



## Statement of Requirement (SOR)

### Contact & Project Information:

<b>Project Manager</b>	Name		Redacted under FOIA Section 40- Personal Information	
	Email		Redacted under FOIA Section 40- Personal Information	
	Telephone number		Redacted under FOIA Section 40- Personal Information	
<b>Technical Partner</b>	Name		Redacted under FOIA Section 40- Personal Information	
	Email		Redacted under FOIA Section 40- Personal Information	
	Telephone number		Redacted under FOIA Section 40- Personal Information	
<b>PJ number</b>	PJ100688		<b>CHESS leaf code</b>	FY22 IB01 00C
<b>Owning division</b>	Exploration Div		<b>Delivering division</b>	Exploration Div
<b>Programme</b>	DSTF (Incubate)			
<b>Indicative task budget(s) £k</b>	Core / initial work:	£150K	Options / follow on work:	TBC
<b>Innovation risk appetite:</b>	Redacted under FOIA Section 43 - Commercial Interest			
<b>Narrative (if applicable):</b>				
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'.				

<p>We still expect timely delivery, but an understanding of our quality expectations and ways of working will not yet be built.</p> <p>We accept we may need to support the supplier more.</p>		<p>Technology / Analysis Technique</p>		<p>If the Dstl project team have chosen diversification, this positively rewards the selection of a high risk supplier who can deliver innovation.</p> <p>We accept that risk of failure is highest here.</p>	
		<p>Traditional</p>	<p>Novel (Technique agreed as novel with Dstl team)</p>		
Suppliers	New ( $<3$ tasks for Dstl or under ASTRID)	<p><b>Market development</b> Out-of-the-box (Risk factor: middle)</p>	<p><b>Diversification</b> Out-of-the-box (Risk factor: high)</p>		<p>We may not know how well techniques work and cannot assure value for money until we do the work.</p> <p>Existing suppliers will understand the quality Dstl requires and should be able to deliver risky work within these bounds to an agreed timeline.</p>
	Existing	<p><b>Market penetration</b> Inside-the-box (Risk factor: low)</p>	<p><b>Approach development</b> Out-of-the-box (Risk factor: middle)</p>		
<p><b>Use of Outputs:</b> <i>(This section is used to inform risks, liabilities, mitigations and exploitation)</i></p>					
<p>Intended uses (including the approximate time before use and any key decisions that will use the output):</p>					
<p>Possible uses:</p>					
<p>Excluded uses:</p>					
<p><b>Risk Assessment Process:</b></p> <p>Project teams are required to complete the ASTRID Liabilities spreadsheet that will look at the direct and indirect risks associated with the work. The assessment must be completed at the outset before the draft SOR is submitted, this will prevent delays and lessen negotiations when the proposal is received.</p>					

The risk assessment spreadsheet can be found in the document list on the ASTRID Nexus Homepage:

## Redacted under FOIA Section 43 - Commercial Interest

Some generic risks are pre-filled so please ensure they apply to your task and delete/add as necessary. Each risk must be assessed in turn and a score entered in the spreadsheet. They will be automatically marked and a colour code produced. Please enter the results in the boxes below. A completed copy of the spreadsheet must be attached to this SOR when submitting it to the Redacted under FOIA Section 43 - Commercial Interest for review and approval to release to CORDA.

### Direct Risk

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In the event that a direct risk is scored as "Green" or "Yellow" the risk will be capped at pre-agreed limits of liability and the project team may continue with the submission of their requirement to CORDA once all necessary approvals have been issued by the Redacted under FOIA Section 43 - Commercial Interest.

In the event that a direct risk is identified as "Amber" or "Red" project teams should discuss the requirement with their Commercial POC before the task is submitted.

### Indirect/Consequential Risk

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In the event that the indirect risk is "Excluded" project teams may continue with the submission of their requirement to CORDA once all necessary approvals have been issued by the Redacted under FOIA Section 43 - Commercial Interest.

In the event that the indirect risk is identified as "Included" project teams should discuss their requirement with their Commercial POC before the task is submitted.

### Levels of Technical Assurance:

The framework offers three levels of Technical Assurance Support, and you have the ability to determine which level is suitable for your task.

Full guidance listing the types of support under each level (and the trade-offs) can be found in the "ASTRID Guide – Levels of Assurer Support" Redacted under FOIA Section 43 - Commercial Interest or in the document list on the Redacted under FOIA Section 43 - Commercial Interest

It may be that the level of support you require changes in the early discussion phase. Please ensure the final version of your SOR has the correct level indicated.

Please indicate below which level you require.

Minimum ☐

Standard ☒

Enhanced ☐

## Statement of Requirement (SoR)

Project's document ref	PJ100688
Version number	V1.1
Date	17/06/2022

1.	Requirement
1.1	Title (including AST/ prefix)
	AST/153 Offshore Floating Complex – Cost and Investment Trends
1.2	Summary
	<p>Dstl would like to understand and have some indication of the cost to realise a sustainable offshore floating complex (OFC) to house thousands of people for global industry or humanitarian/disaster relief reasons. It is considered (independently) technologically viable through the use of existing maritime and offshore infrastructure (notably mobile vessels such as ships and semi-submersible platforms); combined with renewable and alternative power and energy sources (wind/tide/wave/solar/small nuclear reactors) and sustainable food and manufacturing methods (hydroponic food growth and additive manufacturing new and spare parts for maintenance of life-support and industry systems).</p> <p>Dstl also wish to gain a baseline of investment trends in these and related fields which might act as an indicator of change in the future – i.e. where more or less investment is taking place or where other technologies supersede something and could, therefore, be considered a technological threshold for a floating city to occur.</p>

1.3	<b>Background</b>
	<p>The Defence Science and Technology Futures (DSTF) Programme in DSTL is directed by the Defence Science and Technology (DST(MOD)) Commissioner on behalf of the Chief Scientific Advisor. This strategic direction empowers us to explore topics that have been identified through a range of horizon scanning and technology watching activities, technical assessments, and broader systems thinking about what the future threats and opportunities from S&amp;T might be. This project comes from the INCUBATE function of the programme, where we rapidly seek out the under-pinning evidence, proof or otherwise that something <i>may</i> have an impact for the UK's future Defence and Security.</p> <p>Exploring OFC's is one of many tasks in INCUBATE and requires dedicated and significant research in to the contributory components and the context and concept of use. One important aspect is understanding the cost barriers to using OFCs and subsequent investment trends that may indicate a move towards these types of complexes for any reason. Significantly, NOT INCLUDED are artificial islands or permanent structures connected to land; current recognisable industrial or military floating populations (large aircraft carriers or significant Oil Industry vessels such as the Shell PRELUDE) or unmanned large floating structures. The technologies in use on these platforms, however, may be adapted or adopted for an OFC. It is even possible that this type of offshore infrastructure could be 'rafted' together or connected as needed to form a floating city of some sort.</p> <p>The purpose of OFCs could range from alternative living solutions, especially in a future beset by effects from climate change, as well as a refugee colony. It could also include offshore based future industries such as server farm platforms, crypto-mining bases; or even nefarious activities being conducted outside of the purview of a State or other governance structure (operating in the undefined areas of maritime law for example). It is important to understand as many influences, drivers and assumptions as possible for developing defence policy through thorough analysis, challenge and preparation. The cost of such structures (build/refit, maintain and operate) is a significant driver and is needed early for this analysis.</p> <p>The aim of this two-part task, is to establish a baseline of estimated costs and some of the variations that might occur, as well as look at the investment in the broader infrastructure, self-sustainment and</p>

remote technology solutions that might indicate a move towards large populations living and working offshore.
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1.4	Requirement
	<p><u>Core Tasks 2022/23</u></p> <p>The two core tasks:</p> <ol style="list-style-type: none"> <li>1) What are the ROM Life Cycle Costs (LCCs) to build or convert existing offshore infrastructure to operate and support a large population of people?</li> <li>2) What are the investment trends and current values related to OFC life support, infrastructure and industry?</li> </ol> <p><b>Task 1:</b> ROM LCCs are required for one baseline option covering:</p> <ul style="list-style-type: none"> <li>• Capital expenditure</li> <li>• Projected operating costs over a period of 20 years</li> <li>• Life-support (Power, food, maintenance and living conditions)</li> <li>• Infrastructure (Rig / ship)</li> <li>• Industry (e.g. crypto-mining, hosting offshore services or manufacturing something which takes advantage of the remote or mobile nature of an OFC.)</li> </ul> <p>An initial Cost Data and Assumptions List (CDAL) should be compiled with a presentation of the initial ROM LCCs, in constant costs, for the one baseline option. This presentation should identify which areas are the most volatile to changes in demand and global economic drivers (whatever they may be)?</p> <p>Sensitivities should then be undertaken to the identified cost drivers and the ROM LCCs for the baseline option updated as necessary. Costs are to be presented in Outturn for budgetary purposes and discounted for value-for-money. A final report, with updated CDAL and presentation is required-dates for all to be confirmed.</p> <p><b>Task 2:</b> In parallel to Task 1, wide reaching research is needed to discover the investment trends and current values in OFC life support, infrastructure and industry covering</p> <ul style="list-style-type: none"> <li>• Current capital expenditure</li> <li>• Projected operating costs</li> <li>• Which areas are the most volatile to changes in demand and global economic drivers (whatever they may be)?</li> </ul> <p>Initial findings are to be presented and are likely to inform the cost analysis by identifying potential future cost drivers.</p> <p>Following the presentation, and in agreement with Dstl, more focussed research is required on the most volatile investment trends and cost drivers e.g. technology thresholds, survivability etc. A final report and presentation is required.</p>
1.5	Options or follow on work



	<p><u>Options 2023/24</u></p> <p>Revisit the investment trend work undertaken in 2022/23 and update as well as identifying other relevant investment trends. Update previous report.</p>
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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 <i>(Commercial to enter later)</i>
D – 1	Initial CDAL	16 Sept 2022	PDF (Microsoft Word copy required)		Redacted under FOIA Section 26 - Defence	All cost related data for the baseline option collected to date	Redacted under FOIA Section 43 - Commercial Interest
D - 2	Initial Cost and Investment Trend Presentation	14 Oct 2022	Powerpoint			Indicative ROM LCCs for the baseline option plus generic investment trend research	
D - 3	Final CDAL	31 Jan 2023	PDF (Microsoft Word copy required)			All cost related data for the baseline option and sensitivities to cost drivers.	

D - 4	Final Cost Report	31 Jan 2023	PDF (Microsoft Word copy required)		Redacted under FOIA Section 26 - Defence	Updated ROM LCCs for the baseline option plus sensitivities to cost drivers.	Redacted under FOIA Section 43 - Commercial Interest
D - 5	Final Investment Trend Report	31 Jan 2023	PDF (Microsoft Word copy required)			Consolidated Report on the findings of research in to investment trends	
D - 6	Final Presentation	31 Jan 2023	MS Powerpoint			Consolidated presentation on costs, cost drivers and investment trends.	

\*Technology Readiness Level required, if applicable

1.7	<b>Standard Deliverable Acceptance Criteria</b>
	<p><b>Deliverable Acceptance Criteria (As per ASTRID Framework T&amp;Cs)</b></p> <ol style="list-style-type: none"> <li>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.</li> <li>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: <ul style="list-style-type: none"> <li>• 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.</li> <li>• 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.</li> <li>• 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.</li> </ul> </li> <li>3. Failure to comply with the above may result in the Authority rejecting the Deliverables and requesting re-work before final acceptance.</li> <li>4. Acceptance criteria for non-report Deliverables shall be agreed for each Task and articulated in the Statement of Work provided by the Contractor</li> </ol>
1.8	<b>Specific Deliverable Acceptance Criteria</b>
	Not applicable.

<b>2.</b>	<b>Quality Control and Assurance</b>
<b>2.1</b>	<b>Quality Control and Quality Assurance processes and standards that must be met by the contractor</b>
	<input checked="" type="checkbox"/> <b>ISO9001</b> (Quality Management Systems) <input type="checkbox"/> <b>ISO14001</b> (Environment Management Systems) <input type="checkbox"/> <b>ISO12207</b> (Systems and software engineering — software life cycle) <input type="checkbox"/> <b>TickITPlus</b> (Integrated approach to software and IT development) <input type="checkbox"/> <b>Other:</b> (Please specify)
<b>2.2</b>	<b>Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement</b>

<b>3.</b>	<b>Security</b>	
<b>3.1</b>	<b>Highest security classification</b>	
	<b>Of the work</b>	Redacted under FOIA Section 26 - Defence
	<b>Of the Deliverables/ Output</b>	Redacted under FOIA Section 26 - Defence
<b>3.2</b>	<b>Security Aspects Letter (SAL) – Note the ASTRID framework has an overarching SAL for quotation stage (up to OS)</b>	
	Redacted under FOIA Section 26 - Defence	
<b>3.3</b>	<b>Cyber Risk Level</b>	
	Redacted under FOIA Section 26 - Defence	
<b>3.4</b>	<b>Cyber Risk Assessment Reference (RAR)</b>	
	<p><b>Redacted under FOIA Section 26 - Defence</b></p> <p>This must be completed before a contract can be awarded.</p> <p>The Project Manager needs to complete a Cyber Risk Assessment. There is currently an interim process in place. Please fill in this <sup>Redacted under FOIA Section 26 - Defence</sup> and email to <sup>Redacted under FOIA Section 43 - Commercial Interest</sup> to complete the assessment. The Cyber Risk Profile and a Risk Assessment Reference (RAR) should be provided by email return within 2 working days.</p> <p>For more information:</p> <p><b>Redacted under FOIA Section 43 - Commercial Interest</b></p>	

4. Government Furnished Assets (GFA)					
GFA to be Issued - Redacted under FOIA Section 26 - Defence					
If 'yes' – add details below. If 'supplier to specify' or 'no,' delete all cells below.					
GFA No.	Unique Identifier/ Serial No	Description: <i>Classification, type of GFA (GFE for equipment for example), previous MOD Contracts and link to deliverables</i>	Available Date	Issued by	Return or Disposal <i>Please specify which</i>

Redacted under FOIA Section 26 - Defence

**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

<b>5.</b>	<b>Proposal Evaluation</b>
<b>5.1</b>	<b>Technical Evaluation Criteria</b>
	<p>Process will be as per ASTRID Framework T&amp;Cs. If particular attention should be paid to certain aspects of the requirement, please confirm here:</p> <ul style="list-style-type: none"><li>• Supplier's awareness of past and current senior decision makers in Defence and wider government.</li><li>• Supplier's ability to access past and current senior decision makers in Defence and wider government.</li><li>• Supplier's ability to apply qualitative social science research methods successfully, in particular interviews.</li><li>• Supplier's awareness of, and ability to apply, decision-making and human cognition theory.</li><li>• Supplier's ability to handle a potentially sensitive topic with care.</li></ul>
<b>5.2</b>	<b>Commercial Evaluation Criteria</b>
	As per ASTRID Framework T&Cs.