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Statement of Requirement for the R-Cloud Engineering Biology Strategic Capability

Introduction

The Defence Science and Technology Laboratory (Dstl), which is part of the UK Ministry of Defence (MOD), is refreshing its commercial agreement for Science and Technology (S&T) research contracts, known as R-Cloud (Research Cloud).

MOD places extensive fundamental, experimental and applied research with industry and academic suppliers and wants to broaden access for this supply base, reducing the cost of trading with MOD and enabling agile contracting. R-Cloud complements MOD's other contracting mechanisms and academic and industry suppliers of S&T research are now invited to apply to join MOD's research supplier community within the Engineering Biology Strategic Capability.

This statement of requirement relates to suppliers joining R-Cloud within the Engineering Biology capability area. R-Cloud provides a low barrier to entry for potential suppliers and offers direct access to MOD's current and future research requirements. Academic and industrial suppliers of Engineering Biology research are invited to apply to R-Cloud if you are a supplier of Science and Technology Research in this area.

Engineering biology is a convergent, inherently multidisciplinary scientific domain, where techniques such as nucleic acid sequencing, 'omics methodologies, Machine Learning /model development, data science /mathematics, AI-Bio, automation, bioinformatics, computing, molecular biology and biochemistry (amongst others) are brought together using systematic design, test, build engineering approaches, which can be used to drive biological systems towards a broad range of targeted applications or outputs. This may include access to high powered computation and large infrastructure for automation as part of any solution.

Statement of Requirement:

The Strategic Capability (SC) for Engineering Biology has an interest in research into bio-enabled outcomes of relevant to defence and security.

Opportunity descriptions are outlined below:

Bio-enabled materials

Biological production of critical materials to increase resilience of supply chains; bio-fabricated structural and functional materials for tough, light, stealth-enabling, or signature management



coatings; and biological recycling and bio-enabled circular logistics, e.g. remediation techniques that allow Defence to recover rare elements from equipment at end of life, reducing cost and supply vulnerability.

Bio-enabled sensing

Low-power, novel sensing, including: molecular-assembly-enabled metamaterials for miniaturised antennas and multispectral EO/IR sensors; single-sensor multispectral imaging enabled through biological self-assembly, removing the need for multiple sensors and cooling; and biomimetic quantum-like sensing mechanisms

Bio-enabled power and energy

Including bio batteries using GMO compliant systems or cell free processes; waste-to-fuel biomanufacturing systems; and biological remediation and recycling of chemical batteries