

# News story: Millions awarded to defence firms leading fight for modern battlefield

The winners provided innovative solutions to key strategic future demands for UK defence in autonomy and big data. The companies and their ground-breaking technologies will receive combined investment and support worth over £4 million from the MOD and £6 million from industry partners to see their full development.

The winning solutions announced at the Institute of Engineering and Technology today are:

- Close Air Solutions with Project Hyper Real Immersion
- QinetiQ's Software Defined Multifunction LIDAR
- Horiba Mira's UGV Localisation and Perception using Deep Learning Neural Networks
- Polaris' Ants on Deck

Defence Minister Stuart Andrew said:

From shrewd navigation software, A.I. driven autonomous vehicles, laser radar to mixed reality training systems, today's winners are a clear demonstration of industry rising to meet the complex challenges of modern warfare. The MOD, working with commercial partners, will see these pioneering technologies go from the drawing board to the battlefield.



Defence Minister Stuart Andrew meets winners of the Innovation Challenge.

Training is at the core of military capabilities and Project Hyper Real Immersion is designed to provide cutting-edge realistic air combat training. This revolutionary technology from Close Air Solutions aims to enable fully networked live training exercises with NATO and Coalition partners. This will reduce costs and increase safety for service personnel.

QinetiQ's Software Defined Multifunction LIDAR (laser radar) system will provide a range of high-tech capabilities including 3D imaging, optical communication and covert targeting. Conventional 3D mapping can discover a vehicle under camouflage netting but LIDAR could also determine whether the engine is on and the type of vehicle using vibration sensors. The system could be adopted onto small satellites and unmanned and manned platforms

Horiba Mira is developing a super-intelligent navigation system which uses Artificial Intelligence algorithms to identify landmarks around a military vehicle to provide a greater situational awareness. This technology will be key in developing the effective operation of unmanned autonomous vehicles in dangerous areas which will remove soldiers from dangerous situations and task them to more valuable roles. This is a crucial aim of the Last Mile logistics that UK armed forces are developing.

Continuing with the autonomy theme, Polaris are developing a pioneering software system that autonomously generates the best routes for Unmanned Surface Vehicles (USVs). AntsOnDeck increases fuel efficiency which allows extended operations, provides real-time awareness of conditions and environment and can be extended to platforms across the air, land and sea

domains.

Co-chair of the Defence Growth Partnership, Allan Cook CBE, said:

The innovative solutions developed by our own defence companies over the course of the Innovation Challenge is amazing. Using autonomy and big data these winning companies have found unique solutions to the ongoing challenges we face in the defence sector.

The winners of the DGP's Innovation Challenge Final Phase have proven that their products are fundamentally important to the growth and prosperity of their companies. This final funding for the winners will enable them to complete their development and ultimately provide essential solutions in a dynamic, international and competitive market. Their success will benefit the defence sector in the UK and help us win more business in export markets.



Defence Minister Stuart Andrew meets winners of the Innovation Challenge.

The Defence and Security Accelerator, in tandem with the Defence Solutions Centre, established the competition in 2012 to explore and develop solutions to ensure the UK armed forces stay ahead of adversaries by finding more efficient methods of communication, logistics, protection, intelligence and training. The initial investment of £10 million for the competition has been matched pound for pound with industry partners and since then, the

competition has received an additional £4 million. This is part of the wider £800 million Defence Innovation Fund.

Today's event brought together leading industry and military figures from the defence equipment community. This joint approach aims to create high quality UK jobs, boost defence exports and encourage collaboration between large industry, SMEs and academia.

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## **News story: Millions awarded to defence firms leading fight for modern battlefield**

Defence firms with cutting-edge ideas ranging from laser radars to Artificial Intelligence have been awarded over £10 million after being named winners of the MOD and Defence Growth Partnership (DGP) Innovation Challenge by Defence Minister Stuart Andrew.

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## **News story: UK Forces return home after successful NATO exercise**

UK personnel from the British Army, Royal Navy and Royal Air Force will return as victors from Trident Juncture, the largest NATO exercise since the cold war, having successfully defeated an acting enemy force of Norwegian, German and Swedish forces.

The UK-led multinational brigade made up of mechanised infantry from the Royal Irish Regiment and Royal Lancashire Regiment, Danish tank units and Polish armoured vehicles completed the week-long final exercise in freezing conditions in Norway. The multinational brigade successfully completed a river crossing on the final day of the live exercise, demonstrating the ability of NATO allies to live, work, and operate effectively together.





Foxhounds from the 1st Battalion Royal Irish prepare to leave in the snowy conditions. Crown copyright.

The brigade conducted defensive operations in a harsh and austere environment in order to disrupt a peer opposition force's advance, before going on the offensive to regain control of lost land. The live exercise phase enabled troops to learn lessons about how to operate when faced with a highly capable and well-equipped enemy.

With Royal Navy ships and RAF aircraft also contributing to the large-scale exercise from the skies and the seas, the exercise demonstrated both the UK's leading role in the alliance and the ability of its armed forces to deploy at scale and integrate with other nations at speed.



HMS Enterprise in the Norwegian Fjords taking part in NATO's Exercise Trident Juncture 2018, the largest exercise of its size for decades. Crown copyright.

With around 50,000 participants from 31 nations, 250 aircraft, 65 ships and around 10,000 used during NATO Trident Juncture 2018, the alliance successfully demonstrated its ability to mount a collective defence response in an Article 5 scenario – when an attack on one is an attack on all.

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## [News story: UK Forces return home after successful NATO exercise](#)

NATO's biggest exercise in a decade comes to a close

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## [News story: Army start biggest](#)

# military robot exercise in British history, Defence Secretary announces

The game-changing Autonomous Warrior experiment will last four weeks and test a range of prototype unmanned aerial and autonomous ground vehicles which aim to reduce the danger to troops during combat. The exercise will finish with a battlegroup experiment, where the best ideas and products will be tested in the toughest of simulated operational environments.

One of the key areas it is set to test is the autonomous last mile resupply. The 'last mile', which represents the extremely dangerous final approach to the combat zone, is crucial to ensuring soldiers have the food, fuel and ammunition to keep them alive.

Defence Secretary Gavin Williamson said:

Our troops now have the chance to test out a huge range of robotic kit in what will be the biggest exercise of its kind in our history. We're always working with the brightest minds in Britain and across the world to see how they can support our military of the future, but now the frontrunners have the chance to prove what they can really do on a battlefield. This equipment could revolutionise our Armed Forces, keeping them safe and giving them the edge in an increasingly unstable world.





Army start biggest military robot exercise in British history, Defence Secretary announces. Crown copyright.

The exercise aims to test technologies in surveillance, long-range and precision targeting, enhanced mobility and the re-supply of forces, urban warfare and enhanced situational awareness.

The Royal Tank Regiment Battle Group from 1 Armoured Infantry Brigade are providing the bulk of exercising troops and taking responsibility of command and control. Overall there will be over 200 multi-national, cross-service personnel. The US Army, Royal Marines, RAF and the Defence Science and Technology Laboratory (Dstl) will join industry partners and academia in working alongside them, experimenting with over 70 products and systems.

Autonomous Warrior will play an integral role within the £800 million Defence Innovation Fund which supports ground-breaking ideas aimed at transforming both defence and British industry.

The land-based exercise follows on from the hugely successful 'Unmanned Warrior' which the Royal Navy demonstrated autonomous systems diving, swimming and flying together to engage in surveillance, intelligence-gathering and mine countermeasures.