Serapis Tasking Form

Tasking Form Part 1: *(to be completed by the Authority's Project Manager)*

To:	Lot 6 Frazer-Nash Consultancy Ltd	**From:**	The Authority

Any Task placed as a result of your quotation will be subject to the Terms and Conditions of Framework Agreement Number:

LOT 6 DSTL/AGR/SERAPIS/UND/01

VERSION CONTROL

1.0

REQUIREMENT

Proposal Required by:	[REDACTED]	**Task ID Number:**	U86
The Authority Project Manager:	[REDACTED] [REDACTED] [REDACTED]	**The Authority Technical Point of Contact:**	[REDACTED] [REDACTED] [REDACTED]
Task Title:	Reactive ISR – Goal decomposition and information theory for the ISR Enterprise (Cluster 2)		
Required Start Date:	[REDACTED]	**Required End Date:**	[REDACTED]
Requisition No:	[REDACTED]	**Budget Range**	£350k (Phase 1) ~£250k (Phase 2)

TASK DESCRIPTION AND SPECIFICATION

Serapis Framework Lot	☐ Lot 1: Collect ☐ Lot 2: Space systems ☐ Lot 3: Decide ☐ Lot 4: Assured information infrastructure ☐ Lot 5: Synthetic environment and simulation ☒ Lot 6: Understand

1. Summary

Dstl wishes to establish a system via which Intelligence, Surveillance and Reconnaissance (ISR) collection assets can be optimally tasked against a desired list of collections in order to deliver a Generation After Next capability for situational awareness, sense making and understanding.

As a core component to demonstrating the Reactive ISR concept, the work outlined in this requirement will develop the autonomous/AI approaches to understanding what tasks are required to meet a Request for Information (RFI) and the means to determine if a goal has been achieved. Throughout, the wider context of the value of the information must be understood, evaluated, and accounted for. As a result, ISR collection will support much improved understanding. We seek the development of software frameworks, modules and algorithms for:

- [REDACTED].

- [REDACTED].
- [REDACTED].

While the three required frameworks are distinct, they are heavily inter-related.

The work is likely to suit a mixed team made up of academia and industry able to i) determine the state of the art ii) recommend and develop suitable algorithms and information theory iii) implement these solutions into demonstration capability. As part of this research the supplier will be required to develop an interim software framework to form part of a conceptual demonstrator of the Reactive ISR system (in September 2022).

The conceptual demonstrator will look to implement land focused ISR vignettes with the following types of assets: UXVs, manned ariel and land-based platforms, and remote sensing assets. However subsequent demonstrations will look to exercise a wider set of vignettes utilising a mix of assets across different environments.

2. Background

This work forms part of the A²ISR (Artificial Intelligence (AI) and Autonomy for the ISR Enterprise) project which seeks to release capacity and maximise understanding in our ISR enterprise in order to maintain Information Advantage. Specifically, it will demonstrate a:

- World leading ISR capability, closely coupling 'collect' and 'exploit' throughout the ISR hierarchy, enabling collection tasking to be created dynamically and opportunistically, and AI enhanced PED from the core to the edge; and
- Data-led and AI-enabled Intelligence Analysis function constrained by the available data, algorithms and computational power, rather than capacity of human operators.

This project is addressing one of the five core capability challenges identified in the 2020 MOD Science and Technology Strategy. It supports the development of generation-after-next capabilities. This requires it to work with cutting edge and innovative suppliers in industry and academia at pace.

This SOR is part of a package of work addressing a Generation After Next "Reactive ISR" system.

Our vision is for a reactive ISR enterprise that dynamically and opportunistically creates and prioritises 'collect' taskings, as targets or asset availability present themselves, or as the processing reveals uncertainties, in order to optimally answer the deck of Requests for Information (RFI).

3. Requirement

[REDACTED].

3.1. **[REDACTED].**

[REDACTED].

[REDACTED].

[REDACTED].

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

[REDACTED].

3.2. **[REDACTED].**

[REDACTED].

[REDACTED].

- [REDACTED].

[REDACTED].

3.2.1. [REDACTED].

[REDACTED].

[REDACTED].

[REDACTED].

[REDACTED].

[REDACTED].

1. [REDACTED].
2. [REDACTED].
3. [REDACTED].
4. [REDACTED].
5. [REDACTED].
6. [REDACTED].
7. [REDACTED].
8. [REDACTED].
9. [REDACTED].
10. [REDACTED].

[REDACTED].

[REDACTED].

[REDACTED].

[REDACTED].

1. [REDACTED].
2. [REDACTED].

[REDACTED].

[REDACTED].

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

3.2.2. [REDACTED].

[REDACTED].

[REDACTED].

3.3. **[REDACTED].**

[REDACTED].

[REDACTED].

[REDACTED].

[REDACTED].

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

[REDACTED].

[REDACTED].

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

4. Intellectual Property

Various deliverables are required in which the Authority requires differing IP rights, and these fall into three categories:

- For most deliverables both MOD and other UK government departments require Full Rights as per DEFCON 705. To achieve this the IP condition will be DEFCON 705, but with a clarification that for the purposes of the relevant clauses the 'authority' shall be considered to cover all other UK government departments.
- By contrast, MOD ownership and control is required in some deliverables, at least partly because this may be needed to feed into future standardisation efforts. To achieve this they will be contracted under DEFCON 703.
- Deliverable D-9, is a summary of the work, which MOD does not require ownership or control over, but does require the right to share in unlimited fashion and to publish. Since there is no standardised IP DEFCON which provides that set of rights, it will be required to be delivered twice, once under DEFCON 705, which provides the Authority with standardised rights in information and patents, and standardised markings and warranties, whilst the second version will be under the creative commons attribution licence – a very well known licence which permits the recipient to share or publish the information in an unlimited manner.

5. Delivery Structure

It is envisaged that the ideal delivery model for this requirement will consist of an industry prime leading/collaborating with a team of either other industry partners or academic institutions. Other delivery models and/or partnerships to achieve the aims of this requirement may also be considered. Further, the authority may propose models and/or partnerships based on responses, should no single response meet the criteria.

We envisage a two phased approach to this research, with the scope of work defined in this SoR focussed on Phase 1 research tasks. The research activities are suggested to be broken into the following tasks (which could run concurrently):

- Value of Information
    - Task 1A – Literature review focusing on existing frameworks and research.
    - Task 1B – Requirements definition / preliminary design
    - Task 1C - Implementation
- Goal Decomposition

    - Task 2A – Literature review focusing on existing frameworks and research.
    - Task 2B – Requirements Definition / Preliminary Design
    - Task 2C - Implementation
- Closely-coupled PED
    - Task 3A – Requirements Definition / Preliminary Design
    - Task 3B - Implementation
- Summary Report / Documentation: The final tasks of this requirement will draw all of the work conducted into a final technical report. This technical report will include design, development, operation, testing information and supporting material such as source code and/or data. It will also include the supplier's view of where this research could be taken next, including details on how the supplier would develop the system and implement the potential options defined below in 'follow-on work'.

Our preference is a software development approach which provides and supports a distributed system e.g. may involve the use of web services and the use of an open architecture and framework with a light-weight contemporary API and open documented data exchange formats. This could be supported by containerisation.

Conflict of Interest

This SoR is released under Dstl project AI and Autonomy for the ISR Enterprise (A²ISR) which is supported client-side by Frazer-Nash and the Serapis Lot 6 supply chain. In line with the Conflict of Interest Management Plan, any organisation intending to submit a response to this SoR, who has (or had) employees supporting A2ISR client side, should notify the Dstl Project Manager and Framework lead as soon as possible prior to submission. This will allow Dstl to assess and mitigate any actual, or perceived, conflict of interest.

Technical Partner

The role of the Dstl Technical Partner is to provide technical assurance to the Dstl Project Technical Authority and Project Manager. Given that the ISR Enterprise team is a 'rainbow' team consisting of members from Dstl and industry, it is possible that the Dstl Technical Partner role is fulfilled by an individual from a commercial organisation such as Frazer-Nash Consultancy. In either case, the Dstl Technical Partner has agency to act on behalf of Dstl in the role of Technical Partner. The Dstl Technical Partner reports to the wider project team, Dstl Project Manager and Project Technical Authority, both of whom are civil servants employed by Dstl.

Stand-up cadence

The delivery of this requirement is likely to follow an agile approach. It is expected that the touch-point frequency will adjust according to what is appropriate for the activities being undertaken.

Security Requirements

[REDACTED]

Follow-on / Continuation work

The following areas may be subject to future work:

- Development or refinement of assignment of a VoI curve for assigned value of a goal within human language goal decomposition.
- Accounting for system loading - Using the developed components under representative loads to discover various stress factors with the system in order to make subsequent improvements.
- Refinement of the VoI framework to increase its capability and performance.
- Adaption of the closely-coupled PED and Collect routines to cover AI for Activity based intelligence.
- Development of the closely-coupled PED and Collect routines to cover ISR recommender systems. These routines would look to reduce an analyst's workload / cognitive burden by a smart recommendation system that anticipates what they are likely to do? This could be a learning system based on previous requests, knows what is currently scheduled, and is able to spot trends and suggest other tasks

- Development of the closely-coupled PED and Collect routines to cover Smart Collect Taskings. Smart Collection Taskings attempt to understand what the RFI originator is actually interested in, as well as what other information may be of use to them. Currently this may be done via conversation between the originator and the intelligence requirements analyst, but shifting to an automated system requires an intelligent, flexible process. This may include different order taskings, e.g. A is essential, B is desirable, C is nice to have.
- Further development and refinement of the models, algorithms and software through Phase 2 post completion of this initial research (Phase 1).

Response Scoring Criteria

The selection criteria used to evaluate the responses to this tasking form will include:

- Innovation
- Meeting Requirements
- Technical Approach
- Team and Relevant Experience
- Value for Money

Responses will be scored on a scale of 0-5, with 0 indicating that the supplier response is not acceptable and a score of 5 indicating that the supplier has fully satisfied the criterion.

Procurement Strategy

☒ Lot Lead to recommend ☐Single Source / Direct Award

Pricing:

☒ Firm Pricing ☐ Ascertained Costs* ☐ Other*

Firm Pricing shall be in accordance with DEFCON 127 and DEFCON 643

Ascertained Costs shall be in accordance with DEFCON 653 or DEFCON 802.

*only at Authority's discretion

Task IP Conditions

Task IP Conditions (Follow the NIPPY guide to identify your information and IP requirements for each deliverable)	**Summary of the Authority's rights in foreground IP (IP generated by the supplier in performance of the contract)**
DEFCON 703 ☒	Vests ownership with the Authority
DEFCON 705 ☒	Enables MOD to share Full Rights version in confidence as GFI or IRC under certain types of agreements. Can be shared in confidence within UK Government.
OTHER IP DEFCONS: 14* ☐, 15* ☐, 16* ☐, 90* ☐, 91* ☐, 126* ☐	Generally only suitable for deliverables at TRL 6 and above.
BESPOKE IP Clause ☒ *	Details to be added and agreed by IP Group
* Do not use without IPG advice and approval	

DELIVERABLES

Ref	Title	Due by	Format	TRL	Expected classification (subject to change)	Information required in deliverable	IPR DEFCON
D-1	Project Kick-off	T0	Presentation (.pptx)	2	Official	Presentation pack to include but not limited to: • Update on technical progress • Progress report against project schedule. • Review of risk management plan. • Commercial aspects. • Review of deliverables. • Risks/issues. • GFA and supplier performance	DEFCON 705 (Edn 21/06) shall apply with the following clarification: The "Authority" as referenced within this Condition at clauses 12, 13, 30, 31 shall be deemed to be any United Kingdom Government Department. The markings of the Full Rights version required by DEFCON 705 and Dstl's conditions of supply (e.g. see the Dstl report template for front page markings), should be followed on a separate line below by a comment that "The Authority (for the purposes of DEFCON 705 clause 12) includes the MOD and all other Government Departments".
D-2	Monthly Reporting	Monthly	Presentation (.pptx)	2	Official	Monthly Reporting should include information related to progress, any blockers to delivery, spend to date etc. Government Furnished Asset requirements and supplier performance.	
D-3	Literature review	T0 + 8 weeks	Report (.docx)	2	Official	Literature review findings conducted in task1A and task 2A.	
D-4	Requirement / Workshop	T0 + 9 weeks	Face to face/remote as deemed effective	2	Official	Covering task1B, 2B and 3A. These could be split out into individual workshops but given the tightly coupled nature of these activities it would be beneficial to hold them at the same time.	
D-5	Preliminarily Design	End of May 2022	Report (.docx)	2	Official	Covering 1C, 2C and 3B. Documentation covering the preliminary design of resulting modules/frameworks.	DEFCON 703
D-6	Interim Software	End of July 2022	Source code, Readme files, documentation	2	Official	Interim software framework to form part of a functional demonstrator of the Reactive ISR system (in September 2022). Initial versions of the software with finalised API to test against, which should be provided in a form usable on a recent common version of Linux or Windows, together with all developed source code including build scripts/steps (if applicable).	Software framework to be delivered as DEFCON 703. DEFCON 705 (Edn 21/06) shall apply with the following clarification: The "Authority" as referenced within this Condition at clauses

D-7	Final software including tools and documentation	T0 + 14 months	Source code, Readme files, documentation	2	Official	Updated version to reflect outcome of testing, which should be provided in a form usable on a recent common version of Linux or Windows, together with all developed source code including build scripts/steps (if applicable) and test scripts.	12, 13, 30, 31 shall be deemed to be any United Kingdom Government Department. The markings of the Full Rights version required by DEFCON 705 and Dstl's conditions of supply (e.g. see the Dstl report template for front page markings), should be followed on a separate line below by a comment that "The Authority (for the purposes of DEFCON 705 clause 12) includes the MOD and all other Government Departments".
D-8	Final report and presentation	T0 + 14 months	Report (.docx) / presentation (.pptx)	2	Official	A summary of the work completed, including documentation of the algorithms considered and implemented, expected performance and tested performance, along with any known issues or edge cases, and recommendations for further work.	
D-9	Summary report	T0 + 14 months	Report (.docx)	2	Official	A high level summary of the work, the context, the state of the art and the general results achieved in this task (not covering the specific methods employed) - so that Dstl may, if desired, refer to the work at a public conference/event/open publication or similar	DEFCON 705 (Edn 21/06) shall apply with the following clarification: The "Authority" as referenced within this Condition at clauses 12, 13, 30, 31 shall be deemed to be any United Kingdom Government Department. The markings of the Full Rights version required by DEFCON 705 and Dstl's conditions of supply (e.g. see the Dstl report template for front page markings), should be followed on a separate line below by a comment that "The Authority (for the purposes of DEFCON 705 clause 12) includes the MOD and all other Government Departments".
D-10	Summary report (As per D-9 but with different usage rights)	Same as per D-9 (identical document apart from front page markings and usage rights)					This copy shall be delivered to the Authority under the Creative Commons Attribution 4.0 International Public Licence (CC BY 4.0), as a non-software deliverable with the document to be marked as such. See https://creativecommons.org/licenses/by/4.0/ .
D11	Phase 2 Scope Workshop and Summary Document	T0 + 12 months	Face to face/remote as deemed effective Report (.docx)	2	Official	Meeting to discuss the updates to the scope of work for phase 2 of the research. Workshop output to be documented in a short summary report.	N/A

DELIVERABLE: ACCEPTANCE / REJECTION CRITERIA

Unless otherwise stated below, Standard Deliverable Acceptance / Rejection applies. This is 30 business days, in accordance with DEFCON 524 Rejection, and DEFCON 525 Acceptance.

Standard Deliverable Acceptance / Rejection:-

Yes ☒ (DEFCON 524 Rejection, and DEFCON 525 Acceptance)

No ☐ (if no, please state details of applicable criteria below)

Deliverable Acceptance / Rejection Criteria:-

If there are any other specific acceptance/rejection criteria you would like to apply to any of the deliverables, please state them here.

Government Furnished Assets (GFA)

ISSUE OF EQUIPMENT/RESOURCES/INFORMATION/FACILITIES

None

QUALITY STANDARDS

☒ **ISO9001** (Quality Management Systems)

☐ **ISO14001** (Environment Management Systems)

☐ **ISO12207** (Systems and software engineering — software life cycle)

☐ **TickITPlus** (Integrated approach to software and IT development)

☐ **Other:** (Please specify in free text below)

SECURITY CLASSIFICATION OF THE WORK

The highest classification of this SOR

[REDACTED]

The highest expected classification of the work carried out by the contractor

[REDACTED]

The highest expected classification of Deliverables/Output

[REDACTED]

Is a Security Aspects Letter (SAL) required? *(A Security Aspects Letter (SAL) will be required for each Task above Official-Sensitive and above)*

[REDACTED]

TASK CYBER RISK ASSESSMENT. *(In accordance with* DEF STAN 05-138 *and the* Risk Assessment Workflow)

Cyber Risk Level	[REDACTED]
Risk Assessment Reference	[REDACTED]

ADDITIONAL TERMS AND CONDITIONS APPLICABLE TO THIS CONTRACT

Please ensure all completed forms are copied to [REDACTED] when sending to the Lot Lead.

Tasking Form Part 2: *(To be completed by the Lot Lead)*

To: The Authority	From: The Lot Lead

Proposal Reference **016012-97073L U86 Reactive ISR Goal Decomposition and Information Theory for the ISR Enterprise - Frazer-Nash Proposal** **(attached)**

Delivery of the requirement:

The proposal <u>shall</u> include, but not be limited to:

- A full technical proposal that meets the individual activities that are detailed in Statement of Requirements (Part 1 to Tasking Form).
- Breakdown of individual Deliverables, with corresponding Intellectual Property rights applied.
- Breakdown of Interim Milestone Payments, with corresponding due dates.
- A work breakdown structure/project plan with key dates and deliverables identified.
- A list of required Government Furnished Assets from the Authority, including required delivery dates.
- A clear identification of Dependencies, Assumptions, Risks and Exclusions which underpin your Technical Proposal.
- Sub-Contractors Personnel Particulars Research Worker Form and security clearances (if applicable)

PRICE BREAKDOWN

You are to use the costs detailed in Item 2 Table I in the Schedule of Requirement and at Annex E Table 2 of the Serapis Framework Agreement. Please also provide a price breakdown which should include, but is not limited to: Lot Lead Rates, Sub-contractors costs and rates, travel and subsistence. In support of your Proposal you are requested to provide clear details of all Dependencies, Assumptions, Risks and Exclusions that underpin your price.

Offer of Contract: *(to be completed and signed by the Contractor's Commercial or Contract Manager)*

Total Proposal Price in £	£349,718.06			(ex VAT)
Start Date:	[REDACTED]		**End Date:**	[REDACTED]
Lot Leads Representative	Name	[REDACTED]		
	Tel	[REDACTED]		
	Email	[REDACTED]		
	Date	[REDACTED]		
Position in Company	[REDACTED]			
Signature	[REDACTED]			

Notes: The prices in this proposal are based on our current agreed rates which are valid until July 2022 only. Any work beyond this date will therefore be subject to review and amended to include any agreed rates uplift as set out under Clause 8 (Variation in Price) in the Serapis Framework Agreement.

Core Work – Breakdown

[REDACTED]

[REDACTED]

Core Work – Milestone breakdown costs

Proposed Milestones Payments

Your TMS bid costs shall be included in milestone 1.

The final Milestone must reflect the actual cost of the deliverable, and be greater than 20% of the Task value, unless otherwise agreed with your Commercial POC

Please duplicate the template per milestone table format below as necessary, and rename milestone number accordingly.

[REDACTED]

Options – Summary

Options Breakdown

Full breakdowns will be requested upon invoking through the Serapis Contract Amendment Form. (If you do not currently know the full options breakdown, please include what you do know and rough order of magnitude costs.)

Ref No.	Description	TMS cost (£)	Self-Delivery cost (£)	Sub-contractor cost (£)	T&S, Material & Equip Cost (£)	Pricing	Start date	End date
1	Option Phase 2 Work	[REDACTED]	£0.00	[REDACTED]	£0.00	ROM	[REDACTED]	[REDACTED]

Please Note: Task Option authorisation is to be issued by the Authority's Commercial Officer through a completed Contract Amendment Form and approved purchase order. No work is to be carried out prior to both of these being issued.

Note, Deliverable CLIENT-D11 will help determine the scope of Phase 2 and inform how Phase 2 will be contracted i.e. direct award or competed opportunity. Should Phase 2 proceed, it is anticipated that it will have an approximate budget of [REDACTED], and will commence at the end of Phase 1 concluding [REDACTED]. All Phase 2 dates and budgets will be confirmed, together with the scope, and align with the output of Deliverable CLIENT-D11.

Tasking Form Part 3:

To be completed by the Authority's Commercial Officer and copied to the Authority's Project Manager.

1. **Acceptance of Contract:**		
Authority's Commercial Officer	Name	[REDACTED]
	Tel	[REDACTED]
	Email	[REDACTED]
	Date	21/04/2022
Requisition Number		[REDACTED]
Contractor's Proposal Number		[REDACTED]
Purchase Order Number		[REDACTED]
Signature		[REDACTED]
Please Note: Task authorisation to be issued by the Authority's Commercial Officer or Contract Manager. Any work carried out prior to authorisation is at the Contractor's own risk.		