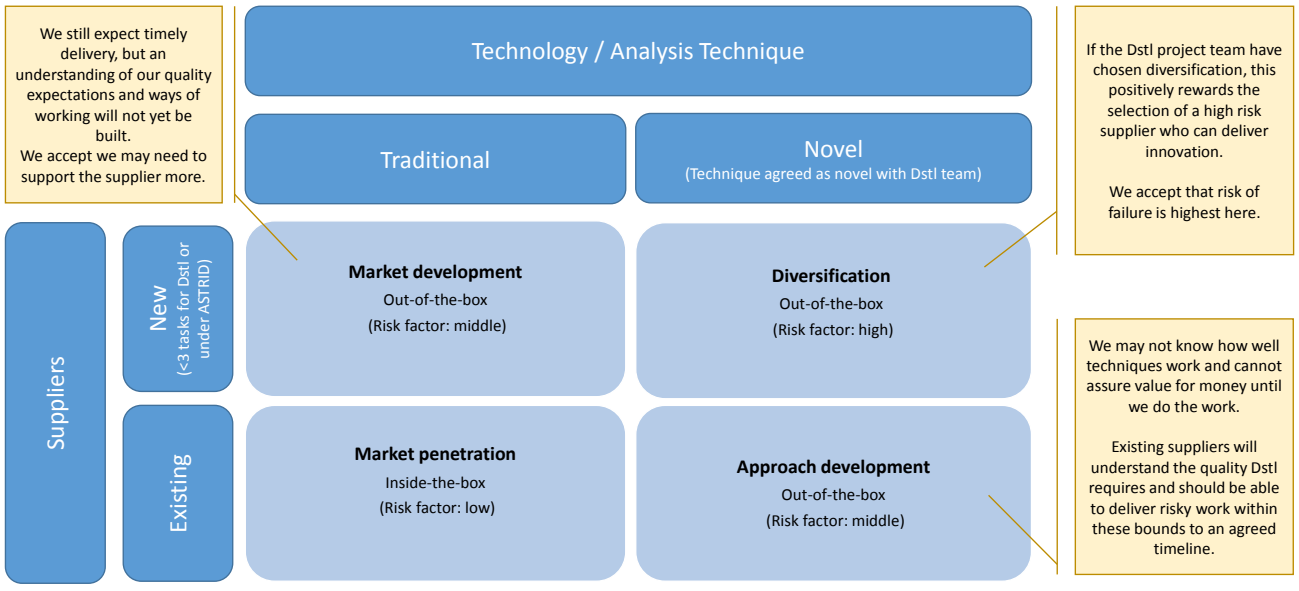
Statement of Requirement (SOR)

Contact & Project Information:

Project Manager	Name	**Redacted**		
	Email	**Redacted**		
	Telephone number	**Redacted**		
Technical Partner	Name	TBC		
	Email			
	Telephone number			
iCas project number	N/A			
Owning division	DST IRIS	**Delivering division**	DST IRIS	
Programme	N/A			
Indicative task budget(s) £k	Core / initial work:	£75k / £75k	Options / follow on work:	£

Innovation risk appetite:	Middle - Approach development
Narrative (if applicable):	This task (consisting of two lots) involves formulating a framework through which to understand the topics described, collating an evidence base using various sources, and communicating insights derived from it. The idea of 'risk' here has a slightly different meaning to that for a technology development project, but DST are open to innovative approaches throughout the process, and particularly where they may offer greater effectiveness in communicating with our audience.

Using the Ansoff matrix below, please indicate your risk appetite with regards to accepting innovative bids/solutions. The type of analysis/experimentation technique is included within 'Technology/Product'.



Use of Outputs:
This section is used to inform risks, liabilities, mitigations and exploitation. Questions 1-10 below should be a Yes/No/NA response. Please indicate if the questions do not make sense in the context of your task.
Intended uses (including the approximate time before use and any key decisions that will use the output):
Generation of understanding of the topics described amongst senior decision-makers across MOD's capability, concepts and doctrine, and strategy communities. While there is no immediate decision to inform, the explanation, education and interpretation this work provides will add to broader science and technology awareness and understanding.
Possible uses:
Distribution within MOD and across other relevant Government departments. Potential to share with international partners.
Excluded uses:
Not intended for release outside of Government.

1	Will any output be directly used as part of a safety critical system, or will it be one of the most important factors in decisions on Cat A/B investments (>£100M), or at Ministerial level policy making?	No
2	Is this task collating and presenting previous work without making further / new recommendations?	No
3	Is this task research - for example, an exploration of new methods, models or tools?	No
4	Will a re-run of the modelling or analysis be required before outputs are presented to a decision maker?	No
5	Will the outputs form a minor part of the work that will be combined by the Dstl/DST Project Team before being used for decision-making?	No
6	Has the approach to the work (how to undertake the work) been fixed by Dstl/MOD?	No
7	Will 100% of the technical assurance of the outputs provided by the Dstl/DST Project Team?	TBC
8	Is the Dstl/DST Project Team capping the maximum levels of verification and validation to be carried out on outputs?	Yes
9	Is this task developing or maintaining a method, model or tool (MMT) which will be used for multiple use cases over a period of time by Dstl/DST Project Teams?	No
10	Can you confirm that there are no known intended uses of the outputs over and above those described here that could result in new risks if the output was incorrect?	Yes

Statement of Requirement (SoR)

Project's document ref	**TST/02**
Version number	**1.0**
Date	Click or tap to enter a date.

1.	Requirement
1.1	**Title (including AST/ prefix) – LOT A**
	AST/ Technology primer: Quantum Sensing
1.2	**Summary**
	A short report in the format of a 'one-page website' to educate senior Defence audiences about quantum sensing technologies relevant to next-gen/generation-after-next timelines, explaining various types of quantum sensors and their maturity, and highlighting their applications.
1.3	**Background**
	Much of the attention on quantum technologies focuses on quantum computing, particularly in relation to Shor's algorithm and the implications for cryptography. Quantum sensing is less discussed and less well-understood, yet may be more impactful, sooner, for Defence. It is a disparate and opaque field, and this project seeks to provide senior readers a clearer idea of what it is, why it's relevant, and when it may be ready.

1.4	**Requirement**

Outputs

- A ‘one-page website’ style report, comprising a main html file and all required resources packaged together in a compressed folder.
- A presentation which summarises the work and its key findings, which can be used to present the work to interested stakeholders.

Detail

Production of a ‘primer’ style web page introducing a reader to various quantum sensing technologies.

The work should be structured with a short summary/overview, introduction, a number of sections addressing different technologies, grouped together in an application-focussed way, and a conclusions/recommendations section. As a guide, the following groups and technologies are proposed, although the contractor may wish to propose an alternative set and grouping.

- Redacted
- Redacted
- Redacted
- Each technology should be presented as a short, self-contained section of a consistent design. Each technology section should cover:
- The principle of operation, shown as text and an accompanying diagram – ideally animated and/or interactive
- For imaging technologies, an example output image
- A description and images/video of the current cutting-edge in the technology: lab-based experiments to shelf-ready products
- An indication of the Defence applications of the technology, referencing the five challenges set out in the MOD Science and Technology Strategy 2020, and of the likely impactfulness of the technology in those applications
- An estimate of the time to maturity for Defence applications
- An assessment of the UK’s technical capability in the technology, compared with key allies and competitors Redacted
- The strategic implications of the identified applications: greater or faster understanding of adversary action, defeat of current methods of concealing activity, etc.

The introduction should provide a very brief overview of quantum phenomena and quantum science, sufficient to get across to the audience how such phenomena can be exploited for sensing purposes.

- The study should conclude with a summary overview of the Defence opportunities Redacted

	A template file will be provided: the appearance of the output must be consistent with this, but alternative approaches to the underlying code are acceptable. The output must be compatible with all browsers on MODnet: Chrome 91.0, Internet Explorer 11, and Edge 91.0 (some graceful degradation of performance on IE11 may be agreed with IRIS on a case-by-case-basis). Design deviations must be agreed with IRIS in advance. The contractor is expected to obtain permission for the royalty-free use of any images included, where necessary. Deviations from the indicative structure described are welcomed if they aid generation of audience understanding, and are to be agreed with IRIS in advance. An iterative approach to developing the outputs has been found beneficial in the past, and IRIS would expect the opportunity to review and provide guidance at an early stage of drafting and as required during the process to set expectations for structure, style, and quality.
1.5	**Options or follow on work**
	Not Applicable

1.1	**Title (including AST/ prefix) – LOT B**
	AST/ Technology landscape analysis: Novel computing
1.2	**Summary**
	A study to inform (primarily) capability-focussed MOD audiences of the diversity of computing technologies relevant to future military capabilities, and propose where, when, and how Defence might best take advantage of them.
1.3	**Background**
	AI and quantum computing have captured the attention of policy-makers as ‘big’ technology topics, but the attention given to these two topics risks eclipsing other emerging computing technologies, and doing so in a way that fails to consider a system-level view. This project seeks to emphasise the diversity of novel computing technologies and situate them in a systems context.
1.4	**Requirement**

Outputs

- A main report, to be presented in a clear and accessible format, making maximum use of graphics and visualisations.
- A ‘quick read’ report providing an abridged version of the main report, which should be readable in under 15 minutes.
- A presentation which summarises the contents of the report and its key findings, which can be used to present the subject to interested stakeholders.

Detailed requirement

Identification of a shortlist of five to ten next-generation and generation-after-next computing technologies judged to be of most relevance to Defence. The five challenges set out in the MOD S&T Strategy 2020 should be used to inform this judgement. The major focus of this work should be on processing hardware, considered in the context of its integration into a complete computing system, comprising other hardware, software, and networks/architectures. Novel technologies that primarily relate to other computing functions may be touched on where relevant or particularly impactful. The approach to generating this shortlist will be discussed at a kick-off meeting.

The shortlist for inclusion in the reports is to be agreed with IRIS.

Production of analysis of the identified technologies. This work must be structured to produce a main report comprising (as an indication) an executive summary, introduction, a number of sections addressing different technologies, a conclusions/recommendations section, and any relevant annexes. Each technology should be presented as a short, self-contained section of a consistent design/layout within a longer main report (as a guide, no more than 2 double-page spreads in the main report). This main report must be summarised in a ‘quick read’ report.

Each technology section should cover:

- An overview of the technology
- A description of how it works, calibrated for an educated but non-technical reader, ideally with graphics or images to illustrate
- A clear description of its major application areas, which should include both applications in a civilian/commercial context (indicating the degree of market motivation to develop the technology) and potentially-relevant Defence applications (indicating the degree of impact the technology may have in Defence). This could include a description of an imagined future military system in which the technology is applied.
- Table summarising benefits and limitations, using consistent categories/data.
- An analysis of the UK’s capability relative to selected other countries.
- An indication of the comparative impact it may have

	• An indication of trends in the maturity of the technology, and the timescale on which it may be available for civilian use and separately for military use. • A summary of any key barriers to Defence adoption of the technology. The study should conclude with a summary of what the various computing technologies profiled can offer Defence Redacted Deviations from this indicative structure are welcomed if they aid generation of audience understanding, and are to be agreed with IRIS in advance. An iterative approach to developing the outputs has been found beneficial in the past, and IRIS would expect the opportunity to review and provide guidance at an early stage of drafting and as required during the process to set expectations for structure, style, and quality. Template documents and guidance on their use will be provided by IRIS. Deliverables are required in native Microsoft Office file formats: Word for reports and Powerpoint for the presentation. The contractor is expected to obtain permission for the royalty-free use of any images included, where necessary.
1.5	**Options or follow on work**
	Not Applicable

1.6	Deliverables & Intellectual Property Rights (IPR)						
Ref.	**Title**	**Due by**	**Format**	**TRL ***	**Expected classification (subject to change)**	**What information is required in the deliverable**	**IPR DEFCON/ Condition**
LOT A D - 1	Technologies shortlist review	T0+1 Months	Meeting, Presentation (.pptx)	n/a	O	Presentation file to include: • Description of approach taken to generate shortlist • Overview of proposed shortlist and grouping of technologies (not required to be presented) detail of any methodology/scoring used	DEFCON 705 shall apply
D - 2	Mature draft outputs	T0+4 months	Stand-alone web page (html file and supporting assets), Presentation (.pptx)	n/a	Up to OS	Final versions of the report and presentation	DEFCON 705 shall apply

D - 3	Final outputs	T0+6 months	Stand-alone web page (html file and supporting assets), Presentation (.pptx)	n/a	Up to OS	Final versions of the report and presentation	DEFCON 705 shall apply

Ref.	Title	Due by	Format	TRL *	Expected classification (subject to change)	What information is required in the deliverable	IPR DEFCON/ Condition
LOT B D - 1	Technologies shortlist review	T0+1 Months	Meeting, Presentation (.pptx)	n/a	O	Presentation file to include: • Description of process to identify a long-list of technologies • Description of approach taken to narrow down • Overview of proposed shortlist (not required to be presented) detail of any methodology/scoring used	DEFCON 705 shall apply
D - 2	Mature draft outputs	T0+4 Months	Documents (.docx), presentation file (.pptx)	n/a	Up to OS	Draft versions of the main report, quick-read report, and presentation	DEFCON 705 shall apply
D - 3	Final outputs	T0+6 Months	Documents (.docx), presentation file (.pptx)	n/a	Up to OS	Final versions of the main report, quick-read report, and presentation, building in feedback received	DEFCON 705 shall apply

1.7	**Standard Deliverable Acceptance Criteria**
	Deliverable Acceptance Criteria (As per ASTRID Framework T&Cs) 1. Acceptance of Contract Deliverables produced under the Framework Agreement shall be by the owning Dstl or wider Government Project Manager, who shall have up to 30 calendar days to review and provide comments to the supplier. 2. Task report Deliverables shall be accepted according to the following criteria except where alternative acceptance criteria are agreed and articulated in specific Task Statements of Work: • 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. Reports shall be free from spelling and grammatical errors and shall be set out in accordance with the accepted Statement of Work for the Task. • 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. • 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. 3. Failure to comply with the above may result in the Authority rejecting the Deliverables and requesting re-work before final acceptance. 4. Acceptance criteria for non-report Deliverables shall be agreed for each Task and articulated in the Statement of Work provided by the Contractor
1.8	**Specific Deliverable Acceptance Criteria**
	N/A

2.	Quality Control and Assurance
2.1	**Quality Control and Quality Assurance processes and standards that must be met by the contractor**
	☐ **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)
2.2	**Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement**
	N/A

3.	Security	
3.1	**Highest security classification**	
	Of the work	Up to OFFICIAL SENSITIVE
	Of the Deliverables/ Output	Up to OFFICIAL SENSITIVE
	Where the work requires more than occasional access to Dstl premises (e.g. for meetings), SC Clearance will be required.	
3.2	**Security Aspects Letter (SAL) – Note the ASTRID framework has an overarching SAL for quotation stage (up to OS)**	
	Not applicable If yes, please see SAL reference- *Enter iCAS requisition number once obtained*	
3.3	**Cyber Risk Level**	
	Very low	
3.4	**Cyber Risk Assessment (RA) Reference**	
	122411744 If stated, this must be completed by the contractor before a contract can be awarded. In accordance with the Supplier Cyber Protection Risk Assessment (RA) Workflow please complete the Cyber Risk Assessment available at https://suppliercyberprotection.service.xgov.uk/	

4.	Government Furnished Assets (GFA)

GFA to be Issued - No

If 'yes' – add details below. If 'supplier to specify' or 'no,' delete all cells below.

GFA No.	Unique Identifier/ Serial No	Description:	Available Date	Issued by	Return or Disposal
GFA-1					

If GFA is to be returned: It must be removed from supplier systems and returned to the Dstl Project Manager within 2 weeks of the final Task deliverable being accepted. (Any required encryption or measures can be found in the Security Aspects Letter associated with the Task).

If GFA is to be destroyed: It must be removed from supplier systems and destroyed. An email confirming destruction should be sent to the Dstl Project manager within 2 weeks of the final Task deliverable being accepted

5.	Proposal Evaluation
5.1	**Technical Evaluation Criteria**
	Quantum Sensing proposals will be evaluated through scoring by a blended panel based on the following criteria: • Access to domain expertise (weighting: 3). Redacted • Strategic understanding (weighting: 2). Redacted • Communications ability (weighting: 4). Redacted • Web design skills (weighting: 3). Redacted • Communications effectiveness (weighting: 5). Redacted • Project management approach (weighting: 2). Redacted Novel Computing proposals will be evaluated through scoring by a blended panel based on the following criteria: • Access to domain expertise (weighting: 3). Redacted • Strategic understanding (weighting: 2). Redacted • Communications ability (weighting: 4). Redacted
5.2	**Commercial Evaluation Criteria**
	As per ASTRID Framework T&Cs.