

# Market exploration: telexistence

## Summary

The Ministry of Defence (MOD) is looking at how telexistence capabilities can benefit UK defence and security. On behalf of the Chief Scientific Adviser's (CSA) Emerging Technologies for Defence (ETD) Programme, the Defence and Security Accelerator (DASA) and the Defence Science and Technology Laboratory (Dstl) are exploring the utility of telexistence capabilities.

A telexistence capability can be defined as a system, or system of systems, which allows a human user to operate in an environment without physically being there. This could be achieved by using a remotely operated avatar, which relies on the integration of:

- telepresence (which enables the user to see and hear as though in the remote environment)
- robotics (which enables the user to interact with the remote environment)
- haptic feedback (which provides sense of touch)

In this Market Exploration activity, we are looking to understand the maturity of the technology (including its associated components) in the external marketplace and its potential application in the defence and security domains. This work will help to identify gaps in order to direct potential future investment.

This Market Exploration is not a commitment to subsequently launch a formal DASA competition.

## Background

Developments in remote, robotic and sensory technologies in recent decades have led to an increased ability to operate differently in challenging environments. For defence and security communities, this includes significant steps to remove the need for people to be present in potentially hazardous locations.

The field of telexistence has emerged from the combination of three generic technology groupings: telepresence, robotics and haptics. Telexistence has been identified as a means by which skilled operatives can transfer their practice to a remote location, which can enhance the speed by which a user is deployed. It can also be used to keep people safe by reducing the risks associated with physically operating in a hazardous environment, for example: explosive ordinance disposal (EOD), Chemical, Biological, Radiological, Nuclear (CBRN), space exploration, firefighting etc.

# Solution Requirement

This Market Exploration aims to better understand the technology readiness level of the components of telexistence systems in isolation and/or together (a system of systems) to inform future investment. Potential solutions should allow a user to interact with or immerse themselves in a remote location as if they were physically there. The telexistence solution:

- should mitigate the risk associated with operating in hazardous domains
- must be able to be tangibly demonstrated and allow the operator to interact with the environment in real-time
- can include elements of artificial intelligence but must permit the operator to remain in the loop

Suppliers should provide examples of potential use cases within defence and security.

## Sub Requirements

A telexistence capability would require the integration of telepresence, robotics and haptic feedback, the requirements of each of these components are provided below. In your submission, we ask that you outline which of these requirements your solution can/could deliver. You do not have to address all sub requirements to respond.

1. telepresence platforms: the solution must have audio-visual capability and have the potential for the individual to feel fully immersed in the environment. The solution must have the ability to integrate robotic and haptic components into the system.
2. robotic systems: the solution must be mobile and have the capacity to function (move) in response to the operator's commands, in real-time. The solution must have the ability to integrate telepresence and haptic components into the system. Submissions should indicate potential operating environments.
3. haptic sensory information: the solution must be able to transmit sensory (haptic) information to the human operative. Solutions must be able to demonstrate real-time motion capture, positional and rotational tracking. The solution must sense and provide real-time feedback on at least one of the following: kinaesthetic force, cutaneous force, temperature, vibration. Whilst not essential, we are also interested in systems that can operate to levels of fine dexterity. The solution must be able to tangibly demonstrate the ability to perform simple-complex motor tasks.

## What we don't want

- We are not interested in receiving ideas for literature reviews that respond to the requirements or sub-requirements of the solution.
- We are not interested in paper-based concepts.
- We are not interested in consultancy proposals.
- We are not interested in non-technical solutions which deviate from the haptic, telepresence or robotics sub-requirements.

This is not a competition and therefore we are not asking for costed proposals at this stage. This is a market engagement request for information exercise and we do not commit to subsequently launch a formal DASA competition.

## How to submit

Responses to this Market Exploration must be submitted via the DASA submission service, for which you will need to register.

You will be asked for a title and short summary of your innovation, followed by questions related to your capability. We are seeking to understand what and how much further development is required for a complete solution to all requirements, or whether a combination of separate solutions is required. The information you provide will assist in developing a statement of requirements for potential future activities.

Submissions must be submitted by midday on 27 April 2020.

Please only provide details of one product/capability per form. If you have a number of potential solutions, then please submit multiple forms.

If you have any questions then please email [accelerator@dstl.gov.uk](mailto:accelerator@dstl.gov.uk) with "Telexistence" in the subject line.

## How we use your information

Information you provide to us, that is not already available to us from other sources, will be handled in-confidence. By submitting, you are giving us permission to keep and use the information for our internal purposes, and to provide the information onwards, in-confidence, within UK Government. The Defence and Security Accelerator will not use or disclose the information for any other purpose, without first requesting permission to do so.

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**[COVID-19: Update from the Pubs Code](#)**

# Adjudicator

In light of the current coronavirus (COVID-19) outbreak, the Office of the Pubs Code Adjudicator (OPCA), has taken steps to ensure that our staff remain safe and well. As part of this, many (and at times all) of our staff will be working remotely. We do not envisage that this will cause any significant disruption to our core services and will continue to operate as normal. However access to hard copy post may be delayed and those contacting the PCA are strongly advised to use our email and telephone contacts for the Office in the first instance and not rely solely on hard copy correspondence to this Office.

We will continue to monitor the situation and follow the advice and guidance issued by Public Health England and the Department of Health and Social Care.

We have been clear with all pub-owning businesses (POBs) that we expect them to be giving active consideration as to how they can ensure that individual tied pub tenants do not lose out on their Pubs Code rights as a result of COVID-19. You can find out what we have said to the POBs [here](#)

We will update this page to keep you informed of any changes.

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## Government publishes updated COVID-19 industry guidance

The government has today published new and updated guidance to provide affected sectors with the latest advice on managing the threat from COVID-19. The Public Health England (PHE) guidance provides important information for specific sectors, including schools and transport, on what precautions to take, what to do if someone develops symptoms and how to limit the spread of the virus.

The guidance will assist staff, employers and members of the public after the government last week shifted into the 'delay' phase of its [action plan](#) to slow the spread of the virus, reduce pressures on the NHS and protect the most vulnerable.

New and updated COVID-19 industry guidance:

Guidance has also been published on how to clean non-healthcare settings such as offices or hotel rooms where a person with possible or confirmed COVID-19 has spent time while experiencing symptoms.

The guidance recommends a range of measures for different industries,

including:

- using announcements in transport hubs to reinforce key messages, such as washing hands before and after travel, and what to do if unwell
- if anyone becomes unwell with a new continuous cough or a high temperature, they should be sent home, to their room or the place they are staying. If they have to use public transport, they should try to keep away from other people and catch coughs and sneezes in a tissue
- objects and surfaces that are touched regularly should be frequently cleaned and disinfected using standard cleaning products

The advice for these settings continues to be not to close unless advised to do so by the local Public Health England Health Protection Team or the government.

It comes after the Health and Social Care Secretary announced an expanded public awareness campaign asking people to self-isolate for 7 days if they develop a high temperature or a new continuous cough, however mild.

The most important thing individuals can do to protect themselves remains washing hands more often, for at least 20 seconds, with soap and water.

The next phase of the awareness campaign reiterates the importance of seeking help online by visiting [NHS.UK/coronavirus](https://www.nhs.uk/coronavirus) to check symptoms and follow the medical advice, rather than visiting a GP.

Last week, the government published [advice for the social care sector to protect older people and those with underlying conditions](#).

Health and Social Care Secretary Matt Hancock said:

Our goal is to protect life by protecting the vulnerable and the NHS.

We are in the midst of the biggest public health emergency in a generation, and everyone has a part to play. As the government works round the clock as part of our action plan to tackle the virus, it's vital that different industries know exactly what they need to do to limit the spread of COVID-19 and ultimately protect life.

This updated guidance provides clear information on what to do if someone is experiencing symptoms, how to keep people informed and the precautions that we should all be taking – including continuing to regularly wash our hands.

PHE's National Infections Service Deputy Director Nick Phin said:

The most important actions people can all take are to wash their hands regularly, stay at home when they have symptoms – however

mild – and to regularly clean and disinfect surfaces.

We will keep our guidance under constant review and update it as the situation unfolds.

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## [COVID-19: PCA Letter to the British Beer and Pub Association](#)

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## [Hull man fined for illegal transport of waste](#)

A Hull man has been ordered to pay £2,512 after pleading guilty to illegally transporting waste.

Daley Smith (54), also known as Daily Smith of Bankside Park, Bankside, Hull, was sentenced at Grimsby Magistrates' Court on Friday 13 March following a successful prosecution by the Environment Agency.

Smith was found to have illegally transported scrap metal without possessing the requisite Waste Carrier Licence and was fined £800 and ordered to pay costs of £1,632 and a victim surcharge of £80. A licence would have cost just £154.

Anyone caught transporting waste as part of their business, whether it is their waste or someone else's, must have a Waste Carrier Licence.

The investigation into this case involved the Environment Agency working in

partnership with Humberside Police, DVSA (Driver and Vehicle Standards Agency) and Highways England in a multi-agency operation targeting road crime in Humberside.

Smith was stopped by police on 2 August 2019 on Reservoir Road in Hull whilst driving a Ford Transit vehicle. On inspecting the vehicle, Environment Agency officers found that it was carrying waste material comprising scrap domestic white goods including washing machines.

Smith told Environment Agency officers that he had picked the waste up from the street. He did not have a Waste Carrier's Licence but claimed that he did not need one as collecting waste from the street was a civic duty. He would not disclose where he planned to take the waste.

Subsequent investigations identified that the waste had been taken to a recycling centre in Hull. The recycling centre confirmed that Smith had weighed in the scrap metal at their site on 2 August following his stop. They also confirmed that Smith's account had been used on 62 occasions between 2 August 2019 and 21 January 2020 during which time he had weighed in nearly 50 tonnes of scrap metal and received £5,887 in payment.

Speaking after the case, Iain Regan, Waste Regulatory Specialist at the Environment Agency, said:

Waste crime undermines legitimate businesses and can have significant detrimental impacts on communities and the environment.

This case sends out a strong message and demonstrates how seriously we take waste crime. We'll continue to take action against rogue operators trying to circumnavigate environmental law for their own financial gain.

Those transporting waste, including scrap metal, must possess a Waste Carrier's Licence. We urge households and businesses to check that anyone they employ to remove waste material is a licensed waste carrier and to ensure that any waste they produce will be properly and legally managed.