

## News story: DASA funded innovation set to make MOD significant aircraft and fleet support savings

The two-stage recurrent neural network is being developed by a company called decisionLab and is being sponsored by Joint Forces Command and funded by the MOD's Defence Innovation Fund through the Defence and Security Accelerator's (DASA) fast track 'Revolutionise the human information relationship for Defence' competition.

Originally developed for the civilian aviation market, this research funding has enabled the product to be redeveloped to be suitable for the military market.

It's hoped it will in time provide an insight into the future, allowing maintenance engineers to view the status of their systems and the predicted health of that system a day, week, or even a fortnight in advance.

Gripped by this opportunity, the Royal Navy has invested £150,000 in the development of this neural network for exploitation on-board a Type 45 destroyer, and pull through onto the Type 26 – if proven successful.

A Royal Navy ship is incredibly complex, and the Type 45's systems can record 10 million data points a day. With such a huge and complex dataset, the type of machine learning offered by the neural network will likely have a significant impact on maintenance schedules and support, improving capability, saving money and delivering efficiency.

At present, decisionLab is training their neural network on 1.8 billion lines of Type 45 Platform Management System data. Each day the system gets smarter and more capable, and under current development plans this system will be installed onboard HMS DIAMOND for a trial in the summer. It will allow the user to validate system assumptions and help contextualise events to further train and improve the model.

Lee Packer, Innovation Programme Manager for the Royal Navy said –

“The Defence and Security Accelerator competitions provide the Royal Navy with a unique opportunity to both engage with a broad spectrum of small to medium sized enterprises whom are often new to the Defence market, and to grip technological opportunities from disruptive markets and apply them to Defence problems. This rapid development process, with collaboration at its core, will provide battle-winning capabilities to the hands of the user.”

Joe Hemming, Exploitation Lead for DASA said –

“This is a clear demonstration of the cultural shift across all organisations to focus on capability integration and exploitation as well as technology development. This project is a great example of collaboration between DASA,

the competition sponsors (Joint Force Command) and the front lines working hard to turn technology into true capability.

The Navy's commitment to integrate the DecisionLabs project onto existing architecture will help provide an accurate value proposition for future procurement across the maritime capability and possibly beyond."

## About the competition

The 'Revolutionise the human information relationship for Defence' competition was the first competition launched since the start of DASA in December 2016. 34 projects were awarded funding with decisionLab being 1 of 7 to receive phase 1 fast track funding under Challenge 2. In October 2017, DecisionLab was one of two companies to successfully progress to Phase 2 to continue their development of their neural network system.

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## [News story: MOD to review Armed Forces exemption from UN Convention on the Rights of Persons with Disabilities](#)

The exemption means that the armed forces are not required by law, to recruit or retain personnel with a condition that may be disabling under UK law.

Disability is defined as a person with 'a physical or mental impairment, which has a substantial and long-term adverse effect on the ability to carry out normal day-to-day activities.' In a practical sense, this includes a broad range of physical and mental conditions, including cancer and multiple sclerosis, to arthritis and mental health.

As part of the UK's obligations to the UN's Convention on the Rights of Persons with Disabilities, every five years it must look again at the armed forces' exemption and review whether it is still appropriate.

The review will look at how the exemption affects the operational capability of the armed forces and our personnel and will examine if alternative options could better support personnel without any negative impact on operational effectiveness.

To achieve this, the review will look at how the military compares with the blue light services, to understand how being part of the Convention affects their workforces. The MOD will also work with other nations to share perspectives and best practice.

Personnel with a disability already serve in a variety of roles across the Armed Forces, and while the MOD does not currently hold exact figures on

military personnel with a disability, the department plans to enable better data collection in the future.

Minister for Defence People and Veterans Tobias Ellwood said:

In an ever-changing world, we need to ensure that the armed forces maintain their operational effectiveness, while at the same time looking after all of our personnel who serve.

This review demonstrates that we are taking the issue of disability seriously and that we are open-minded in our approach.

The MOD has recently established a number of initiatives to support disabled personnel as they serve their country, including appointing an Armed Forces Disability Champion and establishing a network for Service personnel, Carers and some veterans with a life-changing or life-limiting condition or a disability.

The review will start early in 2019.

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## [News story: F-35 jets use new vertical landing pads at RAF Marham for the first time](#)

To support the aircraft's short take off vertical landing (STOVL) capability, the Defence Infrastructure Organisation is building three VLPs through its contractors, a joint venture between Galliford Try and Lagan Construction, at RAF Marham. The Norfolk site is the Main Operating Base for the F-35 in the UK.

The F-35's STOVL capability will provide operational flexibility including landing on the Royal Navy's new Queen Elizabeth Class aircraft carriers. Initial flight trials of the F-35 Lightning aircraft from HMS Queen Elizabeth are on track for 2018, allowing a coherent build-up towards delivering a carrier strike capability for the UK from 2020.

Construction presented a significant engineering challenge. Due to standard concrete not being suitable, the design team had to source special materials from Germany to make a concrete which has the ability to withstand the high temperatures created by aircraft engines. Without this there would be a risk of cracking which in turn could present significant risk to the aircraft. This was the first time this material has been used outside the USA and required a rigorous testing process to ensure the landing pads were fit for

purpose.

Lt Col Ian Jenkins, Defence Infrastructure Organisation Project Manager for the VLPs, said:

Vertical landing is a really exciting military capability and from an infrastructure perspective it's been fascinating to be involved in the design and construction process. It was really exciting and rewarding to see an F-35 landing on the first vertical landing pad to be finished and I look forward to seeing more as we continue to work on other infrastructure upgrades required for the F-35s.

Each landing pad measures 67m long and 67m wide, with a central landing area of 30.5m by 30.5m.

Four F-35B Lightning aircraft arrived at their new home at RAF Marham on 6 June this year, starting the build-up of the newly-reformed 617 Squadron in the UK. The successful first use of these new VLPs is another step closer towards successfully reaching Initial Operating Capability for the UK by the end of the year.

In addition to its short take off and vertical landing capability, the F-35B's unique combination of stealth, cutting-edge radar, sensor technology, and electronic warfare systems bring all of capabilities of a fifth-generation fighter.

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## [News story: Worthy Down camp takes shape as first phase of construction completes](#)

A flagship college, recreational space and high-quality accommodation are all part of the completed first phase of works, part of the transformation of this tri-services amenity.

The new facilities at Worthy Down provide a single location for training and operations, to meet the combined needs of Princess Royal Barracks, HMS Raleigh and RAF Halton.

To date, over 36,500sqm of floor space has been built, creating new surroundings where RAF, Royal Navy and Army personnel can live, work and train.

Using almost 1 million bricks in the process, the Skanska team and DIO have provided the Defence College of Logistics, Policing and Administration with a

154-seat lecture theatre, 60 brand new homes for military people and their families, 755 single-bed spaces in six new blocks and a 358 seat canteen.

The site's new, larger water tank holds 324,000 litres, almost half the capacity of an Olympic-sized pool.

More than 15,000m of pipes and cables, almost twice the height of Mount Everest, have been installed underground on site to accommodate current and future power, water and drainage needs. New energy-efficient boilers for the camp will also produce enough heat to meet all current and potential future requirements.



The Catering, Retail and Leisure facility is the social hub for permanent staff and visitors. Photo courtesy of Skanska UK.

Matthew Richardson, DIO Principal Project Manager, said:

DIO supports service personnel by providing and improving single living and service family accommodation so we're pleased to be working with Skanska to deliver these facilities. Once the new facilities are complete it will enable the MOD to train personnel more efficiently and effectively so that they can provide the best possible support for military operations.

Lt. Col. Ian Bruce, who is responsible for military activities at Worthy Down said:



The facilities provided to date are very good. There is a lot of excitement around the camp regarding the college, recreational space and accommodation and I look forward to welcoming future military personnel to the camp.

Paul Weale, Skanska's project director, said:

This flagship project is helping the Ministry of Defence (MOD) to provide its people with great places to live and learn. We're also making a positive contribution to the local community by engaging with schools and community groups. To date, we have worked with over 1,600 young people and we have arranged a number of student visits to the site.

The team delivering Worthy Down camp has also scooped three consecutive national gold awards from the Considerate Constructors Scheme (CCS), which aims to improve the image of construction.



One of the SLA blocks on the site at Worthy Down. Photo courtesy of Skanska UK.

Building Worthy Down is one part of a two-part scheme for the DIO called Project Wellesley. The second is the development of a new community called Mindenhurst, in Deepcut, Surrey, where the MOD is vacating Princess Royal Barracks. Combined, the two parts will help the MOD to rationalise its estate and improve its training provision and living quarters.

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## News story: Joint UK-Qatari Typhoon squadron stands up as defence relationship deepens

Defence Secretary Gavin Williamson hosted the Amir Of Qatar Sheikh Tamim Bin Hamad Al-Thani at the standing up ceremony of the UK-Qatar Joint Typhoon Squadron today (24th July).

The event, held at Horse Guards, marked an important milestone in the two countries' defence relationship and included defence talks to further strengthen the close partnership between the UK and Qatar.

Defence Secretary Gavin Williamson said:

Qatar remains a close and important friend to the UK and it is the only nation with which we have a joint squadron. This requires a level of trust, born from our long-shared history and our commitment to a shared future.

Our formidable Typhoon jets will boost the Qatari military's mission to tackle challenges in the Middle East, supporting stability in the region and delivering security at home.

As part of the multi-billion-pound contract to supply Qatar with 24 Typhoon aircraft 9 Hawk T2 aircraft, No.12 Squadron will integrate Qatari personnel, including pilots and ground-crew, from 2019. The personnel will be initially stationed at RAF Coningsby, and then in Qatar, undertaking a package of training and co-operation with their UK counterparts. It represents a unique initiative, and not since the Second World War and the Battle of Britain has the RAF formed a squadron with another nation.

The Joint Squadron will provide the Qatari Amiri Air Force (QAAF) with valuable experience operating the aircraft and speed up their preparation for when the first QAAF Typhoon are delivered in 2022.

At the ceremony at Horse Guards, the Amir also received his Sandhurst Medal, coinciding with the 20th anniversary of his graduation from the Academy. The ceremony celebrated the historic and enduring links between UK and Qatari defence training academies.

The two countries share mutual interests in countering violent extremism, and ensuring stability in the region, and this formation will further reinforce those ties by helping to prevent terrorism from spreading and protecting the prosperity and security of the UK at home.