News story: Multi-million-pound competition to destroy battlefield chemical weapons launched by UK and US

The Defence and Security Accelerator (DASA), part of the Defence Science and Technology Laboratory and UK Ministry of Defence, has launched the ‘Don’t Blow It!’ competition, the first joint UK-US industry competition run by DASA and funded by the MOD and US Department of Defense.

Competitors have been asked to identify innovative concepts or adapt current technologies to access, disable and destroy chemical and biological devices. This includes chemical and biological munitions, improvised explosive devices containing lethal agents or containers of bulk quantities of chemical or biological agents discovered on the battlefield or in other austere and resource-limited environments.

Defence Minister Stuart Andrew said:

> Horrific incidents stretching from Salisbury to Syria this year have shown us that chemical weapons are sadly still very much a reality – but a reality that we are determined to deal with. Destroying these deadly weapons is a complicated process and not doing it properly could mean devastating collateral damage. These are challenges that we share with our allies like the US. Competitions like this help us to tackle them head on with some of the best and brightest minds across both our countries.

Although it is over 100 years since the first large-scale use of chemical weapons, the threat from both chemical and biological weapons persists. This has been demonstrated by the recent rise in the use of such deadly weapons on the battlefield and in targeted attacks.

Much progress has been made to destroy state-declared global stockpiles of chemical weapons through very successful large scale destruction programmes, utilising techniques such as incineration, explosive destruction or neutralisation. However, to meet emerging and future challenges, such as the destruction of smaller caches produced by terrorists in resource-limited or hostile environments such as Iraq or Syria, there needs to be a focus on developing more robust elimination capabilities that are less labour intensive.

The competition has an initial £500,000 to fund multiple proof-of-concept proposals at low Technology Readiness Levels. Based on the outcome of the initial funding phase, an additional £1.5 million of funding could be released.

‘Don’t Blow It!’ will see innovative concepts developed to access, disable

and destroy chemical and biological devices. Crown copyright.

The competition is seeking innovative ideas from non-traditional supply sectors and is looking for ‘outside-the-box’ proposals that will:

- Enable rapid and flexible destruction
- Reduce logistical support requirements
- Maximise ease of operation and transportability
- Address a greater breadth of threats

MOD Chief Scientific Advisor, Dr Simon Cholerton said:

> As the use of chemical weapons in Syria and the Novichok attack in Salisbury demonstrate, the risk from chemical weapons still remains and the issue of safely eliminating them from an austere tactical environment remains an enduring technical challenge. I am delighted therefore that we are working with our closest ally to launch a new industry competition to help us develop effective and safe elimination capabilities. Our collaboration is the first time we have launched a truly joint UK-US competition through the UK Ministry of Defence’s Defence and Security Accelerator, which is charged with enabling us to innovate by rapidly transforming the ideas of today into the capabilities of tomorrow.

Assistant Secretary of Defense for Nuclear, Chemical and Biological Defense Programs, US DOD, The Hon. Guy Roberts said:

> The expanding proliferation of chemical weapons use, from state and non-state actors, portends the greatest threat of their use on the battlefield since World War I. My responsibility is to ensure our forces are protected from, and can fight through, any such threats. To that end, we must continually innovate our capabilities, and it is especially important to do so in collaboration with those who fight alongside us. This competition does just that. It allows us to jointly invest in research and development with our closest ally as well as seek innovative ideas from a broader set of brilliant minds who I am confident will lead us to creative solutions.

The competition will be launched at an event in London on the afternoon of 26th September. Potential suppliers will be provided with context on the challenge by both UK and US speakers, as well as information on how to apply to the competition by DASA. The submission deadline for proposals is 5 pm GMT (midday EST) on 7 November 2018.

Follow this link for more information on the competition

or contact DASA directly on accelerator@dstl.gov.uk

Detailed guide: Equine viral encephalomyelitis: how to spot and report the disease

Updated: Contact details for reporting a notifiable disease updated.

Equine viral encephalomyelitis is a disease which can be caused by several viruses (known as equine encephalitis viruses). They include, but are not limited to:

- Japanese encephalitis
- Western equine encephalomyelitis virus
- Eastern equine encephalomyelitis virus
- Venezuelan equine encephalomyelitis virus
- West Nile virus

Encephalomyelitis means inflammation of the brain and spinal cord.

Equine viral encephalomyelitis can be fatal, although some animals will recover from the disease.

Equine viral encephalomyelitis is a notifiable animal disease. If you suspect it, you must report it immediately by calling the Defra Rural Services Helpline on 03000 200 301. In Wales, contact 0300 303 8268. In Scotland, contact your local Field Services Office. Failure to do so is an offence.

Animals affected by the disease

Equine viral encephalomyelitis mainly affects members of the equid family, such as:

- horses
- donkeys
- mules
- zebras

Other animals can also be affected, such as:

- cattle, sheep and goats
- pigs
- birds, including poultry
- dogs
- rodents

Humans can also be affected.

How to spot equine viral encephalomyelitis in equid species

Clinical signs can be different depending on which virus the animal has. Some animals will not show any signs at all.

You may spot these signs soon after infection:

- fever for several days
- lack of appetite
- loss of weight and condition
- depression
- stiffness and weakness

You may spot these signs in the later stages of infection:

- behavioural changes – such as circling, head pressing or aimless wandering
- hyperexcitability
- blindness
- lack of coordination and balance
- inability to move
- staggering or standing with an open stance
- seizures

Infections that have similar signs

You may also see similar clinical signs if your animal is infected with one of the following:

- rabies
- tetanus
- African horse sickness
- bacterial meningitis
- toxic poisoning
- leucoencephalomalacia (Fusarium intoxication)

You must report these signs even if you think your animal does not have equine viral encephalomyelitis.

How equine viral encephalomyelitis spreads

The viruses that cause equine viral encephalomyelitis are mainly spread by mosquitoes. Other animals, including wild birds or rodents, can also carry the virus between different areas.

Only some types of mosquito can spread the virus. This means that if an infected horse did enter the UK, the possibility of the disease spreading would be low.

There has never been an outbreak of equine viral encephalomyelitis in the UK.

Risk to humans

Humans can be infected by equine encephalitis viruses if they are bitten by an infected mosquito. Most people have no symptoms.

An infected person or horse cannot pass the virus directly to others.
In rare cases, the virus can be spread during surgical interventions, such as a blood transfusion.

If your animal displays signs of infection and you are worried about your health, contact your GP for advice.

Prevent and control equine viral encephalomyelitis

If you import animals, you must follow the rules to make sure they are free from disease and fit to travel.

You can help prevent the disease by:

- being familiar with the clinical signs of equine viral encephalomyelitis
- practising strict biosecurity on your premises

If the disease is confirmed, the outbreak will be controlled in line with the contingency plan for exotic notifiable diseases.

Find out what happens when a notifiable disease is suspected or confirmed.

Legislation

The main legislation covering the control of equine viral encephalomyelitis, is the Infectious Diseases of Horses Order 1987.

News story: Benefit from a business-academic partnership: apply for funding

Up to £40 million is available this financial year for businesses to collaborate with an academic or research organisation and a graduate on a Knowledge Transfer Partnership.

Translate the latest research into commercial success

Knowledge Transfer Partnerships offer funding and support for a UK business to bring a graduate into their organisation and work on an innovation project.

The idea is that it will enable the business to translate academic thinking into commercial products and services, leading to growth and future development.

Projects can focus on any technology or industry area and last between 1 and 3 years. Businesses should have a specific project in mind when applying.

If a business already has a relationship with a university, college or research and technology organisation, they can choose to work with them. Alternatively, they can contact a Knowledge Transfer Adviser to find a partner and get advice, including support with their application.

Applications should:

- outlines who the participants are
- set out the objectives of the project
- explain what the project is proposing to do
- set deliverables for the graduate

Specialist machinery manufacturer, Cygnet Texkimp and the University of Manchester previously took part in a 2-year Knowledge Transfer Partnership.

Their project brought in PhD graduate and composites academic, Dr Yan Liu, who helped to develop the world's first 3D winder for carbon fibre. This machine is able to create complex and curved composite parts for use in next generation, lightweight, fuel-efficient cars and aeroplanes.

This success saw Yan offered a permanent role with Cygnet Texkimp.

Cygnet Texkimp Knowledge Transfer Partnership

Programme information

- applications for Knowledge Transfer Partnerships are open throughout the year
- the deadline for applications for this round is 31 October 2018. If an application misses a deadline it will automatically be entered into the next round
- projects can last between 1 and 3 years
- any size business or not-for-profit organisation may apply. This will affect the amount of grant you can get and your contribution. Typically:
    - small and medium-sized enterprises contribute around £35,000 per year, or about one-third of the project costs
    - large businesses contribute about £55,000 per year, or half of the

project costs

News story: Scientists move away from the keyboard to beat cyber attackers at their own game

Scientists at the Defence Science and Technology Laboratory (Dstl) have developed a cyber card game which helps staff identify and learn about some of the key open source techniques a cyber aggressor might use to gain insight, access and control over industrial and commercial infrastructures.

Extensive testing of the game and positive stakeholder feedback has shown a very rapid initial learning curve compared to conventional training alone and this contributed to the game winning the 2018 Dstl 'Innovator of the Year' award.

The UK government and commercial sectors face a growing challenge in the form of cyber-attacks and information warfare from criminals and state actors. Such attacks take various forms and are often very sophisticated, meaning they may go unnoticed. Training staff to recognise and counter common information warfare attack strategies can be difficult, time-consuming and expensive

The key benefits of Dstl's cyber card game are that it:

- Provides a rapid upskilling in understanding high level, open-source cyber-attack techniques and enhances learning on possible defensive strategies
- Offers a more enjoyable approach to cyber training – staff have the option to continue playing in their own time
- Is adaptable across a range of audiences and knowledge levels- the game can be tailored to various scenarios, ranging from a rapid two hour session for corporate management through to an extended campaign for cyber professionals
- Avoids using classified information, and therefore does not need security clearance to play

The cyber card game is available for license on a non-exclusive basis through Dstl's Easy Access IP (EAIP) licencing framework. The EAIP framework allows companies to develop Dstl's work at no cost, facilitating commercialisation of products that will benefit the economy and society.

Dstl has signed their first cyber card game licencing agreement with Coruscant Productions LLC who plan to develop and market the cyber card game training approach further.

The lead scientist who developed the game at Dstl said:

> It is exciting to see the cyber card game being developed externally for the benefit of both security and commercial environments.

Tomas Owen, founder of Coruscant Productions added:

> We are delighted to have the opportunity to license such unique intellectual property from Dstl. The cyber card game fundamentally alters the way cyber is thought about, taught and employed.
>
> We're proud to be chosen as the first licensee, and look forward to working with cyber training providers across the world with the goal of ensuring all organisations are better able to understand and defend against cyber criminals and digital attacks.

For more information, visit Dstl's Easy Access IP page

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