

DESIDER

AN INSIDE LOOK AT DEFENCE EQUIPMENT & SUPPORT



**PROTECTING OUR NATION, OUR TERRITORIES AND OUR ALLIES
TODAY, TOMORROW, TOGETHER**



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START

Talking

We're at the end of a year that has seen dramatic changes and demanded a great deal from us all. But this end feels more like the start of a new chapter, with 2024 as a foundation we can build on with confidence and purpose.

Together with our industry and military colleagues, DE&S reached major milestones on some of the most complex defence projects this year, and kept up pace on the everyday deliveries that keep our Armed Forces safe and secure. From our support for Steadfast Defender, NATO's largest exercise in decades, to delivery of the first Challenger 3 and Boxer prototypes, there's a lot to be proud of. Thank you to everyone across the defence enterprise – wherever you work – for the part you played in that.

We continued to support Ukraine's war-effort and, in September, delivered our thousandth equipment project in support of Ukraine. Together, that totals around 40 million individual items. And over 50,000 Ukrainian personnel have now been trained through Operation Interflex.

The UK is also strengthening its defence-industrial cooperation with Ukraine, helping them rebuild the military and economic foundations that can guarantee a safe and prosperous future. Taskforce Hirst is developing long-term relationships and joint ventures that will help restore and modernise Ukraine's industrial base, while deepening our strategic defence partnership.

Inside DE&S, we have transformed our organisation, sharpening its focus on faster, smarter defence procurement. As we worked with our industry and front-line partners to redesign DE&S, we kept the best of what we were already doing and built new structures around that to leverage digital innovation, streamline our ways of working and better integrate our teams.

Our new operating model is making project development, production and delivery more efficient and effective. It has put DE&S in the best position to support our Armed Forces, so we can deliver more of what they need, when they need it.

While widespread organisational change can be a challenge, the new operating model will create more opportunities and provide stronger support for our people. In November, we reached a crucial milestone with 75 percent of our people having moved into the new model. We're on track to reach 100 percent by January, but we're already seeing the positive impact.

We've built agility into our processes to better focus our resources on Defence's top priorities and increased insight across our equipment portfolio, allowing us to better support requirement-setting. This is just the beginning of a multi-year process of improvement and refinement. As we embed and optimise the model, our new ways of working will help us further improve productivity and performance, doubling-down on delivering for Defence.

There is a sense of excitement and anticipation across the defence enterprise as we enter the new year. In the months ahead, the MOD's new initiatives – Defence Reform, the Defence Industrial Strategy and the Strategic Defence Review – will begin to have a tangible impact on how we deliver security, growth and prosperity for the UK and our allies.

We enthusiastically welcomed the Defence Industrial Strategy's Statement of Intent, launched recently by Defence Secretary John Healey. The strategy is a clear signal of the Government's long-term commitment to national security and a high-growth economy, and their awareness of the link between the two. It aims to fortify critical domestic supply chains and grow long-term partnerships between government and business to create high-value jobs across the UK. As a bridge connecting government and industry, DE&S will play a key role in meeting the Strategy's objectives.

Throughout 2024, DE&S has strengthened our engagement with UK small- and medium-sized enterprises (SMEs), the drivers of vital innovation and local economies. Our Meet the Buyer events are helping new industry partners understand how to navigate defence procurement. The Defence Industrial Strategy will bolster this, with the creation of a Defence Industries Joint Council as one of its key actions. The Council will see stronger direct involvement in our enterprise partnership from SMEs, unions and academia.

As we enter 2025, we need to continue efforts to secure our supply chains, strengthen partnerships at home and abroad, and establish the systems that will deliver more availability at greater scale, with better value for the taxpayer. The good news is, from where I sit, UK Defence has never been more engaged or better prepared to face the challenges to come.

SENIOR LEADER COMMENT

“Delivering faster, more affordable, more repeatable services and outputs”

Simon Hughes, DE&S' new Director Policy, Professions and Portfolio Office, explains how changes at DE&S will deliver a more efficient, effective partner for the defence enterprise.

In July this year I moved into this new role, which was created as part of DE&S' wider operating model transformation programme.

Alongside our Director People Jo Osburn-Hughes, I'm focused on developing our professional skills groups – part of our innovative new People Management Model. We're improving the way we look after our workforce, the way we deploy them and the way we streamline our activities to make DE&S a more effective part of the defence enterprise.

My role also aligns and coheres the assurance, risk and policy areas in DE&S, bringing these together to help reduce bureaucracy and inconsistency, and make us a more efficient organisation. And I ensure the smooth running of the Portfolio Office, through which we provide our colleagues with data analysis and management information, empowering them to make better-informed decisions for the benefit of our mission partners.

During our assessment of DE&S' previous operating model, we heard about how excessive bureaucracy and disconnected teams prevented our people from reaching their potential. By bringing together, under one director, three interlinked areas of our organisation that focus on enabling our people to achieve their goals, we can ensure a more joined-up, consistent approach, which helps DE&S perform to the best of its ability.

We are making DE&S as effective and efficient as possible, allowing our people to get on with delivering for the benefit of our mission partners and the UK as a whole. It's essential to find the right balance of a lean DE&S that can continue to deliver high-quality products at a lower cost. Using standardised approaches and a more strategically deployed workforce allow us to be more agile and better able to improve our processes in response to changing defence priorities.

Looking back, it's remarkable how much DE&S has achieved in such a short space of time. We have changed the entire operating model of an organisation of 12,000 people in just two years. Today, over 75 percent of our people are working in the new model and we're on target to deliver full operating capability in March 2025. That date was set two years ago and we're still on target to hit it.

This is just the start of a multi-year process, and it's going to take time for us to achieve all of our ambitions. We're still bedding in the changes, but I'm confident we will get there. Successful transformation programmes share some common characteristics.



The most important is a One Team ethos. Both types of programme need their people to be working towards a common vision, working in lockstep and pulling in the same direction. This means communicating clearly and engaging your people with consistent messaging from the top leadership down through every level. This is something I've been dedicated to throughout the operating model transformation process.

Looking forward to 2025, our people management model is going to be a game-changer. Its focus on our people's experiences and aspirations is quite radical. It has the potential to make working in DE&S a very different experience.

At the end of the day, all this is about delivering faster, more affordable, more repeatable services and outputs for our mission partners.

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NEWS

DE&S delivery highlights

A digest from some of DE&S' projects from the past month.

Babcock delivers first 3D printing solutions under Project Tampa

Project Tampa, MOD's additive manufacturing accelerator programme, has achieved an important milestone with the delivery of the first package of work by defence partner Babcock International Group.

The Strategic Command Defence Support project, supported by DE&S' Future Capability Innovation delivery team, is exploring the benefits of using additive manufacturing and the ways in which 3D printing can become more widely adopted across the defence enterprise. The objective is to accelerate the use of additive parts, and in doing so overcome obsolescence, reduce cost, improve performance and the availability of critical assets.

The MOD awarded Babcock along with NP Aerospace, RBSL, Thales and AMFG the Project Tampa contract in April 2023. A Babcock team delivered now three new solutions for complex parts that may have had supply chain challenges had they not used additive techniques. This included creating an eye shaft for the L118 Light Gun, which has been recommended for adoption into the defence inventory by DE&S.

First MAN palletised load trucks delivered to British Army

The British Army has taken delivery of 20 multi-purpose Rheinmetall MAN military vehicles. These allow troops to transport essentials supplies, such as ammunition, food, water and support materiel, to operational locations. These are the first of 500 vehicles, acquired through a rapid procurement process, under a £282 million contract with Rheinmetall, which secured them in just seven months.

The newly delivered vehicles are from the HX family, a range of purpose-designed trucks equipped with multiple protection capabilities.

The first trucks were received by troops at 7 Regiment Royal Logistic Corps, based in Dalton Barracks, one year after contract signature. Another 40 vehicles will be ready for troops to begin training on them by April 2025, with all 500 delivered to the Army by September 2025.

DE&S team leader Brigadier Matt Wilkinson said: "Delivering capability at pace to meet defence requirements was a challenge to which the joint team across Army Headquarters, Field Army, DE&S and our industry partners have risen. The procurement of an additional 500 palletised load system trucks has significantly increased the Field Army's tactical logistic capability."

Contract renewed for essential engineering and asset management application

Continuing a two-decades-long partnership, the DE&S Logistics, Services and Commodities team have renewed the contract with Lockheed Martin (UK) to sustain the Joint Asset Management and Engineering Solutions (JAMES) application for a further three years. In doing so they continuing to support 15 UK-based staff.

The JAMES application provides 48,000 military personnel with a secure platform to record and access engineering activity on equipment that requires servicing, inspections and certificates, from a Challenger 2 battle tank to a parachute.

Over 8,000 people each day use JAMES to manage equipment capability and configuration records, to help them make informed decisions on equipment and capability availability.

Lockheed Martin also provide hardware with the JAMES application pre-installed for deployment and out-of-barracks use. This deployable capability provides an essential service for engineering and asset management while on operations or exercises.



FEATURE

Equipping Ukraine: Inside DE&S' DCC Operation Scorpius team

19 November marked 1,000 days since Russia's invasion of Ukraine. From the start of the conflict, the Dismounted Close Combat (DCC) Operation Scorpius team has been supporting Ukraine.

In July 2022, DE&S established a specialist multidisciplinary team to lead on the rapid procurement of equipment, light weapons and ammunitions for the Ukrainian Armed Forces. Now, over a thousand days after the conflict began, the crucial work of the DCC Operation Scorpius team continues.

The DCC Operation Scorpius team currently manages more than 110 procurement lines, over 15 percent of the tasks received through DE&S. The team includes three project managers, two engineers, two commercial managers, a finance and cost control manager, and a supply chain manager. Together, they have built an enviable reputation for being able to procure equipment and light weapons quickly and efficiently, sometimes for delivery within days.

The team works closely with colleagues in DE&S' Operations team and its Lethality and Protect (Technology) area, and with Taskforce Kindred, which is leading the UK's efforts to support the Armed Forces of Ukraine. Having been granted commercial freedom from normal procurement processes, they are able to rapidly procure everything from body armour and helmets to days sacks, mine detectors and the Hunter vehicles.

Alongside kit sent directly to Ukraine, the team also procures personal protection and training equipment for Ukrainian recruits undergoing military training at various locations in preparation for

frontline duties. Over 50,000 personnel having been trained under Operation Interflex in the UK since the full-scale invasion began. Work like this can be challenging, and the team must be adept problem-solvers.

Recently a quality issue was discovered with the large black canvas bags used for storing and transporting personal protective equipment. To prevent any impact on the next groups of Ukrainian trainees arriving in the UK, the team deployed their well-established relationships and contract mechanisms to source a thousand alternative black bags. The order was approved and delivered within 24 hours, ensuring that there was no impact on the provision of personal protective and training equipment to the trainees while the original black bags were repaired.

Colonel Paul Cummings, DCC Portfolio Leader, said: "Since the DCC Operation Scorpius team was established in July 2022, this small cross-functional group has so far procured kit worth more than £280 million, with another £35 million committed this financial year. The scale of this achievement, and the pace of delivery that the team maintains is testament to their hard work, tenacity and sheer determination to support our Ukrainian colleagues. This team epitomises all that is great about the people in DE&S."



NEWS

Maritime Multi Link programme reaches key milestone

The Royal Navy is gaining enhanced interoperability, security and shared situational awareness thanks to the successful delivery of improved tactical data link equipment.

The DE&S Maritime Multi Link programme reached a significant Equipment Delivery Date milestone with the delivery of upgraded tactical data link (TDL) equipment, over a month earlier than planned. The TDL equipment will now be installed on the Royal Navy's fleet of Type 23 frigates.

Delivering upgrades to secure TDLs is a core objective for the Maritime Multi Link programme. Enhancing and integrating the capability ensures Royal Navy vessels have a safe way of sharing data and commands with other operational platforms, including those on land and in the air. It provides improved interoperability, functionality and security, and enables them to maintain shared situational awareness and battlespace management capabilities. This ensures they comply with NATO standards during joint operations.

Samantha Thurlby, DE&S Maritime Multi Link Programme Manager, said: "This fantastic achievement is the result of collaboration between a joint team exemplifying a One Defence ethos, to deliver important upgrades to military equipment by seeking more efficient and effective ways to deliver to the benefit of the Royal Navy. By acting as the system integrator between the Royal Navy, our industry partner BAE Systems and the dockyards, DE&S adapted plans to meet the Equipment Delivery Date milestones and commence installation of the TDL upgrade to Type 23 frigates and subsequent naval platforms."

Maritime TDL equipment is currently contributing to the effectiveness of naval operations around the globe, including the international taskforce that is protecting merchant shipping in the Red Sea and Gulf of Aden from attacks by non-state actors.

On reaching the delivery milestone, Captain Dave Downie, Royal Navy Maritime Multi Link Senior Responsible Owner, said: "Delivery of equipment to specification, on time and ready for installation is a key capability delivery milestone that no programme can afford to delay, but it is often not easy to achieve. It is a testament to the immense effort and professionalism of the DE&S Situational Awareness Command & Control delivery team that the equipment delivery milestone for Phase 2b of the Maritime Multi Link programme was delivered seven weeks ahead of schedule. Tactical Data Links are vital capabilities for front-line operations at sea, ensuring continued interoperability between the UK and our allies in NATO and beyond."

Matthew Reeve, BAE Systems Maritime Multi-Link Programme Manager, said: "This achievement is the result of a huge effort from everyone involved and epitomises how a joint working team can deliver far more as a whole than the sum of the parts. We are incredibly proud of the long and trusted relationship we have with DE&S and the Royal Navy, and the ongoing success of MML. It is even more rewarding seeing the capability fitted to platforms."

In future phases, the Maritime Multi Link programme will continue to upgrade TDL equipment across Navy ship classes, including the Type 45 and the Queen Elizabeth-class carriers. It will support future TDL types to ensure ongoing interoperability with NATO members and other allies, and provision of operational through-life support using the expertise of the DE&S Maritime TDL Support Unit based at Portsdown.



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FEATURE

Paving the way for Type 26 survivability success

Michael Mansell, DE&S Type 26 Survivability and Signatures Lead, discusses the critical role of explosive shock testing to ensuring Royal Navy crews and their ships are properly protected.

Shock and survivability on the Type 26 frigate

Since 2009, the Royal Navy's Survivability Strategy has underlined the importance of ensuring warships and submarines and their crews are protected in hostile environments. This strategy provides a framework for enhancing platforms to ensure they perform effectively against a range of threats and increasing the chances of mission success.

Following the recent steel-cutting ceremony for HMS Sheffield, five Type 26 frigates are now under construction. The lead ship is HMS Glasgow, due to be completed by 2028, with the remaining frigates scheduled for the mid-2030s. Once operational, the Type 26 frigates will form the backbone of the Royal Navy fleet.

The Type 26 project takes a thorough approach to survivability, investigating how on-board equipment responds to the dynamic shock effects caused by underwater explosions, including torpedoes and mines. Central to this effort is a focus on two key outcomes: ensuring that critical equipment retains full functionality and that all equipment remains securely in place during and after a shock event.

To achieve these goals, the project's Survivability team is working with industry partner BAE Systems, the Type 26 shipbuilder, to gather evidence that critical installed equipment and safety critical Government Furnished Equipment has been tested or assessed for its ability to withstand shock. The Shock Qualification process ensures the equipment is suited to its specific operational environment on the Type 26.

This includes the Pacific 24 Rigid Inflatable Boat. The Pacific 24 is more than just a small craft; it is integral to the Safety of Life at Sea capabilities of the Type 26. As the ship's on-board marshalling boat for guiding life-rafts to safety, the Pacific 24 plays a critical role in rescue operations and crew safety during emergencies.

Shock testing the Pacific 24

Shock qualification of the Pacific 24 for use on Type 26 required a two-week series of intensive underwater explosive tests conducted in northern Scotland by Thornton Tomasetti Defence Ltd, working with the DE&S Boats team and BAE Systems.

During these tests, the Pacific 24 was installed within a shock testing vehicle; a floating barge designed to replicate an operational environment. A controlled charge was detonated at a carefully calculated distance to simulate the required shock energy. The test validated the boat's ability to remain functional and that its straps were strong enough to keep it in place during and after a shock event. This marked a significant milestone in its survivability assessment.

Setting the standard for survivability

By confirming its resilience against underwater threats, the Survivability team provides the Royal Navy with assurance that the Pacific 24 is ready for deployment from the Type 26 when it matters most.

With equipment like the Pacific 24 now shock-qualified, the Royal Navy can be more confident in their equipment when facing the challenges of modern warfare, ensuring that its fleet is robust and dependable, especially in critical situations. This achievement underscores the Type 26 team's commitment to survivability, safeguarding the lives of those who serve aboard it and the platform itself.



FEATURE

High-tech autonomous mine-hunting capabilities move a step closer

A prototype uncrewed boat was successfully deployed and trialled from a 'platform of opportunity' for the first time, advancing the Royal Navy's autonomous mine-hunting capabilities.

The Maritime Mine Counter-Measure (MMCM) programme aims to provide advanced autonomous mine-hunting equipment to the Royal Navy and the French Marine Nationale through an agreement managed by the Organisation for Joint Armament Co-operation (OCCAR), which represents both nations.

Royal Navy Motor Boat (RNMB) Apollo is a small vessel that can be deployed to detect and destroy mine-threats. In September, the DE&S Mine-Hunting Capability (MHC) team and the Royal Navy's Mine & Threat Exploration Group put Apollo through its paces in a trial at the Firth of Clyde in west Scotland. This location provided an effective and challenging environment, with good water depth and coastal currents.

Apollo was operated from Defence Marine Services' SD Northern River, which was made available as a 'platform of opportunity', a ship that is broadly suitable for the intended use but not purpose-built or modified for it. Apollo successfully detected exercise mines, even when sited in hard to detect locations.

Andy Lapsley, DE&S MHC Team Leader, said: "This trial, which successfully demonstrated the potential of the Maritime Mine Counter Measures capability to be deployed flexibly and at pace for the Royal Navy, is a culmination of years of dedicated effort and collaboration by the MHC team, demonstrating our commitment to advancing mine counter-measure technology and commercial platform integration. I am immensely grateful to all participants across the defence enterprise who came together to make this happen."

Apollo was manufactured under a contract with Thales. Following the successful trial, it was handed back to Thales for retrofit and upgrades ahead of being delivered to the Royal Navy in late 2025. The MMCM contract, in total worth €430 million, has supported more than 200 jobs across the UK.

This milestone also marks the first integration of MMCM equipment on to a commercial vessel, opening the door for future trials and demonstrating the potential of commercial platforms as 'floating bases' for certain operations.

Commander Daniel Herridge, the Commanding Officer of the Royal Navy's Mine & Threat Exploration Group, said: "Building on previous success, this has been another step in delivering



mine counter-measures in a completely new way, harnessing technology and building on the skills of our people to continue to deliver world-leading capability. The Mine & Threat Exploitation Group will continue to support the enterprise in delivering these important trials to progress operational evaluation and accelerate capability delivery for the provision of a modern and high-tech operational capability within the maritime environment, safeguarding the UK's interests at home and overseas."

Philippe Commarmond, Director of International Mine Warfare Sector at Thales, said: "In 2015, France and the UK set a bold challenge to transform their navies' mine warfare capabilities. Their vision was ambitious: to develop a cutting-edge, integrated 'system of systems' for rapid global deployment, achieving swift progress without established doctrine, ensuring reliability, autonomy and cyber-security. The MMCM programme has since reached key milestones, positioning it at the forefront of global maritime mine warfare. Thales is proud, as a system integrator, to have been instrumental in achieving this latest milestone, reinforcing the UK and France as leaders in naval autonomous systems technology."

FEATURE

The future of defence project delivery

Caroline Boughton, Director of the Directorate of Acquisition and Project Delivery, provides an update on the changes taking place within the MOD Project Delivery Function.

The ability to deliver defence projects and programmes efficiently and effectively is paramount. At the heart of this endeavour stands the Project Delivery Function, led by my team, the Directorate of Acquisition and Project Delivery.

With over 7,000 project delivery professionals across the MOD, including within DE&S, we're not just managing projects and programmes, we're reshaping the future of defence capabilities through innovation, collaboration and data-driven decision-making.

We recognise that the landscape within the MOD is evolving. Central to this evolution is the concept of 'One Team, One Defence'. The challenges facing Defence are too complex for any single organisation to solve alone. The solution is an approach that breaks down silos, encourages collaboration and fosters a unified approach across the department and into our supply chains. By aligning our efforts and sharing knowledge, we're creating a more flexible and responsive defence ecosystem.

Our pan-defence Project Delivery Function has had some significant achievements. We are now fully compliant with the Government Functional Standard for project delivery. This sets a best practice minimum control framework for the management of portfolios, programmes and projects to support the successful and timely delivery of government policy and business objectives.

We launched a spiral acquisition initiative to drive pace into procurement and a psychological safety service for our major projects to ensure we have the right project environments for high performance. We have developed a suite of 20 acquisition tools for assessments, workshops, guidance and toolkits, which set our programmes up for success from the outset.

A key focus area for the future of project delivery is data analytics. Advanced data analytics are set to revolutionise how we plan, execute and monitor our projects and programmes. We're investing in these technologies to enhance our predictive capabilities, optimise resource allocation, make more informed decisions and mitigate risks more effectively.

We successfully launched a project data analytics apprenticeship, and a broader learning curriculum for data analytics and AI. This data-driven approach not only enhances our operational efficiency but also allows us to adapt quickly to changing circumstances.

Our greatest asset is our people, and we're committed to ensuring they remain skilled, motivated and at the forefront of project delivery excellence. A healthy Project Delivery Function requires a keen focus on talent development, attraction

and retention. We are rolling out the Government's project delivery accreditation scheme, delivering the project delivery fast-stream to ensure Defence has a strong talent pipeline and strengthening our cadre of project leaders through accredited leadership programmes.

We have developed a community of practice for our Senior Responsible Owners (SROs) that allows them to share experiences and lessons. And, recognising that strong project leadership needs an appropriate time commitment, we significantly increased the amount of time our SROs have to lead their projects.

As we navigate the complexities of future organisational changes, the Project Delivery Function stands ready to meet the challenges of tomorrow. The future of project delivery in defence is not just promising – it's transformative. And we're just getting started.



NEWS



UK successfully demonstrates High Energy Laser system

During its first demonstrator trial with the British Army, a new mounted laser weapon was successfully used to destroy a series of aerial drones.

The British Army has fired a laser weapon from an armoured vehicle for the first time, successfully destroying flying drones.

The High Energy Laser system was developed through a collaboration between DE&S and the Defence Science and Technology Laboratory – known as Team Hersa – and an industry consortium led by Raytheon UK.

The weapon works by directing an intense beam of infra-red light to destroy its target. Advanced sensors and tracking systems maintain lock-on and accuracy in real time.

Unlike conventional munitions, laser weapons are virtually limitless in terms of ammunition supply. This means that, for certain threats such as small uncrewed air systems, they could represent a more cost-effective alternative to current in-service weapons.

The laser was mounted on to a Wolfhound – a protected troop-carrying vehicle – where soldiers from 16 Royal Artillery were able to track and down hovering targets at Radnor Range in mid-Wales.

Warrant Officer Matt Anderson, trials manager for the British Army's Mounted Close Combat Trials and Development Group, said: "Every engagement we've done has removed a drone from the sky. While we've been testing a variety of distances, speeds and altitudes, one thing has remained – how quick a drone can be taken out. It's definitely a capability that could be added to the arsenal of weapons we use on the battlefield."

The purpose of this capability demonstrator programme is to test the potential future use of directed energy weapons (DEW) by the British Army. Putting the demonstrator in the hands of the Army early will help inform future requirements and reduces the risks associated with future DEW acquisition.

The intent is not to simply introduce these systems into service, but to use the demonstrators as building blocks for laser weapon capability in the UK.

Having already been tested by MOD and industry engineers, the latest experiment by the Army should provide knowledge, information and experience to support future requirement decisions, ensuring the UK stays at the forefront of this novel and disruptive technology.

Stephen Waller, DE&S DEW Team Leader, said: "This is still an emerging technology, but the world has changed and we are seeing more use of drones in the battlespace. This requires a more cost-effective solution to protect our troops. Having the capability to track and eliminate moving drones will give UK troops a better operational advantage and these successful trials have demonstrated that we are well on our way to achieving this."

James Gray, Chief Executive and Managing Director of Raytheon UK, said: "Our High-Energy Laser Weapon System has been used in operations globally, and now the British Army is experimenting with this game-changing capability. The success of this test is the result of the skill, dedication and vision of our scientists and engineers who have collaborated with the British Army to help fulfil its commitment to staying at the forefront of technological innovation."

As well as Raytheon, Fraser Nash, NP Aerospace, LumOptica, Blighter Surveillance Systems and Cambridge Pixel have been involved in developing the weapon under a £16.8 million contract awarded by Team Hersa.

The next steps in the project include producing 'learning from experience', and using that to inform future Laser DEW requirements for the Army.



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FEATURE



The Queen Elizabeth Class carriers' year of delivery

The DE&S Combat Ships Operations team look back on a year of successful collaboration in support of the Royal Navy's carriers.

The Queen Elizabeth Class (QEC) consists of two aircraft carriers, HMS Queen Elizabeth and HMS Prince of Wales. At 284 metres long and with a displacement of over 65,000 tonnes, they are the Royal Navy's largest and most powerful warships.

From their Abbey Wood headquarters and at the waterfront in Portsmouth Naval Base, the DE&S QEC Combat Ships Operations Team and their industry partners have worked with the Royal Navy throughout 2024 to maintain QEC carriers at their maximum capability and operational readiness.

They have ensured the QEC carriers remain demonstrably safe to operate and receive the engineering support they require, including defect rectification, and the delivery of deep maintenance and complex capability upgrades.

QEC carriers are the standard bearers of UK naval strength, providing a powerful and mobile platform for operations, and are a lynchpin in the UK and NATO's conventional at-sea deterrent. During 2024, their operations have included disaster relief, humanitarian aid and combat missions.

The carriers are able to deploy air power wherever it is needed around the world. They can accommodate a range of aircraft, including the F-35B Lightning II, a cutting-edge fighter jet, giving the UK operational flexibility and strike capability at range and independent of host nation support.

Through effective stakeholder management, clear roles and responsibilities, open communication and a diligent approach to tasks, the DE&S QEC team has delivered impressive levels of availability throughout 2024. The team has proven its ability to

adapt to change, re-plan complex work at short notice and deliver at pace in demanding circumstances, helping make sure the Royal Navy meets its operational commitments.

The team and their defence enterprise partners worked hard to prepare HMS Queen Elizabeth to lead an international task group on NATO Exercise Steadfast Defender, but when an issue with her propeller shaft coupling meant she had to go in for repairs, they stepped in and masterminded a new plan. The team managed to recover HMS Prince of Wales from maintenance and ready her to return to sea in just seven days, 22 days faster than her declared readiness. As a result, HMS Prince of Wales was able to take the lead meeting the UK's commitment.

Captain Duncan Humphery, QEC Team Leader at DE&S, credits this to: "regular contact and daily updates across the enterprise, facilitating swift decision-making, mitigating risks and being the hub for communication across wider DE&S, Navy and MOD stakeholders."

Commodore Ben Shirley, Navy Command In-Service Capability Manager, agreed that the short notice readying of the HMS Prince of Wales was only possible as a result of "the close relationship between the Class Generating Authority and the wider Class Community working collaboratively and flexibly, that has been maintained during the DE&S Transformation programme."

Going into 2025, the QEC Combat Ships Operations Team is in a strong position to support HMS Prince of Wales as it leads the Carrier Strike Group on a global deployment, enhancing the UK's international relationships and upholding a global naval presence.

NEWS

Water generation in resource-scarce locations

Faced with a fast-changing climate, the DE&S Futures Lab team brought together an expert group to explore innovative water-generating technologies that could sustain the UK's Armed Forces.

By 2050, as a result of climate change 3.2 billion people are expected to live in areas with extreme water scarcity.

The UK Armed Forces could increasingly find themselves operating in areas with no local water source. Instead they would be reliant on the bulk movement of water to sustain our personnel. And when we consider that 60 percent of the casualties on our side during the Afghanistan war were related to logistical movements, this becomes a risk to life and mission success, as well as a matter of the time and costs involved.

In the decades to come, securing water supplies to support our overseas military operations, in ways that do not have an adverse impact a host nation's population or environment, will become an increasingly critical planning factor.

Earlier this year, DE&S' Defence Support Futures Team asked the DE&S Futures Lab to identify and review current and emerging water-generating technologies relevant to Defence and to produce a technology roadmap spanning the next five to 15 years. Futures Lab provides Defence with impartial advice and expertise to cohere innovation challenges, reduce investment risk and exploit outputs through a pan-industry network of over 250 providers.

Their final report provides UK Front-line Commands with analysis and insights to inform future investment decisions on which new technology and water management techniques to select and deploy.

To deliver these insights, the Futures Lab formed a bespoke team of industry experts to work collaboratively on this. The team identified and screened an array of technologies, selecting 24 to form the basis of the roadmap. These were further scrutinised against specific criteria, for example, relative cost and expected improvements in performance, and their current technology readiness level alongside an estimated forecast of how they will develop. The team considered various climatic conditions, water usage, and a range of estimated water demands from individual use to a main operating base with 5,000 personnel.

The technologies assessed included: 'fog nets' that can capture water from the atmosphere; nano filtration technologies to treat surface or ground water and recycle waste-water; and hydrogen generators that produce water as a by-product; along with the associated technologies needed to make the water drinkable, for example, UV sterilisation.

After assessing the selected technologies, the team found that some demonstrated the necessary readiness level to be viable options within 15 years. With further development, these could make a notable contribution to expeditionary water generation, and therefore merited a close 'watching brief' or possible investment to drive and accelerate their development.

The report recommends that the MOD consider wastewater recycling as part of its overall expeditionary camp infrastructure. It also recommended that the Front-line Commands develop a bespoke water planning tool for selecting water generation systems in different scenarios. This could include mission type and duration, base size and environment.

There is more to do, including creating a database for scenario analysis; conducting a more detailed study of the potential implications of a hydrogen economy and its impact on expeditionary water supply; and modelling options for a fully integrated water system.

Napoleon said that "an army marches on its stomach" and the availability of water is a critical component of that adage. Investing in new methods to generate water has the potential to make a substantial contribution to enabling our forces to continue marching, and, with that, achieve mission success.



NEWS

Parachutist oxygen supply system contract awarded

DE&S awards new contract for upgraded oxygen supply system to support UK Armed Forces parachutists.

When parachutists descend from an airplane they rely on a safe, reliable oxygen supply system. Thanks to a new contract awarded by DE&S' Airborne Equipment Team to Airbourne Systems, UK personnel will benefit from a significantly upgraded parachutist oxygen supply system (POSS).

To reduce the risk of decompression sickness, parachutists pre-breathe 100 percent oxygen for significant periods before and during aircraft decompression. Then, for the exit and descent phase of an operation, they switch oxygen supplies from pre-breathing to a personal POSS.

Decompression sickness, commonly known as the 'bends', occurs when nitrogen in the blood rapidly expands as a result of a significant change in pressure, such as a parachute jump. This can result in an extremely painful, debilitating and sometimes fatal attack of the bends.

The existing High-Altitude Parachute Life Support System (HAPLSS) system was brought into service in 1994 under an Urgent Operational Requirement, and has served the UK well. However, a new, updated system is now needed.

Similar to the current capability, the POSS system uses a pre-breathing console, bolstered by a new pre-breathing high-pressure bottle. It uses an on-demand rather than a free-flowing O2 supply, which reduces the time needed for aircraft preparation and parachutist pre-breathing. The new gas bottle technology allows for greater pressure and a greater quantity of O2 for pre-breathing and in-flight. The Airborne Systems' POSS will enable higher parachute deployment altitudes, longer breathing durations for extended flight and a globally deployable servicing capability.

The Airborne Equipment Team worked closely with their mission partner to understand their requirements. They then assessed industry proposals through a detailed evaluation and moderation process, and progressed through a procurement competition, which included a complete ground assessment devised with experts from Red Scientific Ltd and the Joint Air Test and Evaluation Unit.

The Concept and Assessment phase included simulated quick ground attacks (known as sorties), configuration of equipment on to A400M and C17 aircrafts, O2 bay technician assessments, gas bottle filling process and flight swing human factor integration trials. Coupling these results with the technical and commercial evaluation, the team were then able to award the contract.

Peter Searle, DE&S C17 Command Support & Airborne Equipment Delivery Team Leader, said: "Our collaborative work with external agencies has been a great experience. The ability

to accelerate aspects of the schedule within a very challenging procurement environment could only have been achieved by the commitment of key individuals who understand the vital defence output that this capability provides."

The project is now in its Demonstration and Manufacture phase. As of December 2024, the project is undergoing its 12,000 ft air trials with the Parachute Training Team in California, following its Vertical Wind Tunnel Trials in the UK. Barometric Chamber trials will need to be completed to clear the equipment to full operating altitude. Air platform clearance and course development will also take place over the next six to eight months. Full equipment stocks are expected to be delivered within 18 months of the contract being awarded.



PEOPLE

Lucy Crowther

Job title

Catalyst Type Airworthiness Authority (TAA) and Chief Engineer

What does your role involve?

I am the Chief Engineer and TAA for various novel and experimental platforms in the defence environment. My team looks after crewed and uncrewed platforms at a variety of stages in their development. One day I can be signing documentation to allow a concept aircraft to fly, the next day I'm looking into how to bring a commercial off-the-shelf asset into the Core Delivery area as quickly as possible for a Front-line Command, while ensuring duty of care is applied. I challenge multiple stakeholders across industry and government to think differently within the highly-regulated air safety environment to ensure we can collectively deliver capability to the end-user in a much shorter timescale than previously achieved.

What do you most enjoy about your job?

I love the pace of my job; no two days are the same and I can't predict what will happen next week. Everything I work with is at the cutting-edge of technology, capability or regulation. We are paving the way for future projects.

What is your greatest accomplishment to date?

Being shortlisted for the Inspirational Award at the 2023 Women in Defence UK Awards. It was a wonderful recognition of my achievements, pushing boundaries with the Catalyst team, and my work driving greater recognition and support for women in engineering. I pride myself on both of those in my work at DE&S, and I really care that I'm making a difference for our mission partners and civil servants. To have that recognised was very meaningful.

What keeps you energised about working at DE&S?

My team are amazing. I'm incredibly proud to work in the Catalyst team, and all the outstanding work they have produced to highly challenging timeframes.

Who or what has shaped who you are?

I have had some wonderful managers, and they have reinforced a strong sense of fairness in me that ignores rank and focuses on people. Everyone has valid opinions and experiences, and should be treated as such.

What do you enjoy doing in your spare time?

I don't have much spare time at the moment. I have an 18 month old girl and a five year old boy who take up all my time outside of work!

What might surprise people about you?

It won't surprise those that know me, but my specialist subject on Mastermind would be RuPaul's Drag Race. Also making a good PowerPoint presentation truly brings me joy.

What's the best advice you've ever been given?

That it is okay to say no. Like a lot of people, there have been moments in my career where I have been offered additional work or responsibility and jumped at the chance to take that on. However there comes a point where you just can't take on more, whether due to a work-life imbalance, capacity or something else, and it is okay to say no. People will respect you more for knowing your limits than for spreading yourself too thin and doing a mediocre job, or worse breaking yourself.





The RAF Red Arrows conduct a flypast over the Montreal waterfront, as part of the Royal Canadian Air Force's 100th anniversary celebrations.

EDITOR'S CHOICE

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