Document Details: Clarification Q&A in response to the call for proposals

Challenge: Multi-Terrain Micro Robotic Systems

Deadline for questions: 22/10/26

#	Question	Answer
1.	Water domain: would operation on the water surface satisfy the water mobility domain, or is submerged operation expected?	We would expect to see both functionalities. If submerged operation is delivered, we would expect to see surface functionality.
2.	Consortia: is the £60,000 budget the cap for a consortium bid, or can consortia request additional funding?	£60k is the cap for any bid (both an individual one or a consortium), there is no additional funding for a consortium.
3.	Can you clarify whether the 100g representative payload constitutes part of the requirement for the total system mass to be under 1 kg? (i.e. Is the maximum All Up Weight, including the payload 1 kg, or 1.1 kg?)	The payload weight is not included in the 1kg total system mass requirement.
4.	When you state that the system is capable of operating “seamlessly across water”, does that mean underwater, or on water? Are we talking about large bodies of water, like lakes, or the ability to navigate through shallow watery environments, e.g. ditches and drains etc?	Both underwater and on water. For this purpose, shallow watery environments such as ditches and consideration for drains that may be fully submerged.
5.	How many projects do you intend to fund?	We are aiming to fund several ambitions proof of concept demonstrators i.e. more than one solution provider.
6.	How will the systems be evaluated? Do you intend to evaluate them in your own controlled environment?	The final evaluation set up is still to be confirmed, but it will involve the need to fully submerse in water, travel on water, travel on ground and take flight.

7.	I note the indicative budget of £60k + VAT. Is this the total budget for the challenge or per funded project within the challenge.	The budget is £60k per successful application.
8.	Is it possible to submit more than one application? We are considering 2 different solutions to this challenge.	Yes you can submit more than one application. You can only submit one application per company through the portal, so please email any additional applications to Co-Creation@dstl.gov.uk and they will be included in the Phase 1 competition assessment.
9.	Do you need to be a registered LTD in order to apply?	Please refer to the Challenge form on the HMGCC Co-Creation portal Challenge Portal | HMGCC : "Eligibility This challenge is open to sole innovators, industry, academic and research organisations of all types and sizes. There is no requirement for security clearances. Solution providers or direct collaboration from countries listed by the UK government under trade sanctions and/or arms embargoes, are not eligible for HMGCC Co Creation challenges."
10.	Is there an application form or a required format?	Please refer to the "How to Apply" section of the Challenge form.
11.	Can applicants remain in full time work whilst taking this project on?	The proposed resourcing approach, availability of key personnel and overall delivery capacity will be considered as part of the assessment process. Applicants should ensure their proposal demonstrates an appropriate and credible approach to delivering the project within the required timeframe.
12.	Is the budget shared between the selected applicants?	The budget is £60k ex VAT per successful applicant.
13.	How is the budget distributed and structured and when? (i.e is it against agreed milestones?)	This is agreed at the onboarding stage, typically there are three 1-month sprints with payment at the end of each sprint.
14.	What evidence is expected at the application stage?	Please refer to the "How to Apply" section of the Challenge form.
15.	Payload Distribution: Can the 100-gramme payload be split across multiple positions on the robot, or must it be a single consolidated load?	Single consolidated load

16.	Operation Duration: Does the "up to one hour" operation requirement apply to a single continuous mode, or can it be met using combined modes?	We are interested in understanding the operational endurance that your solution can realistically deliver. If one hour cannot be achieved, please state what duration is achievable and how this is delivered.
17.	Tracking, Navigation, and Autonomy: What exact level of autonomy is desired, and can we use a Vicon system for tracking or rely on SLAM? If allowed, can computations run off-board due to heavy processing constraints?	We would like applicants to demonstrate what can be achieved through their own designs. We have intentionally kept this requirement broad to encourage innovative thinking and avoid unnecessarily constraining potential solutions.
18.	The environment Do you have more details on the expected "built environment" for the scenario? When looking at the use case described, do you have representative data for the pipe dimensions and flow rate? Do we need to account for obstacles like grates and how to remove them or focus on the locomotion in the two terrain with simpler transitions?	There is no requirement to account for obstacles or their removal. We are not providing representative data for pipe dimensions or flow rates, as we are keen to understand what performance and capabilities can be achieved through your proposed design approach.
19.	The payload The challenge mentions not designing for a specific payload, but could you give an indication on the density or volume to expect? I'm assuming the payload doesn't need deployment, only to be able to be integrated to communicate with the operator, is this correct? For the 1kg total system mass requirement, can you confirm whether the 100g payload is included or not?	We have intentionally kept the requirement broad to encourage innovative thinking and avoid unnecessarily constraining potential solutions. We are keen to understand what can be achieved through your design. The payload weight is not included in the 1kg total system mass requirement.

20.	**Scope of "Water" Domain Mobility (Surface/Amphibious vs. Subsurface)** Regarding the requirement to operate across at least two domains (Essential) and desirably all three domains (water, land, and air): does amphibious surface mobility—such as floating, surface skimming across flooded basements/tanks, wading through partially flooded drainage pipes, and executing seamless water-to-land/air transitions—fully satisfy the "water" domain requirement, or does the Authority specifically require fully submerged hydrostatic diving?	On-surface and under water travel would be desirable.
21.	**1-Hour Operational Endurance Duty Cycle** Regarding the desirable requirement to operate for up to 1 hour within a total system mass under 1 kg: given the physical energy-density limits of continuous aerial hover at micro-scales, will the Authority evaluate the 1-hour endurance target against a realistic multi-modal reconnaissance mission profile (e.g., a hybrid duty cycle combining low-power ground crawling, aquatic floating, and stationary observation with short-duration aerial flights to clear stairs and vertical obstacles)?	Operation for up to 1 hour is the target combining the different travel modes. Your submission should include the total duration possible at each individual mode of travel.
22.	**Representative 100g Payload Specifications** Regarding the essential requirement to carry a representative payload of at least 100g: does the Authority mandate a specific physical volume, centre-of-gravity envelope, or electrical/data interface for this payload during the TRL 4 demonstration, or may solution providers integrate an inert mass surrogate or functional 100g COTS sensor package (e.g., optical/thermal/odometry payload)?	There is no particular mandate for the demonstration. Solution provides can bring along their mass surrogate.

23.	**TRL 4 Demonstration Environment & Confined Space Dimensions** For the minimum TRL 4 lab validation in a representative built environment and confined spaces (ducts, pipes, service voids): will the Authority specify target cross-sectional aperture dimensions (e.g., minimum pipe diameter or duct height) and obstacle geometries, or should solution providers design and construct their own modular multi-terrain test rig for the final demonstration?	The Authority will not specify at this stage. Solution providers can choose to design and construct their own test rig, but it won't be necessary for the final demonstration.
24.	**Hardware Procurement Lead Times & "Sprint 0" Mobilisation Invoicing** Given the compressed 10-week project duration kicking off in January 2027, early procurement of specialised micro-robotics components, actuators, and edge-compute modules will be required immediately upon contract award. Following precedent from previous HMGCC Co-Creation challenges, will the contracting framework via Cranfield University permit an exceptional "Sprint 0" mobilisation payment or an early Week 1–2 hardware procurement milestone to mitigate supply-chain lead times and cash-flow barriers for SMEs?	An early-stage hardware procurement milestone (or Sprint 0) may be considered where there is a clear and evidenced requirement. Any such request should be clearly outlined within the proposal and justified in the context of project delivery. Requests will be assessed by the Authority on a case-by-case basis prior to contract award, taking into account their necessity for achieving the required project outcomes. Suppliers should also consider whether elements of the work can be progressed in parallel to minimise any impact on the overall project schedule. Please note that all approved payment milestones will remain subject to the payment terms (see clause 4 Invoices and Payments) set out in the Co-Creation Terms and Conditions.
25.	To be discrete, an approach could involve the robot traveling through a vent to be away from areas with people, will the payload be a suitable size to fit through vents (e.g. flat, but potentially a large footprint)?	The payload deployed will not be intending to hinder your solution functioning in the different travel modes.
26.	For the air mode of transport, is flight the requirement, would a system that had a different way of getting to the top of a building such as climbing count as a land and air robot?	Consider how climbing might work if there is no surface to climb up or down. Keen to see how you might bridge that gap through climbing.