

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

Title of Requirement	Low size, weight and power (SWaP) mobile sensors to detect knives concealed about a person
Requisition No.	1000165670
SoR Version	0.1

1.	Statement of Requirements
1.1	Summary and Background Information
	<p><b>Summary:</b> Ideas and concepts are sought that could be developed to provide Police Officers with a sensing capability for detecting <b>REDACTED UNDER FOIA EXEMPTION</b>, the presence of knives concealed about a person, i.e., knives concealed under or within clothing on any part of the body, in handbags or in backpacks.</p> <p>The ideas and concepts must additionally be of sufficiently low size, weight and power (SWaP) that the sensing capability can be implemented as a wearable system or carried <b>REDACTED UNDER FOIA EXEMPTION</b> by a Police Officer. Further, the normal duties and safety of the Police Officer must not be impeded by the introduction of a new technology.</p> <p><b>REDACTED UNDER FOIA EXEMPTION</b></p> <p>We want to see proof-of-concept in a short, focussed study (up to 6 months duration, but completed by 28<sup>th</sup> February 2022), with a demonstration by either experiment or modelling, or a combination of both. The suppliers of ideas or concepts that demonstrate potential will be invited to submit proposals for further technical risk reduction to provide solid evidence for any subsequent investment in a Technology Demonstrator or Operational Concept Demonstrator development programme.</p> <p><b>Background:</b> Tackling knife crime continues to be a high priority for Frontline Policing, with an enduring requirement to provide Police Officers with additional equipment capabilities that can improve the detection of concealed knives carried in public.</p> <p>The call is related to, but distinct from, an earlier Home Office call through the Defence and Security Accelerator (DASA), November 2018: Tackling knife crime – Detecting steel-bladed knives (<a href="https://www.gov.uk/government/publications/competition-tackling-knife-crime-detecting-steel-bladed-knives/competition-tackling-knife-crime-detecting-steel-bladed-knives">https://www.gov.uk/government/publications/competition-tackling-knife-crime-detecting-steel-bladed-knives/competition-tackling-knife-crime-detecting-steel-bladed-knives</a>). It asked for detection technologies that could be deployed at existing 'pinch points', i.e., where people are channelled naturally by virtue of infrastructure and which therefore presents an opportunity for detection. It also asked for technologies that could be deployed where movement of people is essentially unconstrained. In both of these use cases, the sensor technology is static (though not permanently fixed).</p> <p>This requirement has a different emphasis. We are looking for detection technologies that are low enough SWaP to be wearable or carried <b>REDACTED UNDER FOIA EXEMPTION</b> by Police Officers. The desire is to have equipment capabilities that allow freedom of manoeuvre for Police Officers when going about their duties. <b>REDACTED UNDER FOIA EXEMPTION</b></p> <p><b>REDACTED UNDER FOIA EXEMPTION</b></p>

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<b>1.2</b>	<b>Requirement</b>
	<p><u>Aim:</u> Dstl are looking for demonstration of proof-of-concept by modelling and/ or experimentation of ideas and concepts that could be developed into low SWaP mobile sensing capabilities for detecting the presence of knives concealed on persons.</p> <p><u>Scope:</u> This requirement is about the detection of concealed knives. REDACTED UNDER FOIA EXEMPTION</p> <ul style="list-style-type: none"> <li>• REDACTED UNDER FOIA EXEMPTION</li> <li>• REDACTED UNDER FOIA EXEMPTION</li> <li>• <u>Purpose</u> <ul style="list-style-type: none"> <li>○ Previous calls have asked for sensing technologies and techniques for the detection of metal-bladed knives in general without specifying a concept of use. The purpose of this requirement is to invite proposals that directly address a concept of use where the sensor is integral to a Police Officer's apparel and ancillary equipment.</li> </ul> </li> </ul> <p>Dstl sets out to confirm that a maximum budget of £100k has been allocated to this requirement, but bidders should note Dstl has a strong preference for Bids to be submitted in the region of £50k as Dstl will consider awarding more than one task following the competition.</p> <p>However this is not a mandated threshold and bids received in excess of this figure (£50k) will not be discriminated against when being evaluated.</p>
<b>1.3</b>	<b>Options or follow on work</b> <i>(if none, write 'Not applicable')</i>
	<p>Costed options are invited for development of concepts to higher TRL, including development and production of laboratory demonstrators. This phase of work would follow and be dependent on the successful delivery of the requirement set out in Section 1.2.</p> <p>It should be noted that the provision of costed options will not form part of the evaluation for the task award, and therefore will not be factored into the Value for Money (VfM) Index calculation.</p>
<b>1.4</b>	<b>Contract Management Activities</b>
	<p>No specific contract management activities identified</p>
<b>1.5</b>	<b>Health &amp; Safety, Environmental, Social, Ethical, Regulatory or Legislative aspects of the requirement</b>
	<p>Dstl have identified no specific requirements that relate to the research and development associated with this proposed requirement.</p>



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
Example D – 1	Monthly Progress Meeting	End of each Month	PowerPoint Slides  (Presented by video call or at the supplier's location)	OFFICIAL	The presented slides shall include, but not be limited to: <ul style="list-style-type: none"> <li>• Updates on technical progress</li> <li>• Progress against project schedule</li> <li>• Review of risks / issues</li> </ul>	Default RCloud Agreement Terms and Conditions shall apply.  Full Rights Versions shall be provided for the Home Office
D - 2	Demonstration of Proof-of-Concept  (Forecast Technology Readiness Level – 2)	T0 +6 Months (No later than 28/02/22)	Demonstration supported by PowerPoint slides at the supplier's Location	OFFICIAL	The PowerPoint Slides shall include, but not be limited to: <ul style="list-style-type: none"> <li>• Description of the demonstration set up</li> <li>• Video clip of demonstration (recorded before the live demonstration)</li> </ul>	Default RCloud Agreement Terms and Conditions shall apply.  Full Rights Versions shall be provided for the Home Office
D - 3	Final Report on “Low SWaP Mobile Sensing Concept for Detection of Concealed Knives”  (Forecast Technology Readiness Level – 2)	T0 +6 Months (No later than 28/02/22)	Word Document	OFFICIAL	The report shall include, but not be limited to: <ul style="list-style-type: none"> <li>• Description of the sensor technology</li> <li>• Description of the implementation of the sensor technology for detecting concealed knives</li> <li>• Description of experimental and/ or modelling to demonstrate proof-of-concept</li> <li>• Description of signal processing applied to analysis of data and extraction of</li> </ul>	Default RCloud Agreement Terms and Conditions shall apply.  Full Rights Versions shall be provided for the Home Office

					<p>detection signatures for knives and benign items</p> <ul style="list-style-type: none"> <li>• Results of data analysis including detection distance achieved</li> <li>• Discussion of results including critical assessment of limitations of the sensing concept and whether these can be addressed to improve performance</li> <li>• Conclusions on what the work has demonstrated in relation to the original proposal</li> <li>• Recommendations on further work to address fundamental limitations and/ or implantation</li> <li>• For modelling, recommendations to outline steps towards experimental demonstration</li> <li>• For experimental, recommendations to outlines steps towards higher TRL implementation and demonstration</li> </ul>	
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<b>1.7</b>	<b>Deliverable Acceptance Criteria</b>
	Dstl shall have a two week review period for the Final Report; this is to allow clarification questions to be submitted to the supplier, and to allow for corrections or changes before the submission of a final version for acceptance.

2	Evaluation Criteria																																				
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	<p>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.</p> <p>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.</p>																																				
2.2	Technical Evaluation Criteria																																				
	<p>Proposals which pass the commercial evaluation, shall be assessed against the following technical questions:</p> <table><tr><th>Serial</th><th>Question</th><th>Weighting</th><th>Scoring Range</th></tr><tr><td colspan="4">Desirability</td></tr><tr><td>1</td><td>The proposal provides a clear statement demonstrating an understanding of the requirement, and the context in which the work is to be delivered.</td><td>1</td><td>0 - 10</td></tr><tr><td colspan="4">Feasibility</td></tr><tr><td>2</td><td>The proposal clearly explains the sensing concept and how it addresses one or more of the use cases outlined in the Requirement</td><td>2</td><td>0 - 10</td></tr><tr><td>3</td><td>The proposal provides evidence that the supplier has Suitably Qualified and Experienced Personnel (SQEP) to carry out the work on the proposed sensing concept. Evidence can include, but is not limited to, CV's, publications, qualifications and previous project experience.</td><td>2</td><td>0 - 10</td></tr><tr><td colspan="4">Viability</td></tr><tr><td>4</td><td>The Proposal contains a credible plan, demonstrating that work will be done in a timely fashion. Evidence can include, but is not limited to, a project management and resource management plan, which shows how the proposer plans to deliver the project.</td><td>1</td><td>0 - 10</td></tr><tr><td>5</td><td>The proposal outlines future development stages (timescales and non-binding ROM costs) assuming the proposed sensing concept is successfully demonstrated.</td><td>1</td><td>0 - 10</td></tr></table> <p>The scoring range shall apply the following definitions:</p>	Serial	Question	Weighting	Scoring Range	Desirability				1	The proposal provides a clear statement demonstrating an understanding of the requirement, and the context in which the work is to be delivered.	1	0 - 10	Feasibility				2	The proposal clearly explains the sensing concept and how it addresses one or more of the use cases outlined in the Requirement	2	0 - 10	3	The proposal provides evidence that the supplier has Suitably Qualified and Experienced Personnel (SQEP) to carry out the work on the proposed sensing concept. Evidence can include, but is not limited to, CV's, publications, qualifications and previous project experience.	2	0 - 10	Viability				4	The Proposal contains a credible plan, demonstrating that work will be done in a timely fashion. Evidence can include, but is not limited to, a project management and resource management plan, which shows how the proposer plans to deliver the project.	1	0 - 10	5	The proposal outlines future development stages (timescales and non-binding ROM costs) assuming the proposed sensing concept is successfully demonstrated.	1	0 - 10
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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																		
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The commercial evaluation shall assess the proposal on the following questions:																					
<table><tr><th>Serial</th><th>Question</th><th>Marking</th></tr><tr><td>1</td><td>Does the proposal fall within the specified maximum budget (£100k)</td><td>Pass / Fail</td></tr><tr><td>2</td><td>Has the proposal been submitted against a Firm Price</td><td>Pass / Fail</td></tr><tr><td>3</td><td>One full technical proposal, excluding all price detail has been submitted</td><td>Pass / Fail</td></tr><tr><td>4</td><td>One full Technical and Commercial proposal, including all price detail, has been submitted</td><td>Pass / Fail</td></tr><tr><td>5</td><td>A completed RCloud Part C Task Response Form has been completed and submitted</td><td>Pass / Fail</td></tr></table>				Serial	Question	Marking	1	Does the proposal fall within the specified maximum budget (£100k)	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
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<p>Noting that only proposals which pass the commercial evaluation (compliant) shall be considered for Technical Evaluation.</p> <p>Once a preferred bidder has been identified following the evaluation, Dstl shall request completed research worker forms be submitted.</p> <p>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.</p>																					