Speech: Defence Minister Stuart Andrew at DVD18, Millbrook

Let me begin with a few thank yous. First to Millbrook for hosting this event. I've now been in the job for a couple of months but I'm still coming to terms with the Army jargon. I thought DVD had something to do with movies! Fortunately, my delight at seeing Great British capability in action from Warrior to Wolfhound, Bulldog to Mastiff…has yet to be diminished or dented.

And there's no finer place to see some of that capability up close than the Millbrook Proving Ground. Earlier today I had the chance to ride in both a JLTV and Boxer. I'm glad my office told me not to wear a suit today. And it was much less bumpy than the Land Rover I encountered beforehand.

Next I want to thank that battalion of people who operate, design and build this fantastic kit. This year we recall several anniversaries where the intervention of Defence vehicles proved decisive. At the Battle of Amiens 100 years ago…500 tanks helped punch a hole in the enemy lines and allowed the Allies to advance an unprecedented eight miles on the Western Front…delivering the hammer blow to enemy morale. And 75 years ago tanks from the British Eighth Army advanced into Tunisia catching the Axis unawareness and forcing the Nazi surrender.

Today our cavalry continue coming to our nation's rescue….mobilising to deter Russian aggression in Eastern Europe…bringing humanitarian aid to sub-Saharan Africa and the hurricane-hit Caribbean islands…as well as providing vital assistance…closer to home… in the Salisbury clean-up operation – after British citizens were callously targeted by agents wielding Novichok.

Finally, I want to thank DE&S. Whether navigating contractual complexities, overcoming logistical obstacles, or engineering ingenious solutions… you do a magnificent job in often tricky and trying circumstances.

But today our focus is not on land vehicles past or present but on the future and it strikes me that three points, in particular, are of relevance.

A programme to supply the British Army with a new fleet of eight-wheeled armoured vehicles has taken a major step forward, Defence Minister Stuart Andrew has announced at one of the world's leading land equipment events. Crown copyright.

1. LAND POWER AS VITAL AS EVER

First and foremost as generals, strategists and experts all agree, and as the impressive attendance at this conference confirms, land power is as important as it's ever been.

Technology might be advancing apace.

We might be witnessing the advent of cyber and Artificial Intelligence.

But wars are still won and lost in the land domain.

We will still look to land forces to guard borders, confront aggression, seize hostile territory and deny its access to the enemy.

At the same time, we shouldn't forget that this environment is also worth its weight in gold.

Not only does it bring in hundreds of millions for the British economy but it sustains the livelihoods of thousands up and down the country, directly and indirectly through the supply chain.

2. INNOVATION CRITICAL

However, my second point is that land power must continue to evolve and…as the title of this conference reminds us…innovate. If you happen to glance at the Army's vision for Joint Force 2030 you'll find a focus on making the most of technological opportunities.

It's about maturing our cyber and information capabilities to enhance our prowess.

Wireless routers, satellites, computer networks, cyber space, radar and sensors give us the ability to up our situational awareness and maintain a high tempo over an increasingly dispersed and complex battlespace.

Enhancements in ISTAR allow us not just to target an enemy's engaged forces but their uncommitted forces too.

Autonomous platforms and AI give us the wherewithal to replace soldiers for the most dangerous tasks… or reduce our dependence on deep logistic lines…so we can make better use of our forces.
All the while we have to be ever on our guard against adversaries seeking to exploit our weaknesses in the electromagnetic spectrum and control the bandwidth of the battlefield

But innovation extends beyond purely technological solutions. It's about becoming more versatile. In a more unpredictable age, our Army are having to cope with increasing demands and a broader set of challenge.

In Iraq and Syria…we've seen how our enemies are adopting ever more ingenious methods to attack us – from trucks laden with bombs to commercially sourced drones packed with explosives that attack us in swarms.

Nor are today's threats just coming from extremists but from state aggressors, from lone wolf attackers, even from extreme weather events.

And versatility must be complemented by speed. In this age of constant flux, the dangers come from out of the blue, from any direction, so we must have the right vehicles, ready to move at moment's notice.

3. WE'RE ON THE CASE

Britain is on the case. Our nation has always had long history of innovation in the land domain.

Richard Edgeworth came up with the caterpillar track almost 250 years ago.

James Boydell devised the delightfully named "Dreadnaught Wheels" back in 1856.

And in 1901, British inventor Frederick Simms produced a design for a motor-war car. All these ideas …and more…were blended by British engineering genius under Churchill's watchful eye…until they became the tank…which as we've already seen helped shorten the Great War. But to succeed in a new age of

warfare we're going need to get even more creative.

That's why we're investing in next-generation capability like AJAX. A step change in armoured fighting vehicle. It possesses the capacity to hoover up data from all domains and detect invisible signs of cyber disturbance.

Army experimentation continues and I know they are eagerly awaiting the delivery of production vehicles to continue their exciting journey towards operational capability

However, this is only the tip of the iceberg. A much wider capability renewal is underway in the land domain.

In May, my predecessor announced that the UK was re-joining the BOXER eight wheeled armoured Vehicle Programme…to equip our new STRIKE Brigades with a Mechanised Infantry Vehicle (MIV).

I am pleased to inform you that we issued the formal Request for Quotation on Friday. That means ARTEC, the consortium who lead on the production of BOXER, will now be able to complete supplier selection and confirm proposals to manufacture and support BOXER from the UK.

Work on our UK Multi-Role Vehicle – Protected (MRV-P) programme…to support our STRIKE brigades…is also proceeding alongside our Modernising Defence Programme.

Meanwhile, we're buying autonomous robots which we had the pleasure of seeing today. Specifically, spending £55m for 56 STARTER bomb disposal robots.

These neat bits of kit use advanced haptic feedback' to allow operators to 'feel' their way through the intricate process of disarming from a safe distance, protecting UK personnel from threats such as roadside bombs.

The first 2 robots have been delivered and are successfully undergoing trials. All 56 robots are due to be delivered to the UK and be in service by the end of 2020.

And we're investing in sophisticated systems like Defence Targeting Toolset (DTT).

By allowing users…whether based in theatre or back in the UK…to see exactly the same thing…this remarkable piece of software enables Military Targeteers to co-ordinate Land and Air strikes against enemy targets more effectively…improving the speed and accuracy of decision making in complex targeting situations.

In addition, we're introducing several new projects

We're creating a Next Generation Weapon Locating System (NGWLS) that will sustain our capability to detect, acquire, track and assess current and future Land Environment indirect fire threats.

And we're bringing in new Mobile Fires Platform (MFP) that provide our Army

with a 155mm artillery capability…embracing 21st century technology…capable of supporting both Divisional deep fight and Strike.
Repurposing old kit

But we're not just evolving new technology…we're repurposing old equipment. As you've wandered through the displays here today, you may have come across our Enhanced Palletised Load System or EPLS, which will form the logistic backbone of the British Army, rapidly loading and unloading flatracks or containers.

We've placed a contract with MAN truck and Bus to convert 382 of our MAN SV vehicles…the workhorse of our fleet…into EPLS. The one you see here today is the first.

From a workhorse to a Warrior. We're running a programme to improve our Warrior vehicles' lethality, survivability, situational awareness and electronic architecture.

Most importantly, it will equip this Armoured Infantry Vehicle with Fire on the Move technology: a game-changing capability. Eleven Demonstration Vehicles have been delivered to the Army's facilities at Bovington where personnel are currently conducting trials.

And from Warrior to Challenger 2…the UK's only guaranteed 24-hour, all weather mobile, protected precision direct fire, anti-tank, manoeuvre capability. Challengers have been bastions of our Army from the dark days of the Cold War.

Our Life Extension Programme for the Challenger 2 main battle tank is proceeding apace. Designs are rapidly maturing which will inform an anticipated main gate decision next year.

People and partnerships

Finally, innovation is about much more than technology. It's about people and partnerships. Ultimately, we can't drive anything off the production line unless Government, Armed Forces and our suppliers pull in the same direction.

So the more we can do to talk to each other, to understand our requirements and to discern the art of the possible… the better the kit we can make. That's why events like today…bringing together 250 individuals from right across our enterprise… are so important.

CONCLUSION

So innovation will keep our Army and our nation on the road. But let me end on this point. Innovation is also a product of inspiration.

If we want to make sure our vehicles remain at the cutting edge in future we're going to need to inspire new generations of Edgeworth's, Boydell's and Simms.

That's why MOD is not only championing 2018 as a Year of Engineering but this

DVD, for the first time ever, welcoming University Technical College engineering students and staff.

I know from my own experience wandering the displays that…when you see what people are capable of…when you talk to those who've actually made this incredible capability and when you hear about how it makes a difference worldwide…it cannot help make you want to get involved.

So I hope you enjoy the day and that it whets your appetite to enter this industry. And I very much look forward to the day you come back here…not as students but as masters…showing off your latest inventions….and driving Britain's fortunes to even greater heights.

News story: British companies get green light to press ahead with new Army vehicle plans, Defence Minister announces

The Army intends to make an initial purchase of over 500 Boxer vehicles, and the Defence Minister has today announced that British suppliers have been given the green light to bring forward concrete plans for the project, which is set to support at least 1,000 UK jobs.

Artec, the consortium who lead on the production of the troop carriers, have been given the go-ahead to invite industry to bring forward actual contractible proposals for work on the vehicles. A big step towards making a purchase, the news means that Artec will now ramp up work to complete their supplier selection process before returning to the MOD with a formal proposal next year.

The Defence Minister made the announcement whilst speaking at DVD2018 at Millbrook Proving Ground in Bedfordshire, which showcases equipment and technology for the British Army and is one of the biggest land equipment events in the world.

Speaking at the event, Defence Minister Stuart Andrew said:

> A new 8×8 armoured vehicle is a key part of our British Army's future, and today marks a big step towards equipping our soldiers with this brand-new troop carrier. British companies are stepping up to the plate yet again for a project which could support up to 1,000 jobs across the country, and it is great to give industry the green light to now pull together a full plan of action. I am

> looking forward to pressing ahead with negotiations in our pursuit of a vehicle which works best for the Army, the taxpayer and British industry.

British companies get green light to press ahead with new Army vehicle plans, Defence Minister announces. Crown copyright.

The MOD announced that the British Army had re-joined the Boxer programme back in March, as it looks to modernise its vehicle fleet and meet the Mechanised Infantry Vehicle (MIV) requirement, which is central to the Army's plans for fast-moving 'strike brigades'.

Artec will now complete supplier selection and confirm their proposal to manufacture and support Boxer in the UK, offering new opportunities to British suppliers for what is set to be their largest single order.

The UK played a major role in the original design, development and testing of the Boxer, and would reassume the rights it had as a project partner if a deal was to go through – allowing the option for the vehicle to be built and exported from the UK.

Artec has already made commitments to UK industry by signing partnership agreements with various British companies in anticipation of a deal being struck, whilst there are a number of British firms which already supply systems for the vehicle, which is already in service with the Netherlands, Lithuania and Germany.

British companies get green light to press ahead with new Army vehicle plans, Defence Minister announces. Crown copyright.

The MOD conducted a comprehensive market analysis of Mechanised Infantry Vehicles in service, entering service and in development. The analysis was guided by the British Army's requirements and how best to deliver them. The Boxer delivered on protected mobility, capacity, flexibility, utility and agility. The first vehicles are set to be in-service by 2023.

Production of the £4.5 billion Ajax family of armoured vehicles is already ramping up, and they are set to enter service in 2020. The Defence Minister also revealed today that Lockheed Martin UK has successfully delivered the first eight production turrets to Ajax's prime contractor, General Dynamics Land Systems.

Lockheed Martin UK is under contract to manufacture, test and certify 245 turrets for the reconnaissance variant of the Ajax fleet at its multi-million pound Ampthill site, which is just a five minute drive from the testing centre which hosts DVD.

Welcoming the news, Defence Minister Stuart Andrew said:

> Ajax is the UK's biggest order of armoured vehicles in a generation, supporting thousands of jobs across the country and modernising our frontline fleet. Having been expertly produced just a few miles away in the same county, it is apt that this first batch of turrets have been delivered in time for Bedfordshire's Army showcase, marking another step towards bringing these vehicles

onto the battlefield.

Defence Minister Stuart Andrew addresses the crowd at DVD18. Crown copyright.

While at the show the Minister also revealed that the MOD has recently taken delivery of the 200th Cased Telescope cannon – the innovative weapon, developed between UK and French industry, which will provide the stopping power for the armed Ajax variant, as well as the upgraded Warrior vehicle being developed through an MOD Capability Sustainment Programme.

DVD is the premier defence land equipment event in the UK and one of the biggest of its type in the world. Attending UK companies ranged from SMEs to larger suppliers. Manufacturers marking recent export successes at the show included QinetiQ which has won two contracts to supply armoured vehicle drive and suspension systems for the US Office of Naval Research.

News story: Lift-off: F-35 take-off technology site opens ahead of

historic flight trials

The ‘LiftWorks’ facility, which has opened at Rolls-Royce in Bristol, makes the ‘LiftSystem’ to provide F-35 fighter jets with a fan propulsion system that allows them to take off over short distances, hover, swivel mid-air and land vertically.

It is vital to the jets being able to operate from aircraft carriers, and comes ahead of the stealth jets completing their historic first trials off the flight deck of Britain’s largest ever warship, HMS Queen Elizabeth.

The site will support more than 100 jobs in the area after more than £20 million was injected into transforming the former Defence Manufacturing building into an advanced facility dedicated to developing the unique technology.

Defence Minister Stuart Andrew said:

> As we build up to the iconic first F-35 take-offs from our brand-new aircraft carrier, it is timely to open this Bristol site which is making it all possible. The incredibly powerful systems made at this high-tech facility mean our jets will be able to operate from British sovereign territory anywhere across the world’s seas to fight any adversaries which threaten us. The F-35 programme is the biggest in the history of defence, and is supporting a hundred jobs here at LiftWorks – as well as thousands more right across the country.

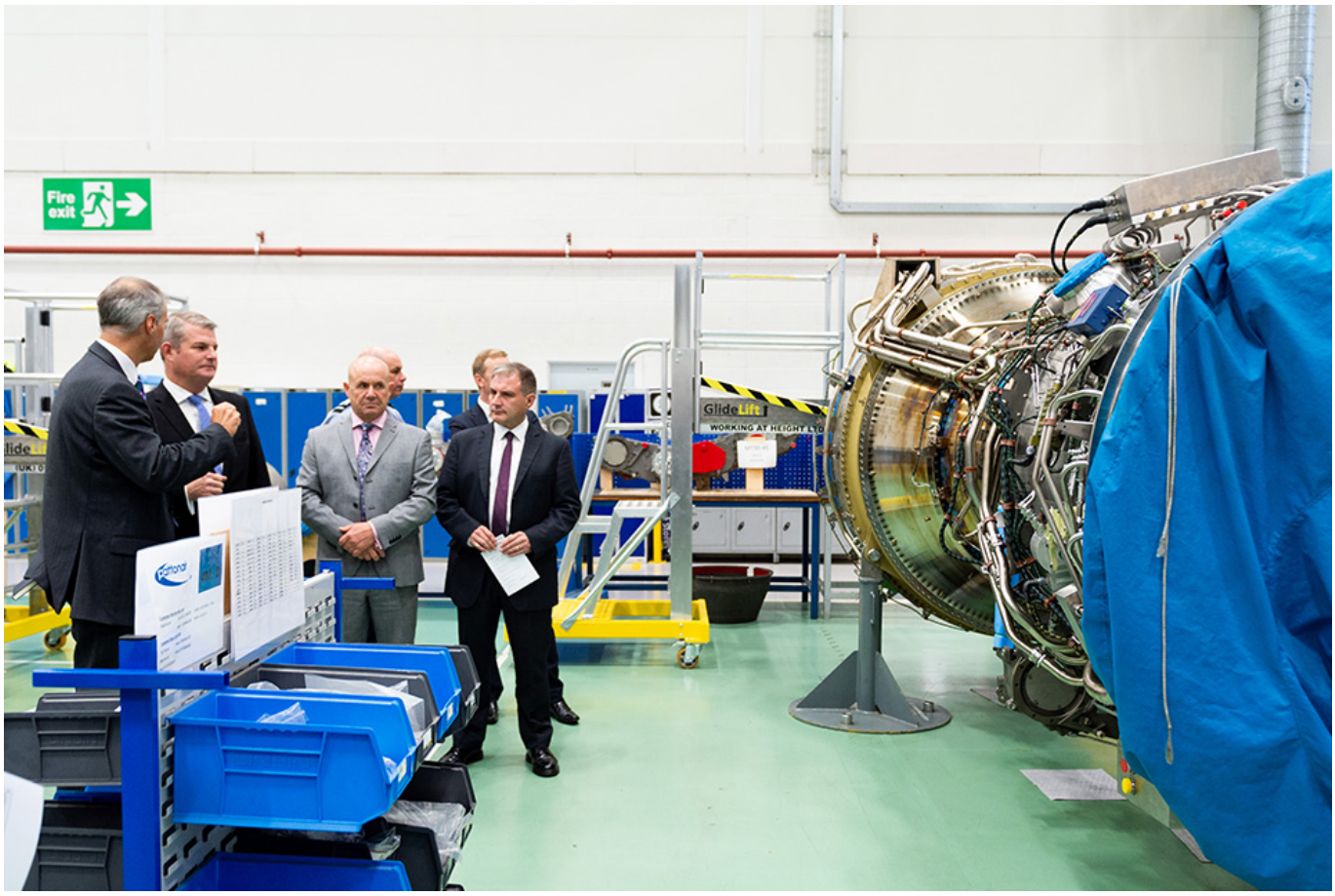
The LiftSystem, which has a thrust strong enough to lift 17 Mini cars and a clutch that provides enough torque to turn the London Eye, was designed and developed by teams of engineers at Rolls Royce engineers in Bristol and Indianapolis.

The Bristol site is not only making the LiftFan for UK jets, but for all F-35B jets on order across the world.
Production at the site has been building up since 2009, with the official opening now marking the fact that the facility is heading towards peak manufacturing levels.

British companies are building 15% by value of all 3,000 F-35s planned for production. It is projected that around £35 billion will be contributed to the UK economy through the programme, with around 25,000 British jobs also being supported.

The ‘Liftworks’ facility is one of many cutting-edge manufacturing sites across the UK contributing to the wider Rolls Royce LiftSystem contract for the F35 programme. 40% of the work under this contract takes place in the UK, supporting 900 jobs across the supply chain.

During the visit, the Minister unveiled a plaque marking the official opening of the Filton site before embarking on a tour of the facility where he met employees, apprentices and graduates.



A state-of-the-art new facility making unique vertical lift technology for fighter jets has been opened by Defence Minister Stuart Andrew in Bristol. Crown copyright.

Chief of Materiel (Air) for the MOD's procurement agency, Defence Equipment and Support Air Marshal Julian Young said:

> The STOVL system on the UK's F-35B Lightning II fleet has been performing exceptionally well for the Lightning Force. We saw this earlier this Summer when F-35s used the Vertical Landing Pads at RAF Marham for the first time. The opening of the new LiftWorks facility at Rolls-Royce promises even greater enhancements to this pioneering technology.

Rolls-Royce Director of Customer Business Defence Alex Zino said:

> Rolls-Royce has pioneered STOVL technology through our development of the Pegasus engine for the Harrier and has now taken that capability to new levels in the shape of the LiftSystem for the F-35B. This new facility enables us to continue produce cutting edge technology to our customer while also ensuring that we are reducing their costs.

The F-35B Lightning multi-role fighter jet is the first to combine radar evading stealth technology with supersonic speeds and short take-off and vertical landing capability.

During his opening speech, the Minister also announced that the UK has accepted its 16th jet, which is now set to fly into Beaufort, South Carolina. There are around 200 British personnel at the American site testing the aircraft.
The fighter jets will be jointly manned by the Royal Air Force and the Royal Navy and can operate from land and sea, forming a vital part of Carrier Strike when operating from the Queen Elizabeth Class aircraft carriers.

It has been a monumental year for Britain's F-35 jets, after the first aircraft touched down on home soil in RAF Marham in June, two months ahead of schedule. They are on track to be operational by the end of the year. There are now nine of the jets at the Norfolk base, whilst more British jets continue to undergo flight trials in the United States.

Last month saw a British F-35 jet carry out its first trials armed with UK-built weapons, showcasing the major role that the UK plays in the supersonic aircraft. The ASRAAM missiles are built by MBDA, and the Defence Minister also paid a visit to their Bristol factory while he was in the region.

The site is benefitting from contracts worth over half a billion-pounds for Royal Navy missile systems which will go on to protect the new Queen Elizabeth Class Carriers and the extended fleet from current and future threats.

Both sites form a key part of defence's huge footprint in the South West, where it spends £5.1bn with industry – more than in any other part of the country – supporting 33,500 jobs.

News story: Qatari jet export deal swings into action

The deal, worth around £5bn includes the aircraft and a bespoke support and training package. Qatar is now buying nine Hawk trainers, rather than six, which will also be welcome news for BAE Systems' factories in Warton and Brough which make the jets.

Welcoming the news, Defence Secretary Gavin Williamson said:

> This monumental, multi-billion-pound deal is now officially in place, and those from across government and industry who have worked so hard on it together can be extremely proud to see it

> reach this stage. It’s a massive boost to the British defence industry, helping to support thousands of jobs, and it will help us further build the trust between the UK and Qatar to tackle the challenges we both share, support stability in the region and deliver security at home.

UK Export Finance’s (UKEF) £5bn package of support was vital to securing the deal, including by providing financing and insurance. UKEF’s role is to support UK exports including by providing export finance to enable overseas buyers to purchase goods and services from the UK, and export insurance for companies selling overseas.

International Trade Secretary, Dr Liam Fox said:

> The UK Government is proud to be a part of this hugely significant export contract, supporting BAE Systems, its nearly 35,000 employees and the 9,000 companies in its supply chain.
>
> This support from UK Export Finance will sustain jobs in one of the UK’s key industrial sectors, support economic growth, and strengthen our own defence capabilities as well as those of a key strategic ally.

BAE Systems Chief Executive, Charles Woodburn said:

> This contract, effective today, represents a significant step in BAE Systems’ long-term relationship with the State of Qatar, as it becomes the ninth country to choose Typhoon. The proven combination of Typhoon and Hawk will provide the Qatari Armed Forces with the most advanced and flexible multi-role combat aircraft on the market today, along with best in class support and training.

The Defence Secretary Gavin Williamson and his Qatari counterpart, Dr Khalid bin Mohammed al Attiyah, oversaw the signing of the deal in Doha in December. Deliveries of the first Typhoon aircraft are expected to commence in 2022.

The deal also involves a package of training and co-operation between the British and Qatari Air Forces which will see them working closely together in the future. A new UK-based Typhoon joint squadron, reformed as No.12 squadron, will comprise both Qatari Emiri Air Force and RAF personnel, including pilots and ground-crew based at RAF Coningsby in Lincolnshire ahead of the delivery of the aircraft. It represents a unique initiative, with the RAF not having formed a squadron with another nation since the Second World War and the Battle of Britain.

The UK and Qatar share mutual interests in countering violent extremism, and ensuring stability in the region, and the deal further reinforces those ties by helping to prevent terrorism from spreading and protecting the prosperity

and security of the UK at home.

Qatar is the ninth country to purchase the Typhoon, with the deal sustaining thousands of UK jobs. The MOD continues to bang the drum for the UK's world-leading aerospace industry, with sales of defence equipment to foreign customers surging by 53% last year to £9bn.

The UK is a world-leader in the combat air sector, with a mix of skills and technologies unique in Europe, supporting over 18,000 highly skilled jobs. The sector delivers a turnover of more than £6bn a year and has made up over 80% of defence exports from the UK over the last ten years.

The support follows the launch of the Government's Export Strategy, which sets out how the government will support businesses of all sizes to make the most of the opportunities presented by markets around the world.

News story: UK tests life-saving chemical detection robots and drones

Tests of the cutting-edge multi-million-pound project, co-funded by the Ministry of Defence and the Home Office, included robots that can 'read' and climb stairs and miniature drones weighing less than a bar of soap which could soon come into service to rapidly assess hazardous scenes.

The aim of the ground-breaking research, named Project Minerva, is to reduce the risk to emergency services and front-line troops attending incidents or operations involving hazardous chemical or biological materials. The recent trials, which took place at Gloucestershire Fire Service College, saw concept drones and robots thrown into simulated contaminated scenarios in both UK homeland and battlefield environments. The technology was tested against the speed and accuracy of human response teams supported by specialist DSTL scientists, the military, police and fire services.

Defence Secretary Gavin Williamson said:

> Following the reckless nerve agent attack in Salisbury this year, we have seen the bravery and professionalism of our Armed Forces, emergency services and MOD scientists. They have worked tirelessly to investigate and clean up deadly contaminated areas. This project will ensure we stay at the forefront of dealing with such heinous attacks, whether on our streets or on foreign battlefields. We are investing millions in this pioneering technology to do more to protect those who so fearlessly protect us.

The Minister of State for Security and Economic Crime, Ben Wallace, said:

> I am excited to see the UK being on the front-foot and leading in the development of these autonomous technologies which are secure, reliable and useful for dangerous sites. The potential to protect our responders and protect the public from potentially hazardous scenes is considerable. The UK's experience and pedigree in security means we are in a prime position to identify what is best placed to tackle the threats of the future.

Project Minerva tests cutting-edge robots and drones at DSTL, Porton Down. Crown copyright.

Project Minerva was launched in September 2016 and has been supported by over £3 million in joint funding over 24 months. The project intends to bring the designs from concept to reality in an accelerated timeframe. The recent trials involved the winning concepts for phase 2 of the project.

The project is led by the Defence Science and Technology Laboratory (DSTL). It is funded jointly by the Ministry of Defence science and technology portfolio and the Home Office and contracted through the Defence and Security Accelerator (DASA) with funding from Defence Science and Technology (DST).

Peter Stockel, DSTL's autonomy lead, said:

> These two weeks of trials see the culmination of over 18 months of

> work to realise an exciting vision, which could see robots and humans working together in demanding situations and potentially save lives when dealing with incidents involving hazardous substances. In this ‘technology exploration’, we’ve been working with industry and academia to rapidly advance robotic and autonomous solutions to enhance our response options and tools for the near future.
>
> With continued involvement across Government, and demonstration with the user community, we aim to mature this emergent capability to test the ‘art of the possible’ and accelerate this into the hands of the prospective users for further operational evaluation, both for MOD and the Home Office.

Major John Green, Military Advisor CBR Division for DSTL, said:

> The military is putting a lot of time and effort into CBRN [chemical, biological, radiological and nuclear] and Minerva could have a significant effect on our capability and potentially decrease the training burden. It is a project for everything else to build on.

Project Minerva tests cutting-edge robots and drones at DSTL, Porton Down. Crown copyright.

The Defence Secretary Gavin Williamson also announced measures to maintain

the UK’s world-leading chemical analysis and capability in March, when he outlined £48 million-worth of investment in a new Chemical Weapons Defence Centre at DSTL.

Phase 1 of Project Minerva, which ran for 6 months until July 2017, funded 18 development projects and was worth £1.37 million.

Four teams were then selected to develop their concepts further in this second phase. Just over £1.6 million total funding was awarded to the following phase 2 winners, all of which are small-or-medium-sized enterprises and academic institutions:

- BMT Defence Services (with Rescue Global, Herriot Watt and Edinburgh Universities), with Red Alert, unmanned aerial vehicles which have gas-sensing technology and 2D-and-3D mapping and modelling, all mounted on commercially-available drones to allow upgrades as drone technology evolves.
- Horiba MIRA, with a small purpose-designed ground robot, which can deploy on decontamination missions, climb stairs and ‘read’ or recognise hazardous chemical signs and symbols, exploiting cutting-edge neural network technology.
- Loughborough University (with Swarm Systems and Createc) with SceneSEARCH – a pocket-sized nano-drone – weighing in at less than 250g which has gas sensors and video and thermal imaging capability.
- Snake Eyes, by Autonomous Devices Limited and Pendar, a unique hybrid air and ground vehicle optimised for confined spaces which can relay 3D images of a space and detect chemical agents using a compact laser system.

For more information on Minerva click here.