

# 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

**There is no question that the scale of the threats facing the UK and our allies is increasing. As many of Desider's readers will know, we have not been idle in our response to this.**

Today with our partners across industry, we are delivering for our Armed Forces; safely, reliably, quickly and in line with the UK's defence priorities.

In the past month, we have celebrated the first guided live-firing of the Sea Venom missile from a Royal Navy Wildcat helicopter, and seen an E-7 Wedgetail and a Typhoon fitted with the new ECRS radar system take their first test-flights. The second of those coincided with the official opening of the Wedgetail's new state-of-the-art Combined Line Engineering facility at RAF Lossiemouth in Scotland. And, about 150 miles north of there, in Rosyth, we also marked the start of construction with a 'steel cut' ceremony for HMS Formidable, the third of five Type 31 frigates being built.

We continue to support our allies in Ukraine as part of the UK's large and steadfast response. We recently passed the milestone of 1,000 equipment projects delivered since February 2022, including around 40 million individual items. The total value of military aid from the UK to Ukraine has passed £5 billion and will reach a staggering £7.6 billion by the end of the financial year.

I was given a first-hand reminder of the immediate need for Defence to increase the speed and scale we operate at when I visited Ukraine as part of Task Force Hirst's most recent trade mission. It was a sobering visit. Meeting our allies, working with our cross-government and industry partners, and hearing from the inspirational President Zelensky; it all served to reinforce the importance of making sure we are set up to deliver faster and better.

We are proud of our successes and all that DE&S has achieved, but at the same time, we know we can do better. DE&S has been on a journey to dramatically change how we work. We have focused on speeding-up and streamlining our processes, revamping our structure, strengthening our culture and improving how we deploy resources.

Thanks to this, we are already cutting down equipment programme backlogs and regaining tens of thousands of hours a month from indirect activity, which will be repurposed into actions that directly support defence priorities.

We will soon be able to offer the defence enterprise a great deal more; more expertise, more outputs, more speed, with – crucially – less bureaucracy and lower overheads. We will be a reliable, consistent, operationally excellent partner to our colleagues in the UK defence enterprise and our allies in NATO.

For industry, the benefits will include sharing clearer, earlier requirements for the solutions we require them to deliver, a target of cutting down the average time to contract and operating in a way that they recognise as best practice.

I am pleased to say that 5,000 of our people have now moved into the new DE&S operating model, over half the organisation. This is great news and a credit to the hard work of everyone involved across DE&S, industry partners and wider Defence.

Our direction of travel aligns with what is happening at a Defence-wide level. We have been actively engaged in supporting the Government's Strategic Defence Review, which will create new opportunities for faster delivery, longer-term investment and more rapid innovation.

Our new operating model has built up our 'change muscles' so we can react quickly to shifts in the operating environment without disruption to project delivery. This puts us in a great position as a foundational part of the Government's ambitious reform programme, which is dedicated to creating a more streamlined Defence, focussed on war-fighting and deterrence, unencumbered by silos and bureaucracy.

We are committed to a One Defence culture as we look to overcome our common challenges and build a better, more secure future for our nation.

## SENIOR LEADER COMMENT

# Why building our future defence skills matters

**We can only deliver our mission by developing and supporting our people. Jo Osburn-Hughes, DE&S Director People, talks about how the organisation's new operating model is making ripples across Defence.**

**In an increasingly troubled world, building the UK's future defence skills is vital. They are key to remaining ahead of our adversaries, and to anticipating the equipment, systems and structures needed to deliver our programmes at pace.**

Investing in UK defence skills helps achieve our mission and serves wider society too, as we nurture the careers of our young people, and those on second and third careers. We want to inspire and enable them to bring their skills and experience to solve complex and exciting challenges.

As Director People, I have been preparing for the successful transition of our 12,500 people into DE&S' new operating model. A focus for my team has been to ensure the changes we make help colleagues feel inspired, motivated and supported, and able to work in a more integrated way. Alongside this, we are maintaining and improving the support we give through our people services, policies and people management model.

Our culture and behaviours – how we work with each other and for Defence – are a crucial part of this. If we can improve how it feels to work at DE&S – so people are trusted and empowered, face fewer blockers in their daily work, and feel welcomed, safe and encouraged – it will make a tangible difference. If our people can genuinely be themselves, and have the right systems and support to grow their skills, that shift helps to build a stronger and better Defence community.

I would describe it as ripples. The ripple of our DE&S organisational change should be felt by our mission and industry partners, and by our people. And our positive change could bring further positive changes, and that ripple effect continues.

I want our partners and colleagues across the defence enterprise to experience a DE&S with real direction, that strives for excellence in how it provides services, supports projects and grows its people. They should feel a sense of inclusion when they work with us, and an invitation to bring their different perspectives, skills and knowledge to contribute to something greater. Wherever they come from, I hope they feel part of this community, this One Defence team. If we work together to build the talents of people across Defence, we can have better conversations, generate innovative ideas and see greater diversity of thought.

I am Co-Chair of the Defence Suppliers Forum People and Skills Steering Group, alongside Paul Livingston, Chief Executive of Lockheed Martin UK. Through our group, the defence community

is coming together for a conversation about collectively developing our people and their expertise. We are working on inclusion to create a 'culture ripple'. This means harnessing the talent of students, university graduates, military leavers and those on their second or third careers, and working together to build in approaches that encourage retaining people as their careers grow.

No single organisation can succeed on its own. We are only going to meet our defence goals together. The future is exciting, and there are real opportunities here if we grasp them together.

I would like all our Defence community to join this conversation. What ideas do you have? What can you bring to the people and skills agenda? How can we make Defence a better environment for people to give of their skills and of themselves?



## FEATURE

# Securing defence skills for the future

**Paul Livingston, Chief Executive of Lockheed Martin UK and Co-Chair of the Defence Suppliers Forum People and Skills Steering Group, talks about building the future UK defence enterprise skills base.**

**As one of the nation's most strategically important sectors, attracting a skilled workforce into Defence is essential for maintaining the security of the UK and its allies.**

According to ADS, a trade body for the UK's aerospace, defence and security sector, there is no shortage of work. It reports that there are currently at least 10,000 defence jobs open in the UK.

The burgeoning UK Space sector, the tri-nation AUKUS pact and the UK's position on global programmes, such as F-35, all promise work for British defence employees for decades to come. At its peak, the F-35 programme alone is estimated to deliver over 20,000 jobs for British workers, as well as £45.2 billion Gross Value Add to the UK economy.

Such programmes highlight the diversity of skills required. Advanced technologies, such as AI, cybersecurity and autonomous systems, are reshaping the nature of defence jobs. Developing new sovereign defence capabilities, like hypersonics, autonomous platforms and the UK's ability to defend itself in space, will mean plenty of job opportunities in a range of new areas.

And yet, Defence, like many industries, is facing a major recruitment challenge. It's imperilled by stiff competition from other sectors, an aging workforce and too few young people choosing to study science, technology, engineering and maths (STEM) subjects, and become the engineers of the future.

According to the Defence Suppliers Forum (DSF) People and Skills Steering Group, of which DE&S' Director People Jo Osburn-Hughes and I are co-chairs, recruitment shortfalls in areas such as software development and systems engineering are becoming particularly acute. The demand for expertise in high-tech fields, like cybersecurity and AI, has spiked, but industry is finding it increasingly difficult to recruit and retain talent in them.

However, the defence sector is not resting on its laurels. A large part of how we will succeed in attracting more talent will be by explaining what's on offer, how to access it and where it will be located.

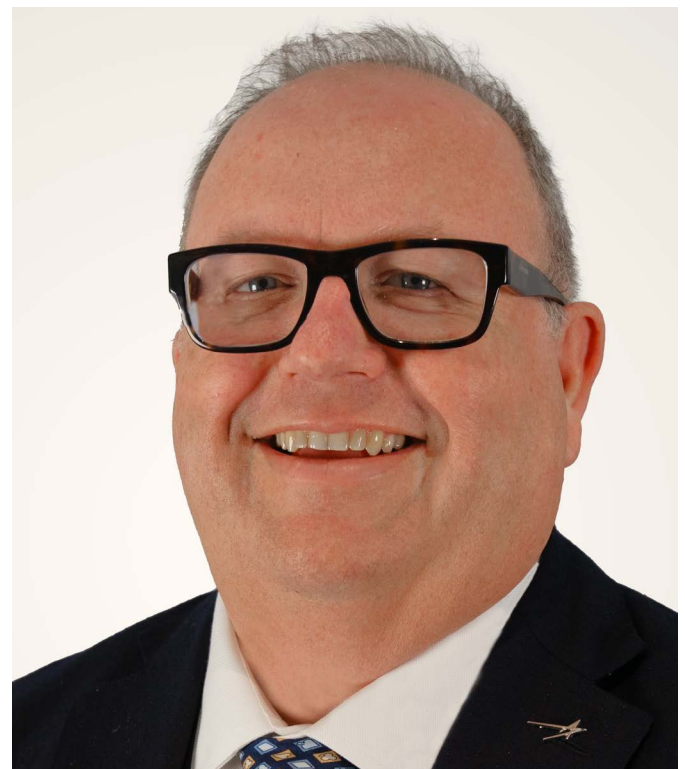
This is why the DSF People and Skills Steering Group is working closely with the MOD and the new government to support recruitment across the sector and the country. One way we're doing this is looking at how the Apprenticeship Levy can be better deployed to help small businesses.

Defence companies are modernising their workplace environments, with some offering flexible working arrangements and remote work options. For example, at Lockheed Martin we have offered a flexible approach to the working week since before the pandemic with a more productive four-day week now the norm.

In addition to early-career routes into the sector, such as apprenticeships and graduate schemes, the defence industry and organisations, including DE&S, are putting in place ways to retrain people who want to move their careers into Defence later in life – known as the STEM returner route.

The defence industry is also offering opportunities all over the country, especially as new requirements and opportunities emerge. For example, the F-35 programme is already supporting thousands of jobs across the UK, while we hope the £50 million North East Space Skills and Technology Centre (NESST) will be the first step in creating a new space industry hub and many jobs in the north-east England in the coming decades.

Delivering key defence capabilities on land, at sea, in the air, in space and in cyberspace relies on a steady intake through our education and recruitment system, and we must all work together to attract new talent to work with us.





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## FEATURE

# Meet DE&S' future talent

**DE&S apprentices Georgia Raynor-Smith and Henry Fleck recently won the Mechanical Award at the MOD's Tom Nevard Memorial Competition. Desider met with them to hear more.**

## Georgia

I'm in the third year of an aerospace degree apprenticeship. I'm currently working on uncrewed air systems, where I'm focused on the safety elements of the Protector platform. I've found being a DE&S apprentice to be a really good experience. The six-month placement rotations has given me a chance to see what opportunities there are in the aerospace industry and to dabble in different areas I'm interested in, while picking up some new skills along the way.

## Henry

I'm in the second year of an electromechanical degree apprenticeship. At the moment, I'm working with the Spear Capability 3 team. We're developing the new ground-to-air missile system for use on F35-B aircraft. I'm quite fresh into the office environment, so it's been quite a challenge, transitioning from university work to being in the office four days a week, but it's going really well.

## Georgia

The Tom Nevard Memorial Competition is a week-long event held at the Defence Academy in Shrivenham. Apprentices from across the MOD take part in a number of engineering design challenges. Henry and I took part in the Mechanical Challenge, where we were tasked with building a medieval catapult called a trebuchet that could hit a target 40 metres away. This involved coming up with initial ideas, doing analysis, calculating the weight and counterweight needed to fire a concrete ball, and then building the prototype.

## Henry

I think the way we started set us on the right track. We took a few hours to just plan how we were going to build it. What materials we were going to use and our plan for the week. We knew exactly what we wanted to do each day.

Our design focused on making the trebuchet as strong and safe as possible. This really helped us, as another team's catapult broke during testing. We also added in a safety bar, which stopped the arm from swinging if the weight was in it, so when we were reloading, we wouldn't get hit in the face with a half-kilo concrete ball! On Firing Day, we were the only team to hit the target.

## Georgia

Apprenticeships help nurture the skills that are required by UK defence. The DE&S scheme has helped me understand how defence works and I've adopted skills from early on which I'll be able to carry on and use further down the line in my career.

## Henry

I've learned a lot about how to communicate, how to manage a project, and how to work with different stakeholders, including subject matter experts and outside contractors. I'm getting good at it now. I like being surrounded by engineers. I've learned so much just from attending meetings with them, listening to how they work and having a chance to ask questions.

I was also able to lend the team a hand, thanks to my background in electromechanical engineering. During a trial we ran a couple months ago, we had an issue with one of our electrical circuits and they asked me for my advice on electronics.



## FEATURE

# Creating a pipeline of defence talent

**Sarah Wade, from the Entry Talent Centre of Expertise, explains why DE&S apprentices and graduates are essential to the future of Defence.**

**There's no other organisation like DE&S, with our unique blend of military and civilian expertise, skills and commitment to national defence. The talented individuals who work in DE&S are key to our programme delivery success. Recruiting sufficiently qualified and experienced staff who are able to operate in a fast-evolving defence environment is an imperative.**

Recruiting apprentices and graduates delivers significant value to our organisation and creates a pipeline of talent that helps us achieve DE&S' long-term goals. They bring fresh perspectives, innovative ideas and a willingness to learn and grow, and contribute to a dynamic, diverse workforce. This is why having apprenticeship and graduate schemes that foster their development, provide them with a solid foundation of skills and knowledge, and give them the opportunity to truly excel are so important.

By investing in their development, we're pre-emptively acting to reduce future skills shortages, while cultivating future leaders who understand the organisation from the ground up. This ensures a vital transfer of knowledge from experienced staff to the next generation, and builds a resilient, forward-thinking workforce.

Stefan joined DE&S in 2022, as part of the first cohort of the Digital Technology Degree Apprentice scheme. Now in his third year, he is focusing on software engineering.

"I have been part of six different placements, including two with industry partners. On this scheme I have been given many valuable opportunities across the UK and in other countries to develop both my technical and soft skills. I have attended cyber exercises in Estonia, flown in a Chinook helicopter, worked at the Portsmouth Naval Base and visited the HMS Queen Elizabeth aircraft carrier. DE&S has given me a lot of responsibility as part of this apprenticeship, which has allowed me to flourish. I helped the scheme to digitise its processes, led parts of the assessment centres for the 2024 intake and supported newer apprentices on their journeys.

"One of my proudest achievements has been the role of Learner Voice Forum co-Chair. The forum aims to give apprentices and graduates a voice so they can help DE&S improve the on-scheme experience."

At DE&S every apprentice and graduate has a different experience, one that suits them as individuals. It's a method that's been recognised time and time again. The most recent being the 2024 Chartered Institute of Personnel and Development Awards, where DE&S was one of six apprenticeship providers recognised for 'Best apprenticeship scheme'.

We have a range of development programmes beginning in 2025. Work and training options are available in Bristol, Manchester and Portsmouth, with opportunities to be based at other DE&S locations around the UK as apprentices and graduates progress through their schemes.

Successful applicants to our apprenticeship and graduate schemes can work in Finance, Accounting, Engineering, Project Delivery, Digital Technology and Security. Most of our apprentices and graduates go on to forge successful careers within DE&S or the wider MOD.

Applications for the DE&S' apprenticeship schemes will go live in November, with more to follow January 2025.





## NEWS



# UK trade mission visits Kyiv to deepen industry ties

NEWS

**The UK-Ukraine defence-industrial partnership has been strengthened by a new trade mission, organised as part of Task Force Hirst.**

A UK trade mission, formed of representatives from the MOD, the Department for Business and Trade (DBT), and UK defence trade association ADS, visited Ukraine to hold meetings with representatives from the Ukrainian Government and defence industry.

This is the latest step in the growing relationship between the UK and Ukraine's defence industrial sectors. It follows the signing of a major agreement in July, which will enable Ukraine to harness the power of UK industry by drawing on £3.5 billion worth of export finance to purchase further military capabilities.

Organised as part of Task Force Hirst, the trade mission is a cross-Government initiative to stimulate UK industrial production and international collaboration in support of Ukraine, including collaboration with Ukrainian companies. It is made up of teams from MOD, DBT and UK Export Finance.

Led by Minister for the Armed Forces Luke Pollard, the trade mission visited the Ukraine Defence Industrial Forum to take part in a series of meetings and discussions. The delegation included DE&S CEO Andy Start and Major General Anna-Lee Reilly CB, DE&S Director of Strategic Capability, Engagement and Operations.

While there, the Minister discussed the UK's steadfast support for Ukraine, the growing relationship between UK and Ukrainian defence industries, and the UK Government's pledge to continue boosting investment in its defence industry which will, in turn, support Ukraine's war-effort.

Agreements were made with Ukrainian officials on their requirements for complex weapons and land systems support during the event. This provides a signal to UK industry as to the

types of equipment Ukraine most needs and for which the MOD will contract with UK industry on their behalf.

Minister for the Armed Forces Luke Pollard said: "The UK's support for Ukraine is ironclad. Our flourishing defence-industrial relationship symbolises the work happening across Government and the private sector to ramp-up and speed-up our support. By deepening our ties with Ukraine's defence industry, we are expanding our own industrial capacity, while boosting Ukraine's own capabilities. We stand shoulder-to-shoulder with Ukraine and we will provide support for as long as it takes."

Major General Anna-Lee Reilly CB said: "This trade mission demonstrates our continued support to the Ukrainians in the ongoing defence of their country. As part of wider UK Government and industrial commitment, DE&S is helping the UK build an enduring partnership with Ukraine. With our support, British and Ukrainian companies are working together to enhance Ukraine's defence industry and increase our collective capacity to deliver mission-winning defence systems, opening up opportunities for the UK defence industry."

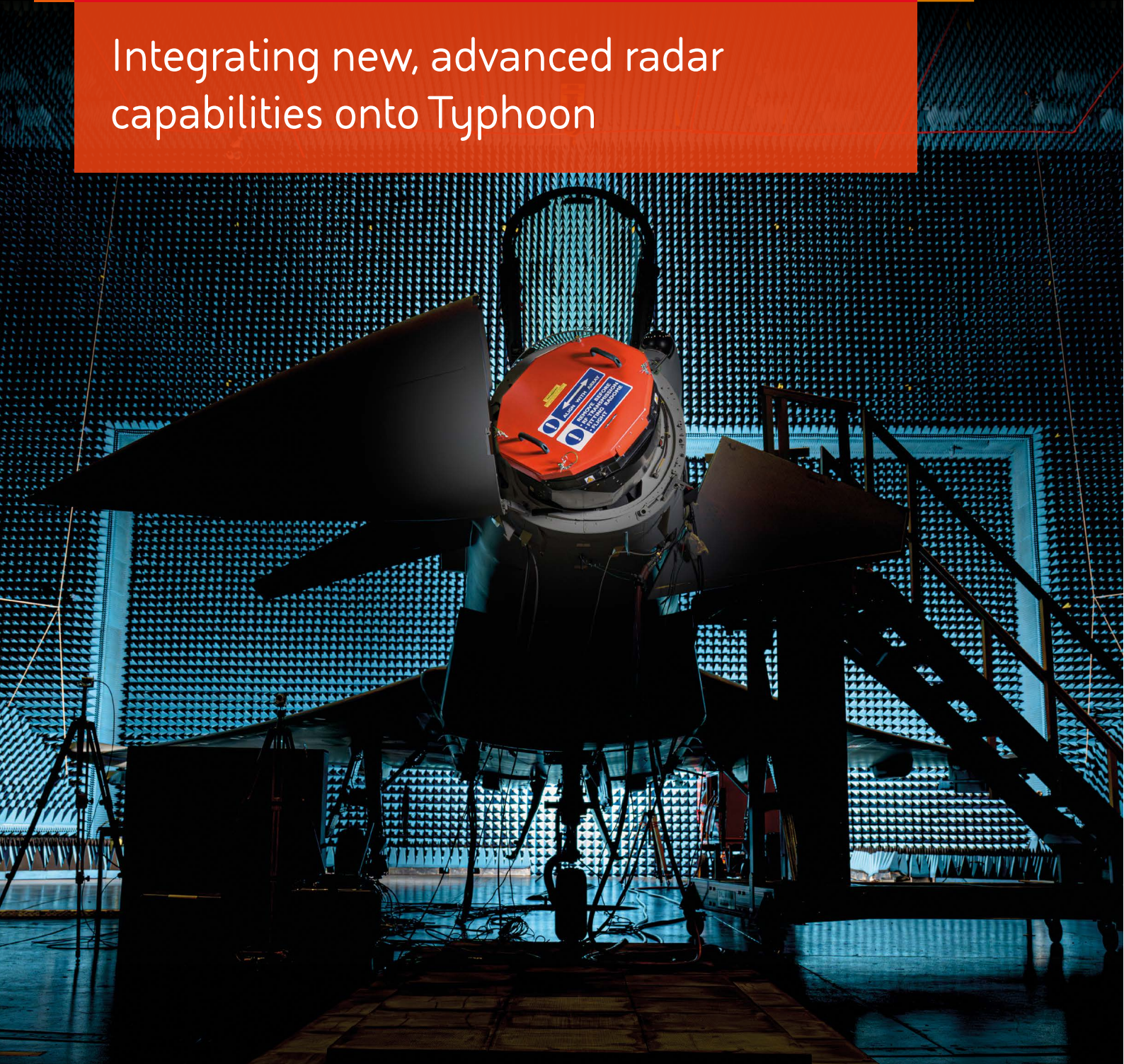
The MOD has already placed contracts with Thales for air defence missiles and Sheffield Forgemasters for artillery gun barrel forgings. Future orders are in the pipeline and will be funded by Ukraine, drawing on their reserves and on UK export finance.

Defence Secretary John Healey recently confirmed that the Government is meeting its commitment to support Ukraine, with 16 AS90 artillery guns on course to be delivered within 100 days of taking office.

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## FEATURE

# Forty years of service: From the Wrens to DE&S

**Elizabeth Wombwell, DE&S Corporate Services Group Head of Function, shares some of the career lessons she's learned during four decades of service.**

**This year marks a significant milestone in my career, 40 years of service. It's a journey that began in 1984 when I boarded a train from Scotland to Plymouth to start basic training with the Women's Royal Naval Service, known as the Wrens. One that would take me across the globe and eventually lead me to DE&S. Here's are some of the lessons I've learned along the way.**

## The power of supportive leadership

When I became pregnant in the early 1990s, Navy regulations required that I resign. Dutifully, I handed in my resignation, but my civilian boss had other ideas. In a remarkable act of support, he tore up my resignation and insisted I stay. He secured a two-year extension that would allow me to continue my career after my daughter was born.

In 1996, with the encouragement of the same boss, I made a significant move to what's now known as DE&S. This wasn't part of any grand career plan, just an opportunity I took. It's a decision that would shape the rest of my professional career, as I've remained at DE&S ever since.

## Embrace flexibility

One of the most valuable lessons I've learned is the importance of flexibility. Rigid career plans can lead to disappointment, whereas staying open to new opportunities allows for growth. When I joined DE&S, I was content in my role but soon faced a decision: stay where I was or pursue a promotion. I chose the latter.

In the early 2000s, I became the Head of Learning and Development, a role that aligned with my passion for helping others to grow. My responsibilities soon expanded to overseeing the MOD's apprenticeship programmes. One of highlights of my career was helping DE&S' first adult apprentice earn the title of MOD Apprentice of the Year. As a fellow Scot, seeing him collect his award in full Highland regalia was a significant moment of pride!

## Stay authentic

As a woman who has navigated a historically male-dominated field, I've learned the importance of staying true to myself. Too often we feel pressure to adopt an 'alpha male' persona to succeed, but my advice is to resist that. Be true to yourself and confident in your abilities. Building credibility takes time, and it's essential to be patient and persistent.

Over the last 40 years, I've witnessed significant changes in Defence. The steady dismantling of cultural barriers has paved the way for a more inclusive environment. We all play a role in helping to make our workplaces more inclusive, and female leaders play a crucial role in challenging traditional norms and inspiring the next generation of women.

## Align your values

When looking for a new role, seek an employer that aligns with your values. The transition from the military to the civil service was smoother than I anticipated, largely because of the similarities between the Women's Royal Naval Service and DE&S. In both, collaboration is highly valued. Joining DE&S felt like a natural extension of my service, as the organisation has more than 1,000 ex-military personnel.

Whether in uniform or as a civil servant, the mission remains the same: to ensure the safety and security of our nation. For me, joining DE&S was a continuation of a mission rather than the end of my service.



## NEWS

# DE&S welcomes National Audit Office report on Ukraine support

**The public spending watchdog praises DE&S' support, as the UK announces a £300 million contract to supply artillery shells for Ukraine's Soviet-era guns.**



**A report from independent public spending watchdog the National Audit Office (NAO) has recognised DE&S' contribution to the UK's support for Ukraine.**

The report praises the speed, innovation and collaboration DE&S teams have shown in helping to equip and support Ukraine's armed forces since Russia's full-scale invasion began in February 2022. The NAO acknowledged the significant improvements that DE&S made to procurement timescales, for example supplying wheeled anti-aircraft equipment in only six weeks compared to the usual one to two years.

DE&S CEO Andy Start said: "We welcome the NAO's report, which recognises the crucial contribution DE&S and the UK defence enterprise has made to the Ukrainian war effort. The speed with which our teams mobilised and responded to the Russian invasion from the outset was outstanding and I'm extremely proud that their sustained, innovative efforts have been acknowledged."

The NAO report recognises the creative approaches DE&S teams have employed, such as with Australian L119 guns.

In this instance, DE&S organised for sights to be fitted to the guns, then sourced ammunition from the US, and brought New Zealand military personnel to the UK to train Ukrainian soldiers to use them.

The report singles out DE&S' spirit of collaboration, with teams across the MOD and with logistics contractor Team Leidos, which has made more than 3,000 deliveries to Ukraine by road. It also mentions DE&S' efforts to safeguard value for money for the UK taxpayer and the work of DE&S' International and Industry Co-operation team, which secured export permits for military equipment bound for Ukraine.

The report, which also looked at the role DE&S plays in managing the procurement and delivery of equipment through the International Fund for Ukraine (IFU), was published in the same month that DE&S awarded a £300 million contract to supply 152mm artillery shells for Ukraine's Soviet-era guns. This is the IFU's largest ever support package and brings the fund up to a significant milestone of having provided over £1 billion worth of equipment and support to Ukraine.

The artillery ammunition contract will deliver 120,000 newly-manufactured shells over the next 18 months. It will stimulate industrial capacity in Europe and safeguard reliable supply chains that will continue to provide Ukraine with vital ammunition. The DE&S Rapid Procurement team, part of the Operations Directorate, was pivotal in sourcing this equipment, with thousands of shells expected before the end of the year.

Defence Secretary John Healey confirmed the £300 million contract during a meeting in London with his Ukrainian counterpart, Rustem Umerov. The Defence Secretary said: "UK military equipment continues to prove invaluable for Ukraine's war effort. The ongoing defensive operation in Kursk underlines the crucial importance of continued support. And today's milestone for the International Fund for Ukraine shows the value of working with our allies to deliver that support."

"Our government is stepping up Britain's support for Ukraine to fight Putin's illegal invasion. We are speeding up deliveries of aid, with a much-needed ammunition package announced by the Prime Minister at NATO set to begin deliveries within months. We will continue to step up our support to help Ukraine achieve victory."

## NEWS

# Major General Reilly honoured by Royal Academy of Engineering

**Major General Anna-Lee Reilly CB, DE&S Director Strategic Capability, Engagement and Operations, is now a Fellow of the Royal Academy of Engineering.**

**Reflecting a career full of achievements, Major General Anna-Lee Reilly CB has been made a Fellow of the Royal Academy of Engineering. She is one of 71 Fellows elected this year, representing the nation's best engineering researchers, innovators, entrepreneurs, and business and industry leaders.**

Major General Reilly's defence career began in 1997, when she attended the Royal Military Academy Sandhurst. A year later, she was commissioned into the Royal Electrical and Mechanical Engineers (REME). It was here that she first found

her passion for engineering and started a career that would take her all over the world.

Major General Reilly has served in Bosnia, Kosovo, Iraq, Afghanistan, Germany, Poland and Canada, commanding REME units at all levels. She has spent most of her career supporting armoured formations, but also completed an attachment as the Chief of Staff of the Thames Tideway Super Sewer.

As Director Strategic Capability, Engagement and Operations, Major General Reilly has several important roles. This includes overseeing the delivery of

vital UK military support to Ukraine through the Granting in Kind and rapid procurement of lethal and non-lethal materiel, and supporting the replenishment of UK equipment and munitions. In addition, as the Director of Task Force Hirst, she leads a programme on UK-Ukrainian defence industrial cooperation, placing large contracts in support of Ukraine.

On being made a Fellow, Major General Reilly said: "I am honoured to have been selected as a Fellow of the Royal Academy of Engineering this year. I have had a fabulous career in the REME, and I am now working at DE&S where I get to continue my engineering journey.

"I have had a varied military career of which I am incredibly proud. As a Fellow of the Royal Academy of Engineering, I hope to give as much as I can back to my profession, bringing all this experience together to help shape the future of the industry, encouraging the next generation of military and civilian engineers to fulfil their potential and find solutions to real world challenges."

DE&S CEO Andy Start said: "I would like to congratulate Anna-Lee on being elected as a Fellow of the Royal Academy of Engineering. This is testament to her unique capabilities, exemplary engineering and Defence career achievements to date. I have no doubt that her contribution to the Academy will be both remarkable and inspiring."

Founded in 1976, the Academy promotes the engineering and technological welfare of the country. Its goal is to harness the power of engineering to create a sustainable society and an inclusive economy for all.

Professor Sir Jim McDonald FEng FRSE, President of the Royal Academy of Engineering, said: "Our new Fellows represent some of the most talented people in the world of engineering and are taken from the ranks of those who are aiming to address some of our most critical problems. We are proud to say that many of our newly elected Fellows have come from underrepresented groups in engineering and related sectors and we hope this helps to tackle some of the issues around a lack of diversity within the profession."





*“THIS MUCH **VARIETY,**  
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IS RARE TO FIND”*

- HEMA, COMMERCIAL OFFICER

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## NEWS

# The shift to prototype warfare and innovation exploitation

**James Gavin, Head of the DE&S Future Capability Innovation team, explains why his team is reorientating to focus on capability acceleration and prototype warfare.**



**It is well-known that technological changes accelerate during wartime. We can see this happening in real-time as the war in Ukraine continues.**

Uncrewed systems – cheap to produce and widely used – frequently grab the headlines. Ukraine has shown how uncrewed one-way attack boats can significantly degrade a larger, better-equipped navy. Ukraine's one-way attack drones (or one-way effectors as they are known in the UK) have had a significant, even outsized, impact when compared to their cost. And, when top-tier platforms have been unavailable, Ukraine has leveraged cheaper technologies at pace and scale.

Technological development during war is a frantic race between capabilities and counter-capabilities, each reaching for a competitive edge that allows them to win the 'unfair fight'.

As well as continuing a monumental effort to provide Ukraine with battle-winning capabilities, lessons learned from the conflict are being implemented here at DE&S.

The Future Capability Innovation (FCI) team (previously the Future Capability Group) is shifting from projects where we consider if new capabilities are worth investing in (what the MOD calls

'pre-concept' projects) towards capability accelerators and prototype warfare. In these, our front-line command mission partners are more interested in rapidly exploring new ideas and accelerating them to exploitation, moving concepts into operational prototypes to be used in real environments, or 'failing fast' and moving on to alternative solutions.

This is happening in the context of the new operating model being implemented at DE&S, which is changing how we work for the better. The FCI team is now part of the Gateway area, DE&S' new front door, where earlier and more fulsome conversations between DE&S and our mission and industry partners are fostered.

Over the last decade, the Western military science innovation and technology (SIT) community has focused on spread-betting across an array of technology areas, often criticised as 'innovation tourism', rather than making decisions that are driven directly by the needs of front-line users. This means SIT teams have been experimenting and exploring technologies without a focus on accelerating capabilities into operational use. If the UK is to move to an effective 'pre-war footing' then this has to change.

In response to this changing need and narrative, we have reorganised FCI's front-line command focused teams into two new groups: a Prototype Warfare team and a Capability Accelerator team. The first focuses on rapid capability development, driven by front-line user needs. The second focuses on exploring novel technologies and then accelerating these into operations if they are useful and affordable.

As well as a fresh focus, the two teams employ more modern ways of working. For example, the Prototype Warfare team will use the proven 3-2-1 product development model. In this, we pose an outcome-focused capability ask to industry, receive competitive bids, and then fund the best three to a minimal viable product. Then we assess these, take forward the top two to minimum viable deployable capability, and finally the best capability to scale and further spiral development.

This is not a brand-new way of doing things. What is different this time is that these are not being propelled by the UK's own direct wartime needs. DE&S is being driven by lessons learned from war elsewhere.

Changes like these, which are likely to roll out farther than FCI, will help sustain our technological advantage so that the UK and our allies can better win 'the unfair fight'.

## NEWS

# RAF Typhoon with cutting-edge radar system completes first test flight

**An RAF Typhoon fitted with an advanced prototype radar system has successfully completed a first flight.**

**A Eurofighter Typhoon test and evaluation aircraft has conducted a first flight with a new radar system, which will give the RAF unmatched situational awareness and enhanced capabilities to locate and identify targets.**

The Typhoon, which was fitted with an E-Scan Radar, also known as the European Common Radar System Mk2 (ECRS Mk2), flew from BAE Systems' flight test facility in Lancashire. The team were supported by the ECRS Mk2 supplier, Leonardo UK.

Nick Moore, Typhoon Deputy Head of Capability Acquisition at DE&S, said: "This is an important step for this strategically important programme, which will provide the RAF with battle-winning technology. The ECRS Mk2 radar will further transform Eurofighter Typhoon's control of the air and provide exceptional capability that our adversaries will struggle to match."

The test flight is a significant milestone for the Typhoon development programme. The ECRS Mk2 will strengthen the aircraft's control of the airspace and provide cutting-edge electronic warfare capabilities making the Typhoon an even more potent part of NATO's front-line fleet.

Tim Bungey, Chief Engineer for ECRS Mk2 at Leonardo UK, explained: "The development of the ECRS Mk2 fully utilises the UK's world-class radar design skills. Over the past few months, its processor and receiver, and its antenna power supply and control units have all been re-engineered from the prototype design to further enhance the capacity, capability and performance of the Mk2 system, in alignment with the new antenna and electronic warfare capability."

The development of the radar and the test flight are part of an £870 million contract awarded by the DE&S Typhoon delivery team to BAE Systems in 2022 for an ECRS Mk2 that will be ready to enter service towards the end of the decade. The flight follows a programme of integration and ground-based testing delivered through a successful collaboration between DE&S, RAF, BAE Systems and Leonardo UK. This contract supports 600 jobs across the UK's combat air industry, including more than 300 at Leonardo's site in Edinburgh, 100 in Luton and 120 at BAE Systems in Lancashire.

Air Commodore Nick Lowe, RAF Head of Capability Delivery Combat Air and Typhoon Senior Responsible Officer, said: "The evolution of Typhoon's air combat capability is paramount to ensure it continues to deter potential aggressors, defend our nation and defeat our adversaries wherever we need to fly and fight, whether for the UK or in our staunch support to the NATO alliance. This first flight of the ECRS Mk2 prototype new radar in the test aircraft is a positive step towards ensuring this."

Andy Holden, Radar Delivery Director at BAE Systems, said: "Programmes such as the ECRS Mk2 ensure the UK retains a sovereign capability to develop and integrate cutting-edge systems in to front-line combat aircraft such as Typhoon. Through this work we are directly supporting critical know-how and sustaining hundreds of highly-skilled jobs."

The delivered ECRS Mk2, along with significant weapons system enhancements as part of the Eurofighter Phase 4 Enhancement, will further increase the operational effectiveness of the Typhoon.

Test and evaluation trials are planned for the remainder of the year to assess the new features which the system can deliver.





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## NEWS

# E-7 Wedgetail takes two major steps forward

**The E-7 Wedgetail programme recently celebrated two milestones that bring this important aircraft significantly closer to joining the RAF fleet.**

**The first E-7 Wedgetail AEW Mk1 aircraft has taken its maiden test flight, while a key facility which will be used to maintain them has been officially opened at RAF Lossiemouth in Scotland. Both the aircraft and the facility were procured by teams at DE&S, working alongside their RAF and industry partners.**

As the world's most advanced, capable and reliable Airborne Early Warning and Control (AEW&C) aircraft, the E-7 Wedgetail will provide intelligence, surveillance, target acquisition and reconnaissance for the RAF. Capable of fulfilling a wide range of missions, the Wedgetail can provide high-fidelity, accurate target information thanks to a cutting-edge Multi-role Electronically Scanned Array sensor housed in a distinctive fin on the spine of the aircraft. The sensor, combined with an advanced communications suite, enables the crew to provide tactical control to other assets, while enhancing the situational awareness of Joint Force commanders.

Currently unpainted, the test aircraft flew from Birmingham Airport where it is being modified by STS Aviation. It will now fly to another location to be painted in RAF livery before returning to Birmingham to complete the installation of its mission systems.

The E-7 Wedgetail modification programme has created more than 100 highly skilled jobs in the Birmingham area. Overall, the programme is expected to create around 700 jobs across the UK, with more than 300 of these already established.

DE&S E-7 Chief Engineer Minna MacKenzie said: "I am incredibly proud of Team Wedgetail. The safe completion of this first flight is the result of a truly collaborative effort between the MOD, Boeing and STS Aviation. It moves us significantly closer to delivering this

critical AEW capability to the RAF. We look forward to leading the next phase of this exciting programme."

The Lossiemouth Combined Line Engineering facility, where the aircraft will be maintained once in-service, sits alongside the Atlantic Building, from where the UK's fleet of nine Poseidon MRA Mk1 aircraft already operate. It was built by Boeing supplier McLaughlin & Harvey, with more than 175 people employed on site at the project's peak.

RAF Programme Lead Air Commodore Alex Hicks officially opened the facility in a ceremony on 19 September. After the ceremony, Air Commodore Hicks said: "It is a real privilege to open the Combined Line Engineering facility for the joint use of Poseidon and Wedgetail engineering teams. Collocating the teams will bring significant advantage to Defence as they operate, train and learn from each other to drive synergies into the maintenance of the two capabilities."

Building the facility, sub-contracted by Boeing under a contract with DE&S, supported five further Scottish businesses. This included local Moray steel contractor, Simmers Contracts. The family business, located just 25 miles from the site, provided 556 tonnes of steel and 7,000 square metres of cladding to support the project.

Ashley Parkes, Boeing Defence UK Fixed Wing Director, said: "We have a proud history delivering large-scale infrastructure projects in Scotland in partnership with the MOD and our local supply chain... This facility is a critical step forward in ensuring the successful service introduction of the UK's future E-7 fleet."

The facility will be ready for the arrival of the first aircraft Wedgetail aircraft in 2025.



## NEWS

# DE&S pilots AR glasses for deaf and impaired hearing staff community

Pioneering glasses, which use augmented reality to project real-time conversations on their lens, are being trialled by DE&S employees with hearing difficulties.

**Eight pairs of augmented reality (AR) glasses will be available for members of DE&S' deaf and impaired hearing community, as part of a three-month pilot at MOD Abbey Wood, thanks to a new contract with XRAI Glass. The cutting-edge technology could help reduce workplace barriers by allowing its users to engage directly in dialogue, even if they are not able to use British Sign Language (BSL) or when BSL interpreters are unavailable.**

Initial feedback is that the glasses, which can also be configured to translate conversations in over 90 different languages, could transform the working lives of employees in the deaf and hearing-loss community. If successful, the glasses could be made available across the MOD and potentially to other government departments.

DE&S CEO Andy Start said: "At DE&S we are committed to an inclusive working environment where everyone can thrive and reach their full potential. This pilot will determine if this technology can help staff do their job to the best of their ability."

Members of the Deaf and Impaired Hearing Network at DE&S attended a demonstration to learn more about the glasses and try them out before the pilot started at the end of September.

After the event, Engineering Delivery Partner commercial manager James Quinton-Prior said: "I've been really impressed and see these glasses as a potential game-changer. Giving those in the deaf and impaired hearing community tools like this will allow us to break down barriers and more easily progress our careers."

Catherine Wrigley, who works in Helicopter Safety Governance, added: "Having the subtitles displayed in my line of sight will help stop the 'tennis match' in meetings as I try and find the next speaker. Other available software for subtitles can be very inaccurate and state things like 'having a pasty' when in fact it's 'having capacity'."

The pilot will look to gather feedback around how the glasses perform in different scenarios including one-on-one, in groups and in settings where there is significant background noise.

The pilot's lead Chris Chennell, a senior architect in the DE&S Digital delivery team, said: "As someone who does not struggle with hearing, this project has been an incredible learning experience for me and one that has become very important to me. The initial feedback has been really encouraging, and I'm very hopeful this will prove to be a really positive addition for our staff. Over the next

three months we will gather more feedback to help us determine the best way to assist our colleagues with hearing loss, whether it's through this technology or something else."

Dan Scarfe, CEO and Founder of XRAI, added: "Launching our AR glasses with DE&S is a pivotal moment for us. It's about more than just technology; it's about enriching lives and ensuring that staff living with hearing loss feel fully integrated and empowered in their roles."

The pilot will initially focus upon providing pairs of glasses for people with hearing loss. Depending on capacity it may open up later to people wishing to use the glasses for translation as well.



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# DE&S delivery highlights

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

## Successful first guided firing of the anti-ship Sea Venom missile

The Sea Venom anti-surface missile has successfully completed its first guided live-firing from a Royal Navy Wildcat helicopter at the Aberporth range in Wales. This marks a significant milestone in the development of Sea Venom, which will provide Wildcat helicopters with an increase in capability and lethality.

Sea Venom is a modern, primarily anti-ship missile designed to destroy a range of attack craft from a safe range. The missile has a 'coastal suppression capability', which means it can also hit shoreline targets, destroying potential threats to warships operating nearby. The live-fire trial was a collaborative effort by DE&S, the Royal Navy and industry partners.

Commodore Nick Sergeant, DE&S Head of Helicopters, said: "This firing marks a vital step forward in the integration of the Sea Venom missile into what is already an outstanding helicopter to provide the Royal Navy with a world-class capability. I am grateful to all those across industry and the MOD who have worked so hard to achieve this milestone."

## DE&S joins British Army and industry for productive DVD 2024

This year's Defence Vehicle Dynamics (DVD) show was one of its busiest and most successful. Taking place over two days at UTAC Proving Ground in Millbrook, Bedfordshire, DVD 2024 attracted more than 7,000 visitors. Many were drawn to the off-road area where, for the first time, Ajax and Boxer armoured vehicles and the Challenger 3 main battle tank were on display side-by-side.

Visitors were also able to see for the first time the Remote-Controlled Howitzer 155mm Wheeled Artillery System mounted on to a Boxer, and witness the prowess of Ajax as it negotiated an off-road track.

Inclusivity played a significant role in this year's event. Women in Defence founder Angela Owen OBE hosted an insightful and challenging interview with DE&S CEO Andy Start. This was followed by a panel discussion which included Jill Hatcher, DE&S Director General Corporate, about the challenges facing women in the defence sector.

## Contract signed for next step in UK-German ammunition cooperation

The UK and Germany have taken the next step in cementing their collaborative efforts to deliver the next-generation of 120mm Enhanced Kinetic Effect (EKE) tank ammunition.

The qualification contract, signed with Rheinmetall Waffe Munitions (RWM), will confirm that the new lethal round is safe and suitable for service-use by the UK's Challenger 3 and Germany's Leopard main battle tanks. The increased lethality of EKE is driven by the incorporation of novel technologies, including its high-strength tungsten penetrator.

The two nations are working together to develop the ammunition under a Statement of Intent announced by DE&S CEO Andy Start, in his role as UK National Armament Director, and his German counterpart Vice Admiral Carsten Stawitzki in April 2023. Working on behalf of both nations, BAAINBw, the German military procurement arm, has now successfully concluded negotiations with RWM to allow qualification of the new ammunition.

Mark Colley, Senior Responsible Owner for the Challenger 3 programme, said: "This is an excellent example of Anglo-German cooperation, which will see us qualify and field the most advanced 120mm ammunition."

## PEOPLE

# Britt Hatton

**Job title**

Operations Manager Graduate

**What does your role involve?**

The DE&S Operations Management Graduate Scheme consists of three placements over two years. I'm in my final placement and have been lucky enough to have worked across the Ships, Land and Air domains. My role is to help ensure equipment is at optimum capability and availability to meet our front-line mission partners' needs. In my current placement, I'm part of the team that's working to bring a new remotely piloted aircraft into service.

**What do you most enjoy about your job?**

No day is ever the same, so I'm never bored! There is always a new challenge and the work is really varied. The fast-paced nature of the projects at DE&S keeps me on my toes and the graduate scheme provides an excellent opportunity to work with a range of equipment at different stages of the project lifecycle.

**What is your greatest accomplishment to date?**

I lead the DE&S Corporate Social Responsibility Working Group. This is a group of apprentices and graduates that organise volunteering opportunities across Bristol and the South-West. I'm proud to have overseen the growth of the group from 16 members to around 40. My favourite volunteering event was doing gardening and maintenance at Brightwell Centre in their therapy garden. We built a vegetable patch, painted their outdoor furniture and did lots of weeding.

**What keeps you energised about working at DE&S?**

As an Operations Manager Graduate, I get to meet and work with a wide range of people, both within DE&S and externally. I enjoy interacting with people and learning new ways of working from them by asking them questions in a non-judgemental way that evokes new thinking on an issue or task.

**Who or what has shaped who you are?**

My parents and my partner. They support me with everything, including my career decisions and studies as part of the graduate scheme.

**What do you enjoy doing in your spare time?**

I love crocheting. I enjoy making something from scratch, be it a jumper, a top or a pillowcase. Like many people during the pandemic, I picked up a new skill and I haven't stopped crocheting since!

**What might surprise people about you?**

My mum is from Norway and I can speak Norwegian.

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

Make sure you ask questions. Don't feel afraid to speak up in a meeting and admit you need further clarification, even if this is just asking what an acronym means.





An uncrewed aerial vessel conducts a successful artificial bomb drop on Royal Navy experimentation vessel Patrick Blackett as part of Exercise Repmus 24, NATO's annual uncrewed wargames.

EDITOR'S CHOICE

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**Cover photo:**  
DE&S apprentices take part in the 2024 Tom Nevard Memorial Competition.







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