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Co-Creation

Challenge: Sandpit event to explore wearable technologies

Summary of the challenge

Experts can apply to take part in a two-day interactive sandpit event focused on discreet wearable technologies for use in national security and defence.

This challenge examines the latest research into the wearing of inconspicuous technology – looking at factors such as materials, fabrics, clothing design or other solutions. These wearable devices should be comfortable, flexible and able to help the wearer move freely without interrupting the technology itself.

The latest challenge from HMGCC Co-Creation is looking for applicants from relevant industries which could be as broad as fashion and theatre, electronics, mechanical engineering, materials, behavioural science, user centric design – among others.

To be considered, applicants must complete an application form and send in a CV – see section 'Sandpit – how to apply'.

HMGCC Co-Creation will provide funding for time, materials, overheads and other indirect expenses for successful projects. But please note, attendance at the sandpit does not guarantee ongoing HMGCC Co-Creation funding following this period.

Technology themes

Behavioural and social sciences, electronic engineering, energy storage, engineering design consultancy, healthcare manufacturing, materials science and engineering, systems engineering, wearable technologies.

Key information

Total budget (ex VAT) – a portfolio approach will be taken	£200,000
Competition opens – application to attend sandpit	Monday 1 December 2025

Competition closes – application to attend sandpit	Thursday 15 January 2026
Sandpit event	Tuesday 10 February 2026 to Wednesday 11 February 2026 in Milton Keynes
Target project kick-off for successful proposal(s)	March 2026
Project duration	12 weeks

Context of the challenge

Wearable technology for the consumer has shown large market growth in recent years, largely dominated by smart watches. There has also been significant investment in next generation wearables, where cabling, energy storage and useable devices are further embedded into garments, enabling greater useability while also increased ergonomics and comfort.

As there is a potential consumer market in fields such as sportswear and the medical sector, there is also a specialised national security and defence market, utilising similar underpinning technology but where different capabilities may be required.

The gap

There are numerous academics and companies developing new technologies in the consumer market for wearable technologies.

The latest developments in this area seem to show a drive away from 'hard' electronics, for example printed circuit boards, insulated wiring and batteries, towards more fabric-like materials.

But there have been limited commercial successes in this field to create truly fabric-like materials and electronics deeply embedded into clothing.

The focus of this sandpit to drive diverse expertise to create the next generation of wearable technology not only for national security and defence but to also maximise chances of commercial viability.

Example use case

Below are examples which may be explored during the sandpit.

Case one:

Bavin has an enhanced sensor surveillance system which uses AI to spot suspicious behaviour in a crowd. But he needs to test it out in a training scenario before deployment.

Lizzy is managing this training exercise, which is focused on how to identify people in busy gatherings. She aims to keep this as realistic as possible, but also wants to test the limits on how surveillance could be avoided. She knows that a person could be identified by the way they walk and move (otherwise known as their gait).

In this training exercise, Sarah is selected as the individual of interest. When moving as she normally would, she is detected, but her efforts to simply walk in a different way can't be sustained.

To thoroughly test Bavin's surveillance system, Sarah uses wearable technology that has actuators embedded into clothing. This forces Sarah to change her gait as a result of the garment altering the way in which it fits, while minimising discomfort and upholding discretion.

This result shows that Bavin's surveillance system can be tricked, meaning further development is required.

Case two:

Sergeant Smith is deployed on a live operation with the latest wearable technology, designed to increase situational awareness and enhance decision making. There is a range of technology embedded, such as a GPS tracker, so command can pinpoint his location. He also receives alerts sent to body-worn systems.

As Sgt. Smith moves through a building he is getting live updates from command. As discretion is of the upmost importance ensuring the enemy is not alerted of his presence, communication is limited and only transmitted when absolutely necessary.

As he approaches a position he needs to know to stay put or move on, and in which direction. Via subtle changes to his clothing, he is notified by command what to do next. This ensures he alone is notified with quick and clear decisions so that he can focus on the operation in hand.

These devices are well embedded into the garments ensuring no impact on the comfort of wearing over many hours or even days at a time.

Project scope

Innovative solutions are needed for this challenge, but they need to be products which can be produced in short timeframes. This means that applicants should aim

to bring in concepts which are already at Technology Readiness Levels (TRL) of 5 - 9.

Although this challenge is not in the solution stage, which will be developed at the sandpit, requirements to consider are listed below:

Essential requirements:

- Wearable technology that could change the way a person moves, otherwise known as gait.
- Wearable technology that alerts a user of an event, in a discreet manner.
- Wearable technology must not negatively affect comfort of the wearer.

Desirable requirements:

- Should not give off any emissions, for example make a noise or a detectable radio-frequency emission.
- Technology should be applicable to parallel sectors, with the potential for commercial viability.

Constraints:

- Must be able to integrate into a garment. This could be a shirt, coat, rucksack, anything wearable.

Not required:

- Vibration motors, otherwise known as haptic, for alerting.

- Horizon scanning only.

Sandpit overview

As described by UK Research and Innovation (UKRI), a sandpit is an intensive, inclusive, interactive and creative environment, supporting a diverse group of participants from a range of disciplines and backgrounds.

We recognise the value in enabling collaboration across disciplines which may not usually come together to address the challenges being tackled. The unique opportunity provided by this sandpit will be that attendees will have access to government stakeholders, to drive the research towards real-world scenarios.

This information may be exempt under the Freedom of Information Act 2000 (FOIA) and may be exempt under other UK information legislation. Refer any FOIA queries to the originating department.

The sandpit will be fully facilitated, with stakeholders to assist participants in defining and exploring challenges in this area.

The sandpit process can be broken down into several stages:

- Defining the scope of research and development.
- Cultivating a common language and terminologies amongst people from a diverse range of backgrounds and disciplines.
- Sharing understandings of the challenges, and the expertise brought by the participants to the sandpit, and perspectives from relevant stakeholders.
- Immersing participants in collaborative thinking processes and the sharing of ideas to construct innovative approaches.
- A funding decision on those projects shortly after the sandpit using 'real-time' peer review.

Sandpit – further information

Intellectual Property and Non-Disclosure Agreements: Due to tight timescales there will be no opportunities for all parties to sign an agreed Non-Disclosure Agreement. Therefore, we request all participants record any background Intellectual Property prior to the event, and record Intellectual Property generated during the event. All attendees will be expected to be as open-as-possible in collaborative discussions.

Attendance: The sandpit event must be attended in person, in Milton Keynes. It will last for two full days, with the aim to form teams and lightweight proposals by the end. **Please note that expenses and attendance at the sandpit event are not funded,** however successful project proposals resulting from the sandpit will be funded. Refreshments and catering will be provided during the event.

Pitch day: Following the sandpit event, a further two weeks will be given for teams to formulate formal pitch decks and proposals. Each team will be invited to pitch to HMGCC Co-Creation, over Microsoft Teams, as per normal pitch day process, detailed later in this document.

Team forming: The concept to the sandpit is to form teams between different individuals and organisations. HMGCC Co-Creation will ask for a single lead who can be contracted with, and then sub-contract to other teams.

Collaboration mindset: HMGCC Co-Creation expect all attendees to come with an open mindset to collaborate. As well as the challenge funding outlined, it is anticipated that this event could help build a community of interest that endures outside of this challenge.

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Sandpit – how to apply

Please submit your application on the HMGCC Co-Creation website. Any queries please email Co-Creation@dstl.gov.uk and cocreation@hmgcc.gov.uk.

All information you provide to us as part of your application will be handled in confidence.

Applicants must submit their CV and document in the following format, with word limit. HMGCC Co-Creation reserve the right to stop reading if the word limit is breached.

Applicants will be assessed on each criteria, with equal weighting against each. HMGCC Co-Creation will take a portfolio approach to ensure diverse expertise are represented.

Applicant details	Contact name, organisation details and registration number (if applicable)
Area of expertise and track record Maximum of 250 words	Describe what you are an expert in along with evidence.
Experience relevant to this challenge Maximum of 250 words	Describe how your experience could help develop new technology that fits the challenge scope.
Collaboration mindset Maximum of 250 words	Please provide an example that demonstrates your collaboration mindset that has led to a beneficial outcome.
Innovation and ideas Maximum of 250 words	Describe potential routes of innovation that could solve one or more of the example use cases.

Dates

Competition opens	Monday 1 December 2025
Online briefing call: **Teams Briefing Call** **(Please note: Recording or use of AI notetakers is not permitted)**	Tuesday 9 December 2025 1000hrs until 1100hrs

This information may be exempt under the Freedom of Information Act 2000 (FOIA) and may be exempt under other UK information legislation. Refer any FOIA queries to the originating department.

Clarifying questions deadline	Friday 12 December 2025
Clarifying questions published	Tuesday 16 December 2025
Competition closes	Thursday 15 January 2026
Applicants notified	Thursday 22 January 2026
Sandpit event	Tuesday 10 February 2026 to Wednesday 11 February 2026 in Milton Keynes
Pitch Day online	Thursday 26 February 2026
Pitch Day outcome	Monday 2 March 2026
Commercial onboarding begins*	Friday 6 March 2026
Target project kick-off	March 2026

*Please note, the successful solution provider will be expected to have availability for a one-hour onboarding call via MS Teams on the date specified to begin the onboarding/contractual process. All times refer to GMT

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.

Invitation to present

Post the sandpit event, teams will be invited to a pitch day, hosted online. The proposals will be pitched to the HMGCC Co-Creation team during a 20-minute presentation, followed by questions.

After the pitch day, a final funding decision will be made. For unsuccessful applicants, feedback will be given in a timely manner.

Clarifying questions

This information may be exempt under the Freedom of Information Act 2000 (FOIA) and may be exempt under other UK information legislation. Refer any FOIA queries to the originating department.

Clarifying questions or general requests for assistance can be submitted directly to Co-Creation@dstl.gov.uk and cocreation@hmgcc.gov.uk before the deadline with the challenge title as the subject. These clarifying questions may be technical, procedural, or commercial in subject, or anything else where assistance is required. Please note that answered questions will be published to facilitate a fair and open competition.

Co-Creation terms and conditions

Proposals must be compliant with the HMGCC Co-Creation terms and conditions; by submitting your proposal you are confirming your organisation's unqualified acceptance of Co-Creation terms and conditions.

Commercial contracts and funding of successful applications will be engaged via our commercial collaborator, Cranfield University.

HMGCC Co-Creation supporting information

HMGCC works with the national security community, UK government, academia, private sector partners and international allies to bring engineering ingenuity to the national security mission, creating tools and technologies that drive us ahead and help to protect the nation.

HMGCC Co-Creation is a partnership between HMGCC and Dstl (Defence Science and Technology Laboratory), created to deliver a new, bold and innovative way of working with the wider UK science and technology community. We bring together the best in class across industry, academia, and government, to work collaboratively on national security engineering challenges and accelerate innovation.

HMGCC Co-Creation aims to work collaboratively with the successful solution providers by utilising in-house delivery managers working Agile by default. This process will involve access to HMGCC Co-Creation's technical expertise and facilities to bring a product to market more effectively than traditional customer-supplier relationships.

FAQs

1. Who owns the intellectual property?

As per the HMGCC Co-Creation terms and conditions, project IP shall belong exclusively to the solution provider, granting the Authority a non-exclusive, royalty free licence.

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2. Who are the end customers?

National security users include a wide range of different UK government departments which varies from challenge to challenge. This is a modest market and so we would encourage solution providers to consider dual use and commercial exploitation.

3. What funding is eligible?

This is not grant funding, so HMGCC Co-Creation funds all time, materials, overheads and indirect costs for successful projects. Please note that expenses and attendance at the sandpit event cannot be charged, however successful project proposals resulting from the sandpit will be funded.

4. How many projects are funded for each challenge?

On average we fund two solution providers per challenge, but it does come down to the merit and strength of the received proposals.

5. Do you expect to get a full product by the end of the funding?

It changes from challenge to challenge, but it's unlikely. We typically see this initial funding as a feasibility or prototyping activity.

6. Is there the possibility for follow-on funding beyond project timescale?

Yes it is possible, if the solution delivered by the end of the project is judged by the HMGCC Co-Creation team as feasible, viable and desirable, then phase 2 funding may be made available.

7. I can't attend the online briefing event, can I still access this?

If a briefing event is held, any questions (and answers) will be captured and published after the event. The call itself is not recorded and use of AI notetakers is not permitted.

8. Do we need security clearances to work with HMGCC Co-Creation?

Our preference is work to be conducted at OFFICIAL, we may however, request the project team undertake BPSS checks or equivalent.

9. Can you explain the Technology Readiness Level (TRL)?

Please see the UKRI definition for further detail.

10. Can I source components from the list of restricted countries, e.g. electronic components?

Yes, that is acceptable under phase 1 - feasibility, as long as it doesn't break UK government trade restrictions and/or arms embargoes.

Further considerations

Solution providers should also consider their business development and supply chains are in-line with the National Security and Investment Act and the National Protective Security Authority's (NPSA) and National Cyber Security Centre's (NCSC) Trusted Research and Secure Innovation guidance. NPSA and NCSC's Secure Innovation Action Plan provides businesses with bespoke guidance on how to protect their business from security threats, and NPSA and NCSC's Core Security Measures for Early-Stage Technology Businesses provides a list of suggested protective security measures aimed at helping early-stage technology businesses protect their intellectual property, information, and data.