RCloud Tasking Form – Part B: Statement of Requirement (SoR)

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| **Title of Requirement** | **Future Night Vision Integrated With an Advanced Soldier Helmet** |
| **Requisition No.** | **1000166896** |
| **SoR Version** | **1.2** |

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| **1.** | **Statement of Requirements** |
| **1.1** | **Summary and Background Information** |
|  | **Redacted under FOIA exemption**Dstl has been investigating new concepts for extending current night vision capabilities for the dismounted soldier. **Redacted under FOIA exemption** Current night vision capability requires a suitable device to be placed in front of the eyes of the user, removing the advantages that the eye’s relatively wide acceptance angle (field of view) provides in terms of situational awareness. **Redacted under FOIA exemption** |
| **1.2** | **Requirement** |
|  | It is expected that the objective of this requirement will be most effectively met by breaking it down into a series of component tasks to be performed over the duration of the project. In all cases there will be an identified Core requirement which must be achieved. Additional Desirable requirements will be presented where appropriate and proposals may be configured to meet some/all of these within the main body of work or as Costed Options, Marks will be awarded accordingly. Additionally, some of the tasks will be fully funded at the outset while some more advanced tasks will be planned as costed options to be funded as the project progresses. The vendor/bidder is therefore requested to provide both a “standard” and an “enhanced” costed proposal for each of the Task Items listed in this requirement document. It is anticipated that the “enhanced” option will be a more capable technology solution than the “standard” solution, and not just doubling-up of the deliverables. Proposals should clearly show how the enhanced options would be accommodated for within the overall delivery strategy, that is, whether a natural extension of the starting approach is planned or whether the task would need to be re-started from the beginning to meet the stated performance.In broad brush terms it is envisioned that the tasks will need to be broken down along the following lines. It should be noted that although the order in which the tasks outlined below are to be addressed is not fixed, tasks 1, 2, 3 and 4 are considered to be fundamental enablers for the capability development requested here. Consequently, significant progress towards demonstrating the standalone performance under these tasks, including representative hardware demonstrator builds etc., is required by the end of Year 1. The remaining tasks should be viewed as the next-step integration activities designed to bring these fundamental components together into a working system and as such most of the progress on these tasks (5, 6 and 7) would be expected to take place in an optional Year 2 (with any additional funding as appropriate in some cases). This clarification statement is not in any way included to preclude these ‘later’ tasks from being progressed during Year 1 of course but rather to define the current priority areas. A summary table is also provided at the end of this section, to aid with understanding the levels of performance that are being sought here: **Task 1: Compact, ‘flat’ objective lens** **Redacted under FOIA exemption**Tenderers are encouraged to consider the use of advanced optical design capabilities including contributors from within academia and SMEs, to meet the significant challenges this task will pose, that of designing and fabricating a new compact but high performance low light level objective lens. Marks will be awarded based on the evidence provided that such an approach will be followed.**Task 2: Analogue image intensifier (II) tube / objective lens integration** (low light channel x 2)**Redacted under FOIA exemption****Task 3: Intensifier tube output coupling to CCD (or similar) digitising sensor array.****Redacted under FOIA exemption****Task 4: Thermal imager (TI) sensor** **Redacted under FOIA exemption****Task 5: Image conditioning and processing to enable coupling to a Head Up Display (HUD)****Redacted under FOIA exemption****Task 6a: Compact HUD development****Redacted under FOIA exemption****Task 7: Full system integration and demonstration****Redacted under FOIA exemption**Your proposal shall include details of,1. The underpinning science and engineering activities you will carry out to deliver a concept demonstrator. Details shall also be provided on the possible performance parameters, which should include, but not be limited to the operating range, responsivity, sensitivity, resolution, refresh rate, accuracy, signal to noise ratio, power consumption.2. A project plan, including risks and their mitigations; dependencies; critical paths; and decision points.3. The identification of additional entities that you will bring in to deliver the most innovative elements of your solution.4. Any engineering and manufacturing challenges, quality control and assurance issues etc.5. The advantages of your approach over any existing technology approaches.6. Presumed risks along with mitigations proposed to overcome any which materialise post-contract award.The anticipated start date is Sep 2021. The end date shall be the end of March 22 with the option to extend to Mar-23 dependent upon further funding approval/availability and outcome of year 1.In the table below a summary of the Requirements and Performance levels against which proposals will be assessed is provided:

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| **UIN** | **Requirement**  | **Threshold (T)** | **Objective (O)** | **Remarks** |
| **Task 1** | A compact, low profile, low mass visible/near infrared objective lens system (binocular)  | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | **Redacted under FOIA exemption**Variation of performance will be considered as long as valid technical evidence is given |
| **Task 2** | A compact objective lens/analogue intensifier tube interface configuration | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | Innovative solutions that strive to drive down SWaP will attract higher scores |
| **Task 3** | Intensifier tube output coupling to digitising sensor arrayPreservation of native low light sensitivity and resolutionFull frame digitisation | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** |
| **Task-4** | Integrated thermal imager, operating over the 8 → 12 micron waveband Fixed focus providing focused imagery from 15m to effectively infinity | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** |
| **Task-5** | Low Swap Image formation and processing moduleFused low light and thermal imagery with data overlay | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | The tactical data is to be injected from a suitable compact End User DeviceVariation in the power consumption target will be considered if strong supporting technical evidence is provided |
| **Task-6a** | Compact HUD development:Transparent display for each eye to enable the user to view the imagery and tactical data overlay | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | The Objective performance level is expected to be met only if the Costed Options HUD task is fully funded (see section 1.5)The core requirement must be met unless valid technical reasons are given |
| **Task-7** | Full system integration onto a helmet providing a fully representativedemonstration of the NVG/ Integrated Helmet concept | **Redacted under FOIA exemption** | **Redacted under FOIA exemption** | Helmet to be provided as GFAVariation of performance will be considered as long as valid technical evidence is givenThe dual position configuration (section 1.5) is expected to be met via additional funding based on the Costed Options provided in the proposal |

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| **1.3** | **Options or follow on work *(if none, write ‘Not applicable’)***  |
|  | **The above requirements include Desirable elements and where it is projected that these cannot be met alongside the Core work without additional funding, they can be identified as Costed Options to allow the necessary work to be performed should additional funding be made available. These must be described in detail with the associated costs provided.****Also, the following tasks are required as part of the overall integration approach but it is assumed they would not be achievable without additional funding being provided to progress these activities, as referred to at the beginning of Section 1.2. Requirement.****Redacted under FOIA exemption** |
| **1.4** | **Contract Management Activities**  |
|  | **Quality Control and Quality Assurance processes and standards that must be met by the contractor:****ISO 9001 & TickITPlus** |
| **1.5** | **Health & Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement** |
|  | **None specified** |

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| **1.6** | **Deliverables & Intellectual Property Rights (IPR)** |
| **Ref.** | **Title** | **Due by** | **Format** | **Expected classification (subject to change)** | **What information is required in the deliverable** | **IPR Condition** |
| D-1 | Monthly progress report. | MonthlyOver project | 1-page quad chart. (.pptx) | OS  | As per quad chart provided by Dstl.  | RCloud Agreement Terms and Conditions shall apply  |
| D - 2  | Presentation of progress at quarterly progress reviews (QPR) throughout contract.  | Dates for QPRs to be mutually agreed. | Presentation (.pptx) | OS | A detailed update on work completed including, but not limited to, progress and learning to date; issues encountered and how they have been/will be resolved; and alignment with project plan. | RCloud Agreement Terms and Conditions shall apply  |
| D - 3  | End of first year technical report | No later than 28/3/22. | MS Word | OS | The report(s) shall detail the technical work completed; the knowledge and know-how gained; conclusions of work conducted; | RCloud Agreement Terms and Conditions shall apply  |
| D – 4 | End of first year demonstration | No later than 28/3/22. | N/A | N/A | To be mutually agreed, but as a minimum, a demonstration of the working components showing how an integrated system might work.  | RCloud Agreement Terms and Conditions shall apply  |
| D - 5 | End of project technical report | No later than 28/3/23 | MS Word | OS | The report(s) shall detail the technical work completed; the knowledge and know-how gained; conclusions of work conducted; | RCloud Agreement Terms and Conditions shall apply |
| D-6 | End of project technical demonstration | No later than 28/3/23. | N/A |  | A fully working, integrated night vision capability and helmet system shall be demonstrated with size, weight and power characteristics addressed appropriately. | RCloud Agreement Terms and Conditions shall apply |

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| **1.7** | **Deliverable Acceptance Criteria** |
|  | As per R-Cloud Framework T&Cs All Reports included as Deliverables under the Contract e.g. Progress and/or Final Reports etc. must comply with the Defence Research Reports Specification (DRRS) which defines the requirements for the presentation, format and production of scientific and technical reports prepared for MoD.Interim or Progress Reports: The report should detail, document, and summarise the results of work done during the period covered and shall be in sufficient detail to comprehensively explain the results achieved; substantive performance; a description of current substantive performance and any problems encountered and/or which may exist along with proposed corrective action. An explanation of any difference between planned progress and actual progress, why the differences have occurred, and if behind planned progress what corrective steps are planned.Any Final Reports: shall describe the entire work performed under the Contract in sufficient detail to explain comprehensively the work undertaken and results achieved including all relevant technical details of any hardware, software, process or system developed there under. The technical detail shall be sufficient to permit independent reproduction of any such process or system.Demonstrations will take place either at the Contractor’s premises, or at a location to be mutually agreed.  |

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| **2** | **Evaluation Criteria** |
| 2.1 | Method Explanation |
|  | The evaluation shall be conducted under the Most Economically Advantageous Tender (MEAT) principles, with the application of an Absolute Method, defined as the Value for Money (VfM) Index.This approach sets out to divide the total score of the non-cost (Technical Quality) criteria by the tender cost; the tenders are ranked on the technical quality (represented by the non-cost score) for each £ (or £k or £m) of cost.**Weighted Value for Money Index** The overall tender score is calculated as follows: $$\frac{(Non-Cost Score)^{\frac{w\_{q}}{w\_{c}}}}{Cost}$$Where: wq = weighting of non-cost criteria wc = weighting applied to cost Assuming that wq = 70% and wc = 30% gives, using tender B in the table below as an example: Step 1: Work out the power (wq÷wc) = 70 ÷ 30 = 2.33 Step 2: Factor weighting against non-cost score of 850 (𝑥𝑦 or ^ on the calculator) i.e. 8502.33 = 6,691,848.45 Step 3: Divide the factor weighting result by cost score 6,691,848.45 ÷ 24 = 278,827.02

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| Tender  |  Non-Cost Score weighted |  Cost (£NPV)  |  Weighted VfM Index  |  Rank  |
|  A  |  62070/30 = 3,208,282.75  | 20 |  160,414.14  | 3 |
|  B  |  85070/30 = 6,691,848.45  | 24 |  278,827.02  | 2 |
|  C  |  100070/30 = 9,772,372.21  | 29 |  336,978.35  | 1 |

The higher weighting applied to the non-cost score results in Tender C being the highest-ranking tender in this case.  |
| 2.2 | Technical Evaluation Criteria to generate Non-Cost Score |
|  | Non-Cost Score generation:Each technical criteria is scored against the scoring guides as detailed below with a possible score of 0, 3, 7 or 10.These technical criterial will be scored by a Dstl review panel.An average score for each criteria will be generated from the whole review panel’s scores and then rounded to the nearest score type (0, 3, 7 and 10).A total non-cost score will be calculated using a weighted sum of marks awarded for each of the six questions, resulting in a maximum achievable technical score of 1000 (i.e the sum of each criteria when scored 10 multiplied by its weighting):

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| **Serial** | **Question** | **Weighting** | **Scoring Range** |
| ID 1 | The proposal contains a series of detailed technical plans against each requirement showing how they would deliver an integrated solution. | 40 | 0 - 10 |
| ID 2 | The proposed compact, low profile visible objective lens design is both innovative and realisable and fully meets the Core requirement while incorporating elements of the Desirable requirements. | 25 | 0 - 10 |
| ID 3 | The image intensifier tube digitisation scheme, thermal imager performance and display requirements are innovative and achievable while the proposal also identifies how the requirements will be met within the identified power, mass and latency constraints. | 25 | 0 - 10 |
| ID 4 | Solutions to the technical challenges are described in such a way that demonstrates a deep understanding of these challenges. | 5 | 0 - 10 |
| ID 5 | A credible delivery, financial and risk mitigation plan is provided to generate confidence that delivery will be to time and cost, including options for the advanced HUD and sensor module placement options. | 5 | 0 - 10 |

The scoring range shall apply the following definitions:

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| Excellent | The response addresses all elements of the Requirement and provides a comprehensive, unambiguous and thorough explanation of how the Requirement will be fulfilled. | 10 |
| Good | The response addresses all elements of the Requirement and provides sufficient detail and explanation of how the Requirement will be fulfilled. | 7 |
| Adequate | The response addresses the majority of elements of the Requirement but is weak in some areas and does not fully detail or explain how the Requirement will be fulfilled. | 3 |
| Inadequate | The response does not address or explain how the Requirement will be fulfilled and fails to demonstrate the ability to meet the Requirement. | 0 |

Bids will be deemed to fall short of Dstl’s technical requirement and therefore be technically non-compliant in the following cases:• An average score of 3 or less (Adequate to Inadequate), prior to weighting, is recorded on two or more questions in any of the technical criteria• An average score of 3 or less (Adequate to Inadequate), prior to weighting, is recorded on any one of the Criteria marked ID 1, 2, and 3.Dstl will not consider any revisions to a proposal deemed to fall short of the technical requirement. A record will be made of all decisions relating to the scoring of the tender for clarification purposes. |
| 2.3 | Commercial Evaluation Criteria |
|  | The commercial evaluation shall assess the proposal on the following questions:

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| **Serial** | **Question** | **Marking** |
| 1 | Does the proposal fall within the specified maximum budget (£250k) | Pass / Fail |
| 2 | Has the proposal been submitted against a Firm Price | Pass / Fail |
| 3 | One full technical proposal, excluding all price detail has been submitted | Pass / Fail |
| 4 | One full Technical and Commercial proposal, including all price detail, has been submitted | Pass / Fail |
| 5 | A completed RCloud Part C Task Response Form has been completed and submitted | Pass / Fail |
| 6 | A competed Cyber Risk Form has been completed and submitted | Pass/Fail |

Noting that only proposals which pass the commercial evaluation (compliant) shall be considered for Technical Evaluation.Once a preferred bidder has been identified following the evaluation, Dstl shall request completed research worker forms (PPRW) be submitted.Once Dstl has identified the preferred bid following proposal ranking under the VfM Index, consideration may be given to the award of a second task if this is affordable within the overall stated budget. However, Dstl make no guarantee to the potential placement of a second task. |