

DESIDER AN INSIDE LOOK AT DEFENCE EQUIPMENT & SUPPORT



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

In this issue



HELEN BATES. MOD COMMERCIAL FUNCTION DIRECTOR



MARK GOLDSACK, DIRECTOR, **UK DEFENCE & SECURITY EXPORTS**

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CHALLENGER 3: SECURING THE BATTLEFIELD ADVANTAGE





THE 'SOCIAL **VALUE' OF DEFENCE NVESTMENT**



DELIVERING DRONE-KILLING RADIO WAVE TECHNOLOGY

GABRIELLE GOWER, DIRECTOR, **MOD DEFENCE DESIGN**





DE&S NEWS HIGHLIGHTS



The defence enterprise is focused on fulfilling the first part of that mission: developing, delivering and supporting capabilities that secure the strategic edge for our armed forces, deterring our adversaries and keeping our country well-protected.

And, through all this, we are also helping the UK prosper. Because a prosperous country is safer and more secure. It's better able to defend itself and support its allies. Prosperity is essential to protecting our way of life.

Defence, as one of the UK's most significant investors and job creators, plays an important role in our national prosperity. Our defence-industrial base is a pivotal strategic asset and a vital pillar of our society. I'm proud of how successfully our teams collaborate with their private sector partners. Across our programmes, we work hard to develop relationships with industry that support swift development and increased availability of our platforms, and greater prosperity for the country.

Defence research, development and manufacturing bring new investment, employment and skills to many parts of the country. Businesses - large, small and micro - are driving innovation, job creation and social value across the UK in pursuit of our national security and in support of our armed forces.

But there is more we need to do, and DE&S continues to be a vocal advocate for a stronger defence enterprise. We are going to keep building partnerships grounded in clear demand signals, long-term planning and investment, honest collaboration and open lines of communication. As co-chair of the Defence Suppliers Forum (DSF) Executive Group, I'm committed to listening to industry and taking bold steps to make the UK defence sector a more attractive investment proposition, as a key step towards increasing national prosperity.

Alongside my co-Chair John Howie, I also lead the DSF Communications Forum, where MOD and industry meet to share updates on defence priorities and engage in areas like strategy and requirement-setting. It's open to securitycleared representatives from all defence suppliers, and I would encourage any companies that want to be involved

Delivering future prosperity, and security, also means maintaining UK partnerships and competitiveness in the global defence marketplace. As a member of the NATO Conference of National Armaments Directors (CNAD), an important part of my work is strengthening our alliance-wide defence enterprise and the UK's position within it. Guided by the Defence Production Action Plan, the CNAD is aligning our national defence-industrial bases to create shared prosperity and greater rates of delivery and interoperability, so that together we are better able to present a pan-NATO deterrent.

The UK continues to be one of the world's largest exporters of defence capabilities. To help sustain this, teams in the new DE&S Gateway – the front door into our organisation for industry, allies and the Armed Forces - are building interoperability and export opportunities into programmes from day one. The Gateway's International and Industry Cooperation team is busy leveraging our already strong global position to develop and coordinate government-to-government relationships and deliver targeted engagement strategies.

This includes working closely with colleagues in the Department for Business and Trade's UK Defence and Security Exports team. A recent joint initiative saw us building a new defence partnership with Ukraine that will benefit the security and prosperity of both nations.

I am immensely proud of the role that DE&S and the wider defence enterprise play in supporting the UK economy, developing and maintaining skills, and contributing to exports to help keep the nation safe and prosperous.

SENIOR LEADER COMMENT

Adopting new ways of working to drive pace into our procurement activities

Helen Bates, MOD Commercial Function Director, explains the ways in which Defence is adapting its commercial ways of working to create pace and agility.

The need to respond to the volatile global context has translated into a renewed focus on accelerating how we work across the defence enterprise.

The Defence Command Paper Refresh (DCPR) describes the importance of increased supply chain resilience and pace of delivery to the front-line, underpinned by genuine collaboration with industry that enables us to better strategically leverage our combined investments. Within the Commercial Function, we are at the centre of much of this transformation. Optimised commercial mechanisms can drive the right level of risk appetite to enable faster delivery of capability to the front-line through new industrial relationships.

We are working as 'One Defence' with our industry partners and defence colleagues

to deliver the function strategy that we developed last year in tandem with the DCPR. As Commercial Function Director, I am focused on how we can accelerate our ways of working to create more pace and agility, in line with the commitments in our strategy and the Integrated Procurement Model. To deliver this, we are building a set of commercial pathways that will provide our people with the tools and guidance to navigate best practice procurement approaches for different types of goods and services. This 'menu' of approaches is being iteratively tested through a series of pilots as part of a united effort with colleagues and partners from across the defence enterprise.

Our priority has been to introduce the spiral pathway and publish a navigation guide for it, supported by relevant case studies and guidance. Spiral methodologies encourage an approach that quickly delivers 'good enough' minimum viable capabilities, which can then be iterated and developed through further phases, rather than waiting for delivery of the 'perfect' product. Coordinated by the Directorate for Acquisition and



Programme Delivery, the guide provides a foundation for wider implementation of spiral processes across Defence. In the March edition of Desider, James Gavin, Head of the DE&S Future Capability Innovation Team, spoke about how spiral is already making a difference in Ukraine.

To embed the various commercial pathways, we are concurrently revising our underpinning policies, processes and assurance approach to provide our people with the freedoms they need to apply commercial judgment with the right level of risk appetite. As part our contribution to the DE&S Operating Model and MOD Defence Design, we are creating a defence ecosystem with industry partnerships at the forefront. We have been actively working with the Defence Suppliers Forum

to incorporate industry feedback and experiences of the changes we are making. In doing so, we recognise that creating additional speed through the pathways is dependent on a thriving, internationally competitive and productive UK defence sector.

In April, it was rewarding to speak to senior civil servants from across the Commercial Function. We got together to discuss how we are creating momentum by sharing some of the early wins for our people and the wider Defence community. For example, our Commercial Customer Directorate is trialling a technical solution to rapidly procure low-complexity goods. We have also redeveloped the entire suite of guidance we use across Defence to set up, place and manage contracts on our system.

We're grateful for all the inputs we have received from across the defence community. Going forwards, we will continue to welcome further case studies that demonstrate how more innovative commercial approaches can deliver speed and agility to the front line.



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Seeing the defence industry as 'the fifth military service'

Mark Goldsack, Director of UK Defence and Security Exports (UKDSE), part of the Department for Business and Trade, tells Desider about how UKDSE is working across government to galvanise collaboration between public and private defence sectors.

UKDSE plays an important role in achieving the UK's global strategic objectives by coordinating and leading support for both defence and security exports and inward investment. Our teams supply tailored export support to UK and international stakeholders and facilitate government-to-government partnerships.

Industry is a vital part of the defence ecosystem and an essential partner in the delivery of effective military capability. It is effectively the fifth military service.

UKDSE works with DE&S on a range of export-related issues. These include disposals campaigns with the Defence Equipment Sales Authority and capability partnership campaigns, where DE&S provides support through its International & Industry Cooperation team and individual project teams.

Only a Ukrainian victory over Russia can ensure long-lasting peace and protection for our common values and freedoms. The UK has repeatedly demonstrated our steadfast support for Ukraine - we were the first European nation to provide lethal aid, and since the invasion in February 2022 the UK has provided £7.6 billion in assistance in the form of equipment and munitions.

The scale of the conflict in Ukraine and the determination of the Ukrainian forces has seen a level of consumption of material and munitions unprecedented in recent years. The war is developing into a battle of industrial production. The UK recognises this and is mobilising support from across the industrial economy to address the challenge. British defence companies swiftly established offices in Ukraine after the full-scale conflict began two years ago, laving the groundwork for local weapons production and, in doing so, helping build Ukraine's sovereign defence industry.

In April, the UKDSE and MOD, including DE&S, delivered a second cross-government trade mission to Ukraine. With 29 UK and 80 Ukrainian industrial partners, and the Ukrainian Ministers of Defence and Strategic Industries among almost 300 attendees, plus the signing of a UK-Ukraine framework agreement, the event was a resounding success.

Now that industrial mobilisation has started, we must maintain momentum if we are to deliver sustained strategic impact. The trade mission was one component in a series of engagements that will fuse British, Ukrainian and international efforts to deliver the military capability needed in Ukraine. As we increase the tempo



of industrial engagement, a two-way partnership between public and private sectors is the surest guarantee that we will meet UK operational demands and secure Ukrainian success in the battle

We are engaging with the private sector as One Government to harness their energy and innovation. To forge sustainable pathways to production, we are stepping up our collaboration with trade associations and providing targeted support to small and mediumsized enterprises. We are helping cohere demand through the International Capability Coalitions for Ukraine, and through our work domestically with the Defence Growth Partnership and other defence-industrial fora.

Our support for Ukraine is creating a powerful partnership with industry, focused on delivering capabilities that are key to gaining operational advantage and enabling Ukraine to emerge from this war intact and independent. Our ability to deliver significant game-changing effect for ourselves and our allies cannot be underestimated when Government and industry are united. Collaborating, we can stop the threats we face in their tracks.

FEATURE

Meet the companies supporting Ukraine's war effort

Small and medium-sized enterprises (SMEs) are playing a crucial role in the UK's support to Ukraine. Here we showcase three SMEs that are contributing to Ukraine's success.

The war in Ukraine has highlighted how valuable SMEs are when it comes to rapidly developing and delivering vital equipment - both lethal and non-lethal.

By their very nature SMEs drive innovation and creativity. Their size allows them to quickly adapt to evolving situations and requirements. From traditional manufacturing to emerging technology, the UK has a SME sector to be proud of. Side by side with their larger defence industry partners, they are making a real difference. Here, Desider features three SMEs supporting Ukraine's war effort and the UK defence enterprise.

NP Aerospace

Coventry-based NP Aerospace is a specialist armour technology manufacturer that has worked with the MOD for four decades. Recently, the business delivered 2,000 sets of body armour and carrier vests to Ukrainian soldiers being trained in Norway. This takes the total number of NP Aerospace ballistic plates sent to Ukraine to over 180,000 since the start of the war, in addition to ballistic helmets and bomb disposal suits. To meet demand for these contracts the company has added 90 people to its workforce.

Peter Hardisty, Managing Director and Senior Vice President of NP Aerospace's Composites and Armour Systems business, said: "Our team in Coventry are honoured to continue to support



Ukraine with life-saving body armour and associated military equipment. We have expanded our facilities and team to deliver these programmes and will continue to do so for as long as the war continues."

Cook Defence Systems

Family-owned Cook Defence Systems (CDS) is a world-leading designer and manufacturer of tank tracks. The company, based in north-east England, can trace its roots back to the 1840s and has been a defence supplier since the Second World War.

DE&S has awarded multiple contracts to CDS to supply spares for up to 500 Ukrainian armoured vehicles. In addition to supplying tracks for vehicles donated by the UK to Ukraine, including Challenger 2 main battle tanks, CDS is manufacturing tracks for the Soviet-era vehicles used by a large part of the Ukrainian Army. This process saw it reverse-engineer the equipment using museum pieces and Cold War reference

CDS Managing Director William Cook said: "One of the biggest challenges was almost doubling our output. We reconfigured production lines and recruited new people wherever possible. Everyone worked exceptionally hard, and we are incredibly proud to be making a difference."

Pearson Engineering

With Ukraine now the most mined country in the world, DE&S awarded Pearson Engineering a contract to provide equipment that will help the Ukrainian Armed Forces defeat the threat of mines and improvised explosive devices (IEDs). DE&S awarded the contract on behalf of the UK and the UK-administered International Fund for Ukraine (IFU).

The contract was part of the over £100 million IFU maintenance and manoeuvre support package announced in October 2023. The contract includes multi-purpose interfaces that will allow Ukraine's armoured vehicles to work with self-protection mine ploughs, which were gifted by the British Army and refurbished by Pearson Engineering.

Pearson, based in Newcastle upon Tyne, will also provide remotely controlled mine clearance vehicles to defeat ordnance and create safe routes across large stretches of civilian land, and Barbadian Mine Rollers designed to protect against pressure-fused mines and IEDs. Equipment has been provided with comprehensive spares and sustainment packages.

FEATURE

Bringing SMEs and mid-tier companies into the defence conversation

Andrew Kinniburgh, Director of Make UK Defence, returns to talk with Desider about the role SMEs and mid-tier companies play in securing UK prosperity.

Make UK Defence's mission is to be a positive disruptor in the UK defence enterprise. While we work, and have a good relationship, with larger companies – the Primes – our main focus is supporting and advocating for the SME and mid-tier sections of the defence industry. Companies who, individually, may have less of a voice in the market. Our job is to consolidate their views and present them back to the MOD, to deliver greater benefits for the whole enterprise.

Defence brings a great deal of value to the UK. At a basic economic prosperity level, there's the considerable contribution it makes to the UK's GDP. Then there's the large number of well-paid jobs it sustains because defence pays well above average for manufacturing in the UK.

And beyond that, there's the innovation, design and engineering skills it creates. It's hugely important that we continue to have that depth of understanding of complex integrated systems and the ability to pull them together. The MOD and the whole defence



enterprise should be focused on cultivating British engineers and scientists to keep that core intellectual heft in the UK. We need to coordinate with our NATO allies and support our shared defence, but also make sure that the UK remains a design and engineering country, as well as a maker of things. SMEs and mid-tier companies help to develop these sought-after skills, and their success is at the centre of our national prosperity.

DE&S – and the MOD more broadly – are making real progress towards better engagement with this community, but there's more to be done. For example, I would like to see greater opportunities for SMEs and mid-tier companies to support Ukraine's war efforts. They can provide a wealth of potential solutions, particularly around munitions and ammunition, and could play an important role in helping Ukraine develop its defence industry.

The MOD's recognition of the importance of SMEs and mid-tiers is growing, and I genuinely think there's good progress being made every day. The first of our SME Open Days, hosted by DE&S at Abbey Wood, was a big success. This was an idea I had with DE&S CEO Andy Start and Andrew Forzani, Director Commercial and the MOD's SME champion, at last year's DPRTE conference. For SMEs to be able to talk directly to DE&S teams, and see how they can best fit into the larger supply chain, is a really positive step.

This is something we try to reinforce, for example through Make UK Defence's Fit For Defence programme, which is helping triage our members' businesses, and identify their strengths and weaknesses from a defence perspective. Building on this, I'm looking forward to greater engagement with the Defence Suppliers Forum (DSF) this year. There's a lot of potential to develop our shared understanding of how SMEs and mid-tier companies can engage in a more meaningful way with the MOD and the Primes through the DSF.

Against a backdrop of political and economic challenges, the MOD has been working through a wholesale redesign of its ways of working. I commend its focus on stronger relationships with industry. I'm sure this will bring real benefits to the whole enterprise and help to cement the essential role that SMEs and mid-tiers play. I am excited and positive about the future of Defence and the role SMEs and mid-tier companies can play in it. If we get this right, they can and will be an engine to drive UK prosperity and security.

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FEATURE

Challenger 3: Securing UK jobs and the battlefield advantage

Challenger 3's second prototype rolls off the production line and begins trials bringing British Army soldiers a step closer to one of Europe's most lethal tanks and securing hundreds of jobs across the supply chain.



In late January 2024, production of the first prototype Challenger 3 was completed. This was followed swiftly by the second in April 2024. Both are now undergoing integration and safety trials to ensure they perform to the required standard and operate safely. These trials are progressively building confidence in the tank's design, which provides the British Army with one of the most lethal and well-protected main battle tanks operated by any country in NATO.

Uncrewed live-fire trials have now concluded in Unterluess, Germany, with the successful testing of a number of new ammunition types. This included the new 120mm enhanced kinetic energy round, which is still in development and is set to greatly enhance the Army's ability to defeat evolving threats. This advanced armour-piercing ammunition is an example of successful British-German joint development and is expected to be used on both Challenger 3 and Leopard 2 tanks.

The MOD's relationship with RBSL (a Rheinmetall and BAE Systems Land joint venture) continues to strengthen and learn lessons from other procurement projects across Defence. The £800 million Challenger 3 contract has so far created over 750 jobs across the UK. The supply chain sub-contracts have also now been awarded to UK companies.

Dave Clark, DE&S Challenger 3 team leader, said: "I am delighted that the Challenger 3 programme has achieved another important milestone. These first demonstration vehicles mark the commencement of Challenger 3 trials where we will show the incredible capability that this platform can deliver for the British Army."

Challenger 3 tank crews will also benefit from new modular

Epsom armour. This advanced armour is based on a UK design created by the MOD Defence, Science and Technology Laboratory and will be manufactured by RBSL. The Epsom armour will significantly enhance the tank's protection against adversary battle tanks and other anti-tank systems. The contract to produce the armour will support jobs in Newcastle and Telford during its initial manufacturing, and beyond if export orders are secured. Following signing of the contract to produce the modular armour earlier this year, Colonel Will Waugh, Challenger 3 Senior Responsible Owner, said: "This contract is great news and another step forward in the delivery of the Army's next main battle tank capability. The conflict in Ukraine has provided a timely reminder of the threat posed by Russia's main battle tanks and other weapon systems. This armour is a world-class sovereign capability that will provide a step-change in protecting our soldiers and Challenger 3."

Looking forward, the Challenger 3 delivery team expect to see six more prototype vehicles in trials, including further live-firing, at various locations by early 2025, with 148 Challenger 3 tanks due to be delivered from 2027.

FEATURE

Taking DE&S from months to minutes

Adam Baldrey, Digital Engineering team leader, tells Desider about the approaches DE&S is taking to speed up defence acquisition, help UK Defence maintain its competitive advantage and unlock the potential of digital ways of working.

I originally trained as a mechanical engineer, embarking on my career in the early 2000s in heavy industry before moving to Defence. Over the past 20 plus years, I have seen engineering evolve from the days of pen and paper to the thriving digital age we are currently in.

One of the most significant impacts of this has been the speed at which new technological capabilities become available. With this exciting opportunity also comes one of our most important challenges. DE&S must be able to utilise and exploit these digital capabilities in order for us to provide our Armed Forces with the edge over our adversaries. The ability to exploit digital ways of working, digital tools and digital processes is the key to unlocking this potential. They will allow us to confidently make evidence-based development and procurement decisions faster than ever before, in minutes instead of months, and put military capabilities in place at the pace of relevance.

The Art of the Possible

Artificial Intelligence (AI) and Large Language Models (LLM) offer thousands of hours of time-saving potential by providing information in seconds and freeing up precious human resource to undertake other value-adding activities. Using Aland LLM-powered models, simulations and emulators to carry out the design, testing and evaluation of equipment mean that overnight hundreds of different scenarios and conditions can be investigated that traditionally would have taken years.

Model-based Systems Engineering and Digital Verification tools facilitate the production of key systems engineering documentation, including safety, quality and environmental information, as well as making these more visible and quicker to access. This enables faster decision-making in areas such as acceptance and assurance. Digital tools like these are already being developed and integrated into our acquisition lifecycles. The aim is for such approaches to become our business as usual across the entire defence enterprise.

The Challenge

However, there are challenges that we must overcome for this vision to become a full-scale reality. There will need to be a change in the prevailing defence culture that shifts us towards a greater willingness to do things differently. We will need to become more comfortable with sharing appropriate integrity data, and to adopt fit for purpose policies and procedures for software (not just hardware) enabled systems. And there will need to be a move away from traditional paper-based ways of working to fully digitised platforms.



The Future

The Digital Engineering Centre (DEC) is a crucial enabler of this for the defence enterprise, showcasing step-change opportunities, raising skills, knowledge and awareness, and bringing defence and industry closer together in the pursuit of digital excellence. As DEC transitions towards full operating capability, we are readying a specialist digital engineering team. The team will support a diverse range of projects, while collecting, analysing and sharing lessons from across the defence enterprise that will help grow DE&S' capability and capacity to deliver and exploit digital engineering.

The DEC's sister capability centres, the Defence Availability Centre (DAC) and the Battlespace Integration Centre (BIC) are equally important in our digital journey. Collectively, we will provide UK Defence with the visibility of asset availability, the interoperable battlespace capability architecture and speed of acquisition opportunities needed to deliver the edge.

FEATURE

The 'social value' of defence investment

'Social value' is a useful lens to discuss and measure the social, economic and environmental benefits of government commercial activities, including defence procurement. How has it developed and where will it go next?

Social value in Defence has come a long way since it was first introduced through the Social Value Act 2012 and the Social Value Model which followed in 2021.

The Social Value Model commits suppliers to demonstrate the broader economic, social and environmental contributions they will make in addition to fulfilling a procurement or support contract. Alongside other factors, such as delivery time or cost, the MOD allocates a minimum of 10 percent of the total tender evaluation weighting to specific social value criteria.

With defence acquisition making up a sizeable, and growing, portion of the UK budget, the UK defence enterprise is able to have significant social impact. The MOD, including DE&S, has become as a leader in social value and the defence enterprise is now delivering not just direct investment into the economy, but also far wider positive change for communities across the UK.

The Social Value Model has also faced its share of hurdles within the defence landscape, often related to how the model, and its requirements and evaluation criteria, have been defined and communicated. The new DE&S Operating Model provides more open lines of communication and clearer commercial processes, and is an opportunity to help address these. The Defence Suppliers Forum Commercial Improvement Group is also working to foster greater engagement and dialogue across the defence enterprise regarding social value.

As of 16 May 2024, the MOD had awarded 341 contracts with social value as a key criteria, including 90 awarded directly by DE&S. Here are two stories that showcase the social value impact of defence investments.

Offshore patrol vessels and UK Docks

A contract placed by DE&S worth £250 million over the next eight years will help ensure global maritime safety and security, while securing jobs and supporting local supply chains and services in the North East. Through the contract, UK Docks, a family-run firm, which operates dry docks on the Tees and the Tyne, has taken over the worldwide in-service support of five Royal Navy river-class offshore patrol vessels (OPVs). The vessels are deployed continually overseas and conduct a range of maritime security operations, including border protection, counter-terrorism, antismuggling and disaster relief.

This contract provides excellent value for money by accessing the commercial maritime ship repair market to deliver the maintenance needed to keep the ships seaworthy. It safeguards more than 150 jobs at UK Docks and provides work for more than 200 companies in its supply chain.

The Ham Hill beehives

On behalf of the Royal Navy, DE&S sought proposals from industry for the demonstration of an Uncrewed Air System (UAS) that had the potential to transport defined payloads to and from ships within a deployed fleet. The assessment criteria included 'Fighting Climate Change' as one of its Social Value criteria.

Responding to the Fighting Climate Change element, Leonardo identified a long-term biodiversity project at Ham Hill Country Park, close to its Yeovil facility, that could benefit from social value commitments. The Shrill Carder bee is one of the rarest bumblebees in the UK and can only be found in seven areas across the south of England. Ham Hill was identified as a site which Shrill Carders could naturally recolonise. As a result, Leonardo and DE&S have agreed to include contractual commitments to support this project as part of the UAS programme.





A new DE&S contract with Avon Protection ensures Armed Forces personnel will continue to be protected with highperformance respirators.

UK service personnel across the British Army, RAF and Royal Navy will continue to receive unparalleled protection through first-class respirators made in Wiltshire, thanks to a contract procured by DE&S worth up to £38 million.

The four-year deal for the continued supply and in-service support of General Service Respirators (GSRs) has been awarded to Avon Protection, a leading UK company in the field of chemical, biological, radiological and nuclear (CBRN) personal protective equipment. The new deal ensures the UK maintains a sovereign protection capability through domestic production, research and development, and carries five further 12-month option periods.

Richard Bloomfield, DE&S Head of CBRN, said: "We welcome the award of this contract, which will ensure continued support of the respiratory protection available to our armed forces. We have worked with Avon Protection on supporting GSR for the past six years and look forward to continuing this relationship, offering high levels of protection to our troops around the world."

The new contract award will sustain 200 high-skilled jobs at the company's factory in Melksham, Wiltshire, and supports many more through its primarily UK-based supply chain. Avon Protection was first awarded the contract to supply and support the GSRs in 2018. Since then, it has supplied almost 100,000 respirators to UK personnel.

Steve Elwell, President of Avon Protection, said: "We are proud to have secured this new contract with the UK MOD, reaffirming our commitment to providing sovereign capability and unparalleled protection for those who tirelessly defend our nation. We remain dedicated to delivering excellence so our protectors can complete their mission and come home safely, every time."

Designed and manufactured to the MOD's precise specifications, the twin-canister, single-visor GSRs provide high-performance filtration protection for users operating in CBRN threat environments. It is standard issue for all UK Armed Forces personnel.

Avon Protection Chief Executive Officer Jos Sclater added: "This award demonstrates the strength of our technology and our commitment to protecting those who protect us by providing a world-leading sovereign CBRN protection capability from our facility in Wiltshire. As we have seen with the reported deployment of chemical agents in Ukraine and in other recent conflicts, the highest grade CBRN protection is critical to operational capability for our war-fighters in the evolving reality of near-peer, hybrid warfare."



DE&S and DSTL delivering drone-killing radio wave weapons technology

A new energy weapon uses radio waves to disable enemy electronics, offering protection and defence to critical assets and bases.

Delivered by Team Hersa, a joint DE&S and Defence, Science and Technology Laboratory (DSTL) enterprise, the Radio Frequency Directed Energy Weapon (RFDEW) can detect, track and engage a range of threats across land, air and sea.

The system uses radio waves to disrupt or damage critical electronic components inside enemy platforms, such as drones, causing them to stop in their tracks or fall out of the sky. As such, it offers a solution for the protection and defence of critical assets

Capable of downing dangerous drone swarms with instant effect, at only 10p per shot, the RFDEW is a highly capable and cost-effective alternative to traditional missile-based air defence systems. It will be able to effect targets up to 1km away, with further development in extending the range ongoing. Its high level of automation also means the system can be operated by a

DE&S' Adam McCullough, RFDEW Chief Engineer for Team Hersa, said: "Working collaboratively with DSTL, DE&S is providing

engineering, commercial and project management expertise to deliver directed energy weapons into service and provide the edge for our armed Forces against current and future threats.

The RFDEW can be mounted on a variety of military vehicles and uses a mobile power source to rapidly fire sequenced pulses of radio frequency energy in beams that can be narrowed to individual targets or broadened to engage a number of threats.

DSTL Chief Executive Paul Hollinshead said: "These gamechanging systems will deliver decisive operational advantage to the UK Armed Forces, saving lives and defeating deadly threats. World-class capabilities such as this are only possible because of decades of research, expertise and investment in science and technology at DSTL and our partners in UK industry."

The DE&S Directed Energy Weapons team led the engineering effort for the RFDEW project, supported by the Weapons Operating gain permission for an RFDEW capability ready for Army trials.

> RFDEW will begin extensive field testing led by the Royal Artillery Trials and Development Unit and target operators from 7 Air Defence Group over the summer.

The RFDEW programme draws from the whole of the UK, with specialist suppliers in all four nations developing parts of the technology. The accelerated development of directed energy weapons is part of the effort to put the UK's defence industry on a war-footing.



World War I ship's bell returned to the US Navy

DE&S has formally handed over the bell from the wreck of the USS Jacob Jones after it was recovered from the seafloor by their Salvage and Marine Operations team.



A ship's bell, recovered from the seabed by DE&S' Salvage and Marine Operations (SALMO) team, has been returned to the US Navy. Admiral James W. Kilby, the US Navy's Vice Chief of Naval Operations, received the bell, salvaged from the USS Jacob Jones, in a ceremony at Lancaster House in London.

In December 1917, the USS Jacob Jones became the first US Navy destroyer to be sunk during wartime, after being struck by a torpedo fired from German submarine near the Isles of Scilly. Of the 110 crew members on-board at the time, 64 tragically losing their lives.

In August 2022, 105 years later, a recreational dive team discovered the wreck approximately 328 feet (about 100 metres) below the surface. Last December, the US Naval History and Heritage Command (NHHC) – guardians of nearly 3,000

shipwrecks – asked the UK to preserve the sanctity of the wreck and recover its bell.

The bell was recovered by the DE&S SALMO team, with support from the NHHC, during the commissioning trials of a state-of-the-art, remotely operated underwater vehicle. The team placed a wreath and a US flag on the wreck, in memory of those who were lost.

Andy Liddell, Head of SALMO, said: "Playing a pivotal role in returning this historic bell to US soil is something we can all be proud of and is yet another example of the special relationship between our two nations. While this is a momentous occasion, this handover ceremony is also a poignant reminder of the brave allies who lost their lives defending our nation."

After it was brought to the surface, the bell was initially stabilised by Wessex Archaeology. It has now travelled to the Washington Navy Yard where it will be conserved by the NHHC's Conservation, Research and Archaeology Laboratory.

"We're incredibly grateful to everyone who made this important recovery possible," said NHHC Director US Navy Rear Admiral (rtd.) Sam Cox. "World War I marked a pivotal moment in our collective history. In escorting convoys of soldiers and supplies across the Atlantic, Jacob Jones contributed significantly to the ultimate Allied victory. The ultimate sacrifice of many of her crew demonstrates that victory has a cost, and freedom isn't free. We should never forget these courageous sailors."

Since the shipwreck's discovery, multilateral efforts, involving SALMO, the UK's National Oceanography Centre, Wessex Archaeology and the NHHC, have continued to fully document and study the wreck site to better understand it and ensure its long-term preservation. Following conservation efforts, the bell is intended for future display in the new National Museum of the US Navy.

Admiral Kilby added: "This bell serves as a remembrance of the 64 sailors aboard Jacob Jones who made the ultimate sacrifice defending the freedom of our country and those who challenged it. As the first US destroyer lost in combat, her crew's legacy will live on, their stories will be told and their loss will be remembered as we preserve this piece of our nation's story. Our Navy expresses our sincerest gratitude to those who made it possible to take this incredible artifact of sombre history back home."

NEWS

Redesigning Defence together

Gabrielle Gower, the Director of MOD Defence Design, introduces herself to Desider and tells us about her team's work.

I may have been lucky enough to meet you at a Defence
Design workshop or event, but for those I have not, I am thrilled
to introduce myself as the Director of MOD Defence Design.
We are the team entrusted with redesigning the way we work
together as a defence enterprise to make it more effective and
better prepared, so we can outpace our adversaries today

I am an operational officer by background, but more recently my career has focussed on organisational change at the most strategic level. There are many parallels between my former work and what we are trying to do at Defence Design, such as removing duplication and unleashing the creativity of our people.

Defence Design began in late-Spring last year. Since then, we have run a series of pan-Defence workshops to identify the key challenges we face. We turned the outcomes of these into problem statements, which have been critical in shaping and developing our work. Using them as a framework, we have drawn up a set of requirements, parameters and constraints for how we will work together going forward. These foundations have enabled us to collaboratively create a high-level design for how Defence will operate in the future.

We are now collectively building the details of our design through the same collaborative workshop approach, with colleagues from across the defence enterprise and beyond. Some evident benefits of our new design for Defence include a more ruthless focus on outcomes, linking our strategy to the allocation of our total resources, and being able to make more data-informed decisions at the right time.

DE&S' work on its new strategy and operating model aligns with Defence Design's purpose to adapt and ensure we can continue to keep the UK safe and prosperous. DE&S colleagues are part of the Defence Design workshops, and are helping us keep the two programmes of work well-coordinated.

My default style is one of collaboration and listening, and I am keen to work with vou all to ensure we succeed together. By working collaboratively, we can harness the collective wisdom and diverse perspectives of our Defence colleagues, our allies and our partners to deliver a future operating model that reflects a comprehensive understanding of our opportunities, needs, risks and challenges. It also creates alignment between different areas, which should help us to deliver successful enterprise-wide change and continue to outpace our adversaries in an increasingly volatile world.

I am excited about the opportunities that lie ahead, such as bringing all parts of Defence and its partners together in a more integrated way to achieve Defence outcomes, alongside the ability to adapt faster and more easily to an evolving landscape.

Changing an organisation requires intellectual, psychological and emotional energy and thinking, all at once. It is why I love it so much. To succeed, collaboration and engagement from all of us is critical; from across Defence, the Front-line Commands and our industry partners. We really do have that 'once in a generation' chance to make Defence better and more effective. Let's do this together; by us, for us.



DE&S to deliver Explosive **Ordnance Disposal robots** for the British Army

New remote-controlled robots will help Army teams safely dispose of explosive devices and hazardous materials.

Under a new deal negotiated by DE&S, the British Army will receive 50 T4 Explosive Ordnance Disposal (EOD) remotecontrolled robots to help their specialist teams safely deal with improvised explosive devices and hazardous materials. Army EOD teams attend thousands of call-outs every year in the UK and its overseas territories. This will greatly reduce the risk they and the public face when neutralising bomb and chemical threats.

With its tough all-terrain treads and adjustable manipulation arm, the T4s are able to climb stairs and navigating narrow urban spaces, including the aisles of planes, trains and buses. Advanced controls, high-definition cameras and lightning-fast datalinks enable the T4 operator to perform complex tasks, like unzipping bags and opening glove boxes.

The Specialist and Autonomous Mobility (SAM) delivery team within DE&S Soldier, Training and Special Programmes placed the £21 million contract with L3 Harris Technologies, based in Tewkesbury. The contract for the systems, which underwent rigorous testing, will see the first T4 units delivered by the end of 2024 and includes an initial three years of in-service maintenance and repair support.

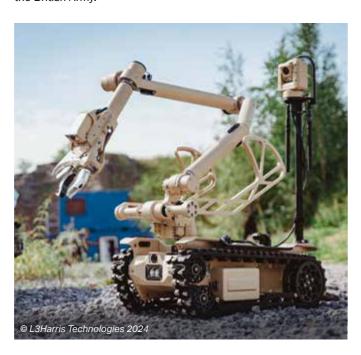
"We now have a highly capable system that will keep the MOD a world leader in Explosive Ordnance Disposal and Search, thanks to collaborative work with the Army and industry," said DE&S Project Manager Jonathon Armstrong. "Used alongside other capabilities delivered by the SAM team, this system will protect the UK public and help keep our EOD operators safe in the performance of their duties.

Weighing just over 100kg, the T4s will be used as the rapid response system for emergency situations as their compact size means they can be transported in a standard 4×4 vehicle. Their advanced haptic feedback allows operators to 'feel' their way through the delicate process of disarming devices from a

Major General Lizzie Faithfull-Davies, Director Land Equipment at DE&S, said: "I'm incredibly proud of the project team at DE&S who worked with their industry partner to harness cutting-edge technology and have identified a critical capability that can respond to hostile explosive threats and help keep the general

The T4s will enter service with the 29 EOD and Search Group and the Diving Threat and Exploitation Group, the Royal Gibraltar Regiment and the Cyprus Operational Support Unit.

Ed Zoiss, President, L3Harris Space and Airborne Systems, said: "The T4 EOD robots are the world's most capable robot for operations in crowded and difficult environments like subways, airports and even hospitals. We're honoured to continue working with the UK Ministry of Defence as they provide this technology to the British Army."





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New digital information management system for UK warships goes live

Rosetta, a new digital information management system with the potential to transform how DE&S supports complex warships, including Queen Elizabeth-class aircraft carriers, has been launched.

In March, DE&S launched Rosetta, a new digital information management system that will improve how it provides maintenance and other engineering support activities to the Royal Navy's complex warships, including Queen Elizabeth-class aircraft carriers.

Rosetta allows technical information to be stored, accessed and used, and for that information to be kept up-to-date and continually improved. This includes the technical drawings and specifications, diagrams, parts lists, registers, photographs, videos and computer-based models used by DE&S and its key industry partners. This information supports the safety and engineering work necessary to prepare ships for operations and then maintain and repair them to meet the Royal Navy's demanding availability requirements.

Until now, the information needed to support complex warships has been retained by a wide range of industry partners or stored and maintained by third-party contractors. Through Rosetta, DE&S is now able to host this information in one place on a fully MOD-controlled system. This will allow information to be aligned between different classes of warship, and managed and presented in standardised ways. It also allows DE&S to control who the information is shared with to better protect copyright and intellectual property rights, and enforce other information sharing agreements such as US export control restrictions.

The DE&S Engineering Data Services team has been established, in tandem with the introduction of the new software. They will maintain and progressively improve the quality of the information hosted by Rosetta and ensure its alignment with other information sets and services.

Keith Crockett, the programme director overseeing Rosetta's deployment, said: "The progressive introduction of Rosetta to support complex warship maintenance activities is a real gamechanger for DE&S. It will allow us to take control of the information provided to us, and decide how it is used and appropriately shared to drive efficiencies into the way we work and to understand where we need to do better. I am genuinely excited at some of the possibilities associated with the use of electronic information that Rosetta will enable."



Rosetta will continue to be developed to increase its functionality, its interface with other existing information technology systems and its ability to provide access to other industry partner IT systems. Future iterations of Rosetta will extend its capability to other maritime platforms, and their systems and equipment.

This work is essential in preparing the maritime domain for the deployment of more new standardised asset management and engineering support tools by the Business Management for Support Programme in the near future. This programme is modernising support to Defence through intuitive interfaces customised to meet each user's unique needs on devices that are optimal for the intended environment, ensuring a modern yet familiar user experience that mirrors industry standard practice.

DE&S activity highlights

A digest of some of DE&S' work from the past month that you might have missed.

E-7 facilities take shape at RAF Lossiemouth

New facilities that will support the UK's E-7 Wedgetail fleet continue to take shape at RAF Lossiemouth. DE&S placed a £83 million contract in March 2023 with Boeing Defence UK, which is working with local supplier McLaughlin & Harvey to build the facilities. Now, Simmers Contracts, a family-business from Moray, just 25 miles from Lossiemouth, has been sub-contracted to supply the cladding and steel for the base frame structure of the Wedgetail Line Engineering Squadron building.

The E-7 Wedgetail infrastructure programme is supporting hundreds of jobs in the region, boosting the local supply chain and economy. It is expected to be completed in early 2025.

DE&S secures transport vehicles for the British Army

DE&S has secured the British Army's Heavy Equipment Transport (HET) capability through a three-year £80 million interim capability solution with industry partner KBR Ltd. HET enables the Army to rapidly move heavy vehicles, such as Challenger 2 tanks, to where they are needed, using an operationally proven vehicle platform. The agreement forms part of the wider British Army Materiel Distribution Land Programme.

The contract with KBR Ltd means the Army will be provided with serviced HET vehicles – consisting of a cab and trailer – with enough operational spares packs to allow for operations on multiple fronts, anywhere in the world.

DE&S to order up to six support ships for the Royal Marines

DE&S will procure up to six Multi-Role Support Ships (MRSS) for the Royal Marines to use during special operations around the world. MRSS will be flexible warships able to deploy on a wide variety of operations. They are designed to carry vehicles, aircraft, insertion craft and a broad range of uncrewed systems for complicated missions. They will also be able to act as primary casualty receiving ships, providing urgent medical care to our forces.

Critical pilot mission data toolkits maintained under 10-year contract

Mission data toolkits, used to help combat pilots recognise and evade hostile threats, will be maintained for the next 10 years under £10 million contract with Leonardo. The Joint Electronic Warfare Operational Support Centre at RAF Waddington uses HORUS – Leonardo's data-generation and analysis toolkit – to ensure that military aircraft are loaded with up-to-date mission data.

The new contract will see the company continue to support the toolkits in response to the evolving demands of combat missions. The upgraded toolsets will be built using the new Leonardo NEXIS architecture, which will also be available to all export customers.

Innovative new contract will upgrade Royal Navy digital technology systems

The Royal Navy will soon have improved digital technology for use in high-risk operations, following a new contract placed by DE&S. The MOD owns the design of the technology, but in an innovative approach, DE&S has awarded Sierra Nevada Corporation – Mission Systems UK a two-year contract, with an optional further two years, to help further enhance this capability. It will see the innovative digital technology supported, scaled and enhanced at pace. The new contract is expected to create up to 13 highly-skilled jobs and sustain a further 25 roles across a range of small and medium-sized companies in Wales and South-West England.



PEOPLE

Annette Hill

Job title

Operations Manager in the DE&S Operations Directorate Gateway Team

What does your role involve?

We have been supporting the war in the Ukraine for the last two years. My role is to ensure that Ukrainian Army personnel are provided with the right clothing and equipment to complete a course designed to train them to be battle-ready when they return to Ukraine. Trainees, mostly with little or no combat experience, are kitted-out and then receive five weeks of intensive training from the UK Armed Forces. We have capacity to train up to 20,000 Ukrainians each year. My role presents many logistical challenges. It requires me to balance the demands of the sponsor and manage the required procurements with the appropriate delivery teams.

What do you most enjoy about your job?

My job is immensely satisfying, as the kit procured has an immediate positive impact on the trainees. I have visited where the troops initially come in and seen the raw civilians be kitted out to begin their journey to acquire the military skills to fight the war.

What is your greatest accomplishment to date?

Having spent more than 30 years working for a private pensions company, moving into MOD was a complete change of career. I joined the DE&S Operations Cell when the pandemic hit, to work with a small team responsible for all Covid-19 aspects from a DE&S perspective. One of my responsibilities was leading Track & Trace for DE&S. We received excellent feedback for our work, including from senior figures in NHSX. It's good to know all the late nights paid off.

What keeps you energised about working at DE&S?

What keeps me energised is seeing the benefits that our procurement provides. I feel that I am really making an immediate and positive difference to the Ukrainian trainees.

Who or what has shaped who you are?

I would say there is not one person that has shaped me. I have been lucky to work with some great individuals. I have taken the best bits each of those people and use these different elements in all aspects of my life.

What do you enjoy doing in your spare time?

I am a sociable person who enjoys spending time with friends and family, relaxing with food and a few drinks. I enjoy switching off and going to the cinema.

What might surprise people about you?

I have a caravan which I love to visit regularly in the summer.

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

I like: "Always try to be nice to people." When challenging or questioning individuals, I need to keep pushing this message to the front of my mind because you never know what else is going on in that person's life and the situation you are ranting about may not be the top priority for them right now. I admit this doesn't always work when I'm driving my car!





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Cover photo:

A British Army Challenger 3 Main Battle Tank fires a round during trials in Südheide, Germany.

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