but increasing. As a minimum the Supplier shall provide:

i. RF acquisition covering the UK EEZ as frequent as technically possible

██████████ and

ii. RF acquisition per primary AOI as frequent as technically possible ██████████

██████████

2.4.5 The Supplier shall propose cost effective solutions to integrate (data fuse) RF acquisitions into the VDR, AOI and eVDR tasking, to maximise use of their RF service to aid dark vessel detection.

2.4.6 The Supplier shall establish a technology watch and horizon scan in order to ensure that the requirement is being met with the latest technical innovation, including the addition of open-source data where it becomes exploitable. A “Learning from Experience and Innovation Review” shall be held by the Supplier at a frequency to be agreed but no less than bi-annually - ensuring that innovation is at the leading edge of space sensing, data fusion technologies are identified, and where practicable brought into the Supplier solution.

## 2.5 Service Tasking

2.5.1

██  
██  
██  
██

2.5.2 The Supplier shall demonstrate an ability to perform wide area Maritime surveillance ██████████ and within this an ability to detect vessels ██████████ within the RADAR and visible horizon. ██████████

██  
██  
██ this can be task dependant.

2.5.3 The Supplier shall be able to provide scheduled monitoring ██████████

██ utilising AIS/VMS correlation, ██████████  
██  
██  
██

2.5.4 The Supplier shall have the capability to cross cue from detection to classification utilising high resolution optical sensors at range (global), enabling identification and discrimination between targets.

## 2.6 Service Delivery

2.6.1 The Supplier shall deliver the required outputs through their own native online portal, to allow for the full utilisation of the Supplier's analytics. JMSC has access [REDACTED]  
[REDACTED]

2.6.2 Any Supplier provided portal shall enable access to Supplier archive/back catalogue of acquisitions to support analyst activity and enhanced POL investigation.

2.6.3 In addition to vessel detection reports the Supplier shall be capable of delivering streamed output (tracks as a service / vessel detection reports) as fast as technically possible (ideally near Realtime), [REDACTED]  
[REDACTED]

i. SAR, EO and RF detections shall be presented in either [REDACTED]  
[REDACTED]  
[REDACTED] for capture by the Royal Navy Maritime Domain Awareness Programme (MDAP) to display against a correlated track. The Supplier to define presentation and agree with the RN MDA team post contract award.

ii. Vessel detections shall incorporate [REDACTED]  
[REDACTED]  
[REDACTED] platform for display against a correlated track.

iii. EO/SAR image thumbnails shall be delivered in a timely manner [REDACTED]  
[REDACTED] to support classification [REDACTED]  
[REDACTED] for ingestion into the MDAP platform for display against a correlated track.

2.6.4 Suppliers shall demonstrate utilisation of Machine Learning (ML) models /probability analysis and automated behaviour modelling to [REDACTED]  
[REDACTED] [REDACTED] [REDACTED] that must be flagged for further analysis. This shall be incorporated in their own native outputs and any outputs to be integrated into JSMC/MDAP capabilities. A Supplier shall have access to sufficient geo data for the [REDACTED] to cover [REDACTED]  
[REDACTED]  
[REDACTED] within their own analysis capability.

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### 3. Operational Requirements

3.1 JMSC requires geospatial products/services that will enable/assist in the detection of both [REDACTED]

#### 3.2 Temporal/Geographic Scope

3.2.1 Core Delivery: [REDACTED] principal geographics Areas of Interest (AOI) will be identified to the Supplier; These are areas of very high interest to JMSC, which may be temporal/seasonal, dependent upon the threat. The Supplier shall be expected to utilise the full range of their constellation sources to identify VOI and any additional sources available to the Supplier. [REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

3.2.2 Emergent delivery. Additional geographic AOIs, likely to be smaller in size, will be identified to the Supplier. [REDACTED], it is likely these will be [REDACTED]

[REDACTED] The Supplier would be expected to utilise the full range of their constellation sources to seek VOI in these areas. The Supplier must state the limitations of their call off service in the Tender Response, [REDACTED]

3.2.3 Emergent delivery. Where there are limitations in Supplier constellation coverage, an approach to partnering to enable access to other providers' constellation sources should be available for the purposes of call off to ensure that any [REDACTED] might be facilitated by the Supplier.

### 4. Pricing

4.1 Pricing scale (based on token usage) should allow for the described combination of primary AOI and emergent AOI, with an ability to increase both.

It is noted that:

- i. Core Delivery – The primary AOI shall be a Firm Price contract.
- ii. Emergent Delivery [REDACTED] – shall be a Firm Price per task request. The emergent delivery price of the contract will be the same value as the fixed term contract price.

4.2 The following price is requested:

4.2.1 Ten (10) month service (including one (1) month mobilisation). Services shall be provided for ten (10) months with an option for two (2) additional twelve (12) month period extensions

First 10 Months	Follow on 12 months extension	Follow on 12 months extension
Core Delivery Price	Option 1	Option 2
Call Off Delivery Price		

## 5. Regulatory Constraints

5.1 Systems and operators shall fully comply with all other UK statutory requirements, including but not limited to Health & Safety, Environmental, Employment, Data Protection, and Official Secrets legislation.

## 6. Timing

6.1 The required geospatial products should be integrated into the UK Recognised Maritime Picture no later than 30<sup>th</sup> June 2024 to ensure the JMSC is prepared to support UK government departments to deliver effective Maritime Security.

## 7. Definitions / Abbreviations

AIS – Automatic Identification System

AOI - Areas of Interest

API – Application Programming Interface

Dark Targets - a vessel that is not visible within the data platform and/or is intentionally masking its ability to be detected by organic sensors.

EEZ – European Economic Zone

EO - Electro Optical

ESA – European Space Agency

eVDR - Emergency Vessel Detection Report

Firm Price – a price that will not change from the agreed price.

FTP/SFTP - File Transfer Protocol / Secure File Transfer Protocol

ISR - Intelligence Surveillance Reconnaissance

JSON - JavaScript Object Notation

KML – Keyhole Markup Language

MDA - Maritime Domain Awareness

ML – Machine Learning

NASA – North American Space Administration

NGO – Non-Government Organisations

NOAA – National Oceanic and Atmospheric Administration

Objective – the relevant objective stated under the relevant column in the “Measure of Effectiveness” section of the Table of Requirements in Annex A

OT - Overseas Territories

POL - Patterns of Life

RF - Radio Frequency

SAR - Synthetic Aperture Radar

SOI – Signal of Interest

SWAPP's – South-West Approaches

Threshold – the relevant threshold stated under the relevant column in the “Measure of Effectiveness” section of the Table of Requirements in Annex A

TTW – Territorial Waters

VDR - Vessel detection report

VIRRS - Visible Infrared Imaging Radiometer Suite (VIIRS)

VOI - Vessels Of Interest