Ministry of Defence de&s

DIGITAL OPPORTUNITIES EDITION 177 | MAY 2023

DESIDER

AN INSIDE LOOK AT **DEFENCE EQUIPMENT & SUPPORT**

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

In this issue

START Talking

Welcome to the May issue of Desider. Our focus this month is on artificial intelligence (AI), cyber and digital engineering, and the enormous opportunities, and acute challenges, each brings for Defence. The world of equipment procurement, support and manufacturing is set to be revolutionised by these fast-changing technologies. If we embrace them, we can bring people and platforms closer together than ever before, continue our commitment to One Defence, and really deliver for our armed forces.

As Nigel Shaw, our Chief Digital Information Officer, explains in his senior leader piece, our people are using innovative digital-driven platforms, housed in three new control centres at our Abbey Wood headquarters, to catalyse better data-sharing, speed up project delivery timescales and increase availability. These control centres form an integral part of the wider Digital Exploitation for Defence (DX4D) programme, which brings together projects focused on capability deployment, campaign advantage and business operations from across Defence, including our armed forces and industry partners. Advancements in digital engineering, like digital twinning and 3D printing, will be essential to that. By empowering teams to design and stress-test kit in virtual spaces, and quickly create real-world prototypes, we can move faster, act smarter, and more swiftly and safely develop new equipment.

Data-processing tools like Script and Kraken will allow us to digest and interpret massive amounts of data on supply chains, stocks and user requirements, in ways that were unthinkable just a few years ago (read more on both later in this issue). They make our support to the front-line more strategic, consistent and efficient, while being dynamic and responsive.

We're still on a journey of discovery with these emerging technologies and we know there's a lot to learn. The 3D printing hackathon we recently hosted with armed forces and industry partners was a remarkable glimpse at the future of defence manufacturing. We're quickly developing our understanding of how best to deploy this new tech, and I'd encourage you to read the lessons the Digital Engineering Implementation team have already learned.

AI and cyber will play leading roles in the future of defence procurement and national security. As Air Commodore David Rowland, Chief of the Defence AI Centre, puts it, we "face an epoch of unprecedented change" where "those that are innovating and adapting in an agile way have a strategic advantage". The potential benefits for Defence are vast and we must be proactive in exploring them.

The challenges and risks are equally real, and we must be prepared for those too. I know we're on the right track when I read about the exciting Defence Cyber Marvel 2 exercise, which DE&S played a key role in. Seven hundred experts, in the largest live-fire cyber exercise in Western Europe, learning in real-time how to counter cyber-threats of all shapes and sizes.

To meet the needs of tomorrow, it's imperative that we incorporate new manufacturing technology and digital platforms into our operating model. An essential part of that is our work with the defence industry, both large primary suppliers and smaller, more specialist small- and medium-sized enterprises. They're leading the charge in many areas and we have much to learn from them.

This month's Desider gives just a taste of what's to come in this new digital era. There's a lot at stake, but so much to be gained, so long as we keep working together to drive Defence forwards.

PEOPLE

Grasping the digital opportunities for today and tomorrow's Defence

Nigel Shaw, DE&S Director and Chief Digital Information Officer, talks with Desider about the fast-changing digital opportunities open to Defence, and how DE&S is planning to make the most of them.

Along with the rest of Defence, the digital community are currently being asked three critical questions. How do we significantly improve the availability of current military platforms and equipment? How do we reduce the time it takes to deliver new military capability? And how do we ensure that the capability is integrated to enable our armed forces and allies to work as one fighting force?

For me, part of the answer to all three questions is we must make the most of every digital opportunity that presents itself. The digital technology that underpins defence procurement is rapidly evolving and we must keep pace, to exploit its benefits and give our armed forces the winning edge.

At DE&S, we are building three control centres in which we will use transformative digital capabilities to increase availability, reduce delivery times and ensure the equipment we procure is 'interoperable by default'. If we get this right, we will deter our adversaries, protect our armed forces and become a faster, smarter, more effective DE&S. Today, tomorrow, together.

Today

In the first control centre, our data specialists will collect, connect and analyse data on availability from across Defence, using dashboards to display this in clear and consistent ways. Our people can then drill down into the data to identify availability gaps against agreed demand, understand their causes and develop action plans to fix any issues. Increasingly we will look to use artificial intelligence to identify opportunities from the ocean of data available to us; an early proof of concept is already providing real-world benefits for the Army.

Tomorrow

In the second control centre, we will provide visibility on the adoption of digital engineering techniques across the many equipment projects managed by DE&S. We will work closely with industry to maximise the use of digital twinning and 3D printing to help us develop, test and manufacture equipment faster than ever before. Digital twinning means teams can design and test virtual versions of new kit in thousands of situations, boosting efficiency and reducing costs, without compromising safety. 3D printing can create rapid prototypes and offers us a way to quickly produce replacement parts.

Together

From the third control centre, we will help our front-line clients model optimum solutions to connect our different platforms and those of our allies. Modern digital tools provide increasingly

powerful visualisation capabilities to help senior decision-makers understand benefits and trade-offs. Our aim is to continually build a better war-fighting system across Space, Air, Land and Sea.

All of this work is pan-Defence and builds on the MOD-wide Digital Strategy for Defence. To be successful we will need to work very closely with industry; bringing every part of Team UK Defence together to give us the battlefield edge. We've already run a series of events involving industry to help us map our next steps and learn from their best practice. The Defence Suppliers Forum will also be visiting our availability control centre this summer. In the future, they will be there in the room with us, assessing and responding to our capacity and capability needs.

I'm excited to see how our digital platforms and technologies develop. We're entering an exciting data-driven digital age and I'm pleased to say that DE&S has, and will continue to, embrace the opportunities that brings.

FEATURE

The evolving intersection of AI and cyber for Defence

Air Commodore David Rowland, Chief of the Defence AI Centre, tells Desider about the opportunities and challenges for Defence at the fast-evolving intersection of AI and cyber.

In recent conflicts, technology has been at the front and centre, and those that are innovating and adapting in an agile way have a strategic advantage. While humans cannot be everywhere, technology can be. We face an epoch of unprecedented change. Through their ubiquitous nature, technologies like cyber and artificial intelligence (AI) can exacerbate the potential for a disruption in balance of power, and risk miscalculation and misunderstanding.

With the UK Government's recent Integrated Review refresh, technologies (including AI and cyber) have been placed squarely at the heart of the National Strategy to underscore the importance of operational capacity to achieve 'real world' effects in the digital sphere.

As set out in last year's Defence AI Strategy, the Defence AI Centre (DAIC) is working with partners to mitigate the potential impacts of AI proliferation and misuse, and to champion the study of and subsequently address AI impacts across all domains, including cyber.

The benefits of AI technologies are vast, as we have all seen with the recent eruption of Large Language Models, like Chat GPT, into our everyday consciousness. We are already witnessing its utility in health, farming and finance, in addition to Defence. However, we must also acknowledge its challenges of bias and 'hallucinations' (plausible answers produced by AI that turn out to be untrue), and its vulnerability to abuse by malicious actors. As it develops, the potential increases for cyber and AI to intersect to better detect threats, monitor user activity, highlight suspicious content and detect zero-day threats. As our adversaries increasingly employ these technologies, so must we.

At the DAIC, we are accelerating the MOD's ability to harness the game-changing power of AI through our ambitious, safe and responsible approach. Because most new and emerging technologies, like cyber and AI, are inherently dual-use, innovation is found within a broad ecosystem of university offshoots and fast-moving small-to-medium tech enterprises. The DAIC is working collaboratively, with government, industry, academia and our allies, to champion, enable and innovate AI across Defence and ensure we maintain the strategic advantage for our armed forces.

The intersection of AI and cyber is at a critical juncture. It will require nurturing newly established, thriving technological ecosystems through a clear engagement in education, skills and investment.

The UK is one of the top five nations when it comes to innovation, AI and cyber, and a major international power in science and technology. To maintain our competitive advantage, we must foster best practice collaboration, cohesion, responsible

behaviour and threat mitigation. Success will require strong synergistic relationships between operational, research and analytical efforts as part of an integrated UK roadmap.

Upskilling our people is a foundational step in this journey. At all levels, Defence must have the knowledge, skills and tools to ensure that the forces and functions have the skills required to maintain the UK's position.

As we move further into the era of cyber and AI, Defence must be ready, with the right tools and people, to grab each opportunity and face down each new threat that emerges.

FEATURE

DE&S joins largest live-fire cyber exercise in Western Europe

Building on the success of Defence Cyber Marvel in 2022, DE&S staff travelled to Estonia to take part in live-fire cyber exercise Defence Cyber Marvel 2. With 700 participants, it is the largest exercise of its kind in Western Europe.

Forty DE&S team members participated in the largest live-fire cyber exercise in Western Europe, Defence Cyber Marvel 2 (DCM 2), organised by the UK's Army Cyber Association. Over the course of a week, 700 cyber specialists in 34 teams, engaged in escalating cyber-attacks.

DCM 2 gathered together people from UK Defence, government agencies and industry partners, and from allies as far-flung as the US, Japan, Kenya and Oman. The exercise took place at the CR14 Cyber Range in Tallinn, Estonia, with Estonian partners central to the scenarios being played out. CR14 is NATO's largest cyber range and can deploy more than 7,000 simulated systems, including military networks and national infrastructure.

The exercise tested the skills of participants to stop cyber-attacks against allied forces in real-world scenarios. They were asked to monitor and defend against attacks on their networks and infrastructure, while ensuring that critical services remained available. Teams learned from responses, and were able to develop their knowledge and skills. The exercise elevated theoretical discussions to realistic simulations that played out as they would in the real world.

Dan Steel, development manager in the DE&S Digital Automation team, described DCM 2 as an "immersive and enjoyably challenging learning exercise for my team. The design of the event and relevance to current global events was engaging and a highly productive use of my time."

DCM 2 participants were divided into Blue, Green and Red teams. Blue teams defended complex, realistic cyber networks from a series of sustained attacks by Red teams. Green teams, made up of Blue team participants from 2022's DCM 1, worked behind the scenes to build, develop and maintain the DCM 2 infrastructure. Green teams included a number of DE&S staff who worked alongside military counterparts to deliver the exercises.

For DE&S people, participating in DCM 2 was a huge success, both for their learning and development, and in helping them understand the wider context they are operating in. For example, the digital technology employed in Challenger 3 tanks will provide the Army with ground-breaking new capabilities, but this must be delivered in a way that does not create new vulnerabilities for tank fleets. Plans are already underway for DCM 3 in 2024 and DE&S will certainly be there.

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FEATURE

Lessons from DE&S Digital Engineering

The DE&S Digital Engineering Implementation team (DEIT) share the lessons they have learned while exploring digital engineering best practice concepts for procurement and support.

As part of the wider Engineering Strategy, DE&S has been running a series of pathfinder initiatives looking at how best to approach and actually 'do' digital engineering in Defence.

"Digital engineering offers the potential to significantly reduce the time it takes to deliver equipment and improve in-service asset availability," says Professor Duncan Kemp, DEIT team leader. "Using models in the design, manufacture and support of equipment is not new. However, advances in modelling, simulation and information management mean that we can significantly improve the quality of our engineering, and in turn the equipment, services and software we deliver and support."

"Given the size of the opportunity, pace of change and uncertainty in the space, we established the DEIT as a central team to support, enable and develop digital engineering across Defence," explains Ben Stuart-Richards, author of DE&S' original Digital Engineering Transformation Strategy. "While the learning and adapting process is ongoing, we have already garnered some important lessons."

"Getting the right incentives is critical," says Cassie Wilkins, commercial lead for the DEIT. "Most of the engineering is done by our partners in the supply chain, and most companies are using digital engineering already. What is important for us is to specify the outcomes we need and to ensure that industry are incentivised to deliver them. We have been and continue to engage with all of our big suppliers to agree joint digital engineering improvement programmes."

"We need to make sure that the models supporting engineering decisions are fit for purpose," adds Mike Johnson, the DEIT air engineering lead. "Making safety related decisions requires models that are fit for purpose, under control and validated. We need to make sure we use the right model for the task in hand."

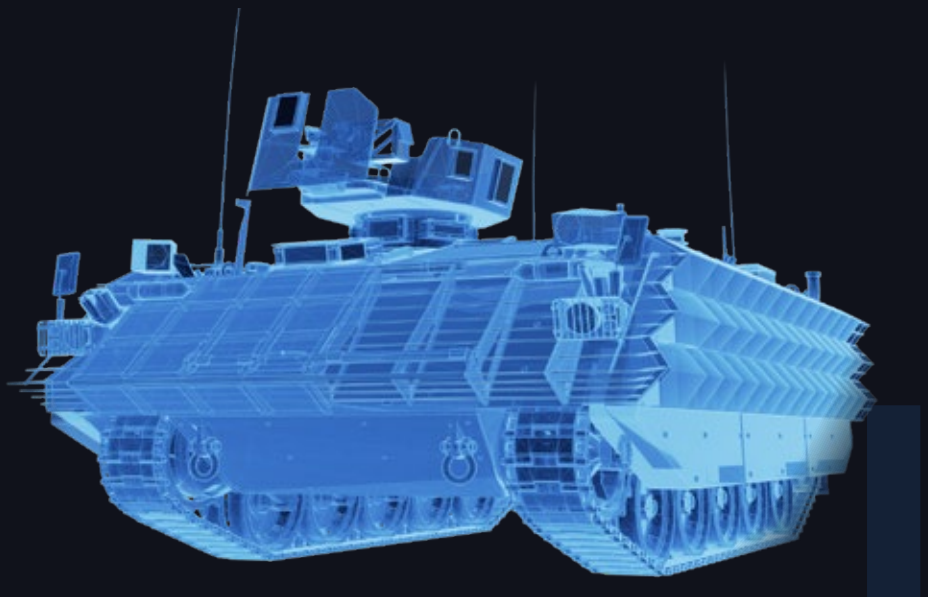
"Developing an effective digital twin or digital thread is a systems engineering challenge in its own right," says Ben Bayross, the DEIT engineer responsible for Learning from Experience and future strategy. "Successful digital engineering requires processes that empower decision-makers to make the right decisions, using the right models and approaches to reduce project delivery times or increase in-service equipment availability. Each digital thread needs to be tailored to deliver the greatest benefit at the least cost."

"Underpinning all of this, of course, is good Information Technology," says Tash Cain, a DE&S Digital Business Analyst embedded in the DEIT. "We need to ensure we have the necessary high-quality links to industry systems, as well as some focussed investment in in-house MOD tools."

Digital twins are models of a system that are fed with data from the system and can directly influence it (a complete feedback loop). This allows engineers to predict and actively manage performance, for example replacing equipment before it fails rather than letting it fail in-service.

Digital threads describe the relationship between the models and underpinning data that support the delivery of a particular project or in-service equipment. Delivering the greatest benefits will require us to optimise thousands of digital threads across Defence.

Digital engineering includes using model-based approaches to build digital products (such as digital twins), linked by digital threads, to improve procurement and in-service support.



NEWS

A key opportunity for DE&S to engage with SMEs

DE&S teams joined hundreds of companies of all sizes at DPRTE, one of the UK's leading defence and supply chain events.

In late-March, DE&S took the opportunity to meet and engage with small- and medium-sized enterprises (SMEs) at this year's Defence Procurement Research Technology and Exportability (DPRTE) event.

Attended by over 19,000 people, including hundreds of companies, DPRTE is one of the UK's leading defence supply chain events. It connects buyers, suppliers, prime contractors and academia from across the defence acquisition supply chain to enable networking collaboration and showcase opportunities for future work with the defence sector. Keynote speeches, an exhibition hall and knowledge transfer zones gave attendees the opportunity to learn more about the factors impacting the defence sector and engage with key players from across the marketplace.

Speaking at the event, DE&S CEO Andy Start said: "This is my second time at DPRTE and it's a fantastic event because it's full of vibrant SMEs who are so passionate about their business. The whole point of DPRTE is to put human faces to our organisation, to make our commercial teams really accessible, to make our supply chain teams really accessible, and to make it as easy as we possibly can for SMEs to be able to interact with the wider defence ecosystem."

Andy Start was one of the keynote speakers on the day. In his speech he outlined the importance of working as a One Defence team to keep our nation safe and help drive its prosperity.

"Together at any one time we deliver about 1,750 different contracts; well over 600 programmes delivering different types of capability to help equip our armed forces. Overall, we're very good at that. In fact, we deliver 98 percent of the key user requirements that our war-fighters ask for. We deliver the majority of programmes on time or ahead of time, and the vast majority ahead of budget.

"The challenges in the world right now are really significant, but the opportunities for us to make a bigger difference are greater than they've probably ever been. I'm really excited about the level of engagement I'm seeing from our SMEs and from our primes in re-architecting the way we work together."

Andy also took the opportunity to highlight how the Defence Suppliers Forum, which exhibited at DPRTE alongside the MOD Doing Business with Defence team, is providing greater interaction between industry and government. The Forum is the main MOD–industry engagement mechanism for discussions on strategic defence topics. By bringing industry much earlier into the acquisition process, they are able to see the bigger picture, and assist with thinking differently to come up with more innovative solutions that can be deployed faster.

NEWS

DE&S orders Carl-Gustaf M4 weapons system for British Army

DE&S has placed a £4.6 million order with Saab for Carl-Gustaf M4 recoilless rifles, along with ammunition and a training package, to replenish stocks sent to Ukraine.

DE&S has procured a new multi-role weapon system to equip the British Army on operations. A £4.6 million order has been placed with Swedish firm Saab for a delivery of Carl-Gustaf M4s, along with ammunition and a training package. These will replace the anti-structure munitions the UK sent to the Armed Forces of Ukraine last year to support the defence of their country against Russia.

Manufactured by Saab, the Carl-Gustaf M4 is a recoilless rifle that allows dismounted soldiers to effectively respond to multiple targets on the battlefield. It can fire a range of 84mm calibre munitions depending on the operational objectives. It was first adopted by the Army towards the end of the 1960s in its Mark 2 variant, as an infantry anti-tank weapon.

The British Army's Director of Futures, Major General James Bowder, said: "The procurement of Carl-Gustaf M4 will provide a versatile, potent and proven capability to our close combat forces; it will defeat a range of threats on the modern battlefield, further enhancing our lethality."

This order is the latest negotiated by DE&S for military equipment developed in Sweden. In December, DE&S signed a contract with Saab to replenish the UK's stock of NLAW anti-tank weapons, which have proven highly valuable to Ukraine as they defend their nation.

And in March a sales agreement was signed with Sweden to purchase 14 Archer heavy artillery units to replace the AS90s gifted to Ukraine. Ownership has now been transferred to the British Army and they will be operational by next April.

Major General Anna-Lee Reilly, head of the DE&S Operations Directorate, said: "We are extremely proud to work with our industry partners and international allies to help Ukraine maintain their sovereignty and to return Europe to a place of peace and prosperity."

The UK is committed to providing the capabilities Ukraine requires, including artillery, air defence and armoured vehicles, and to drive further international donations and secure lasting peace. The UK provided £2.3 billion in military support to Ukraine last year, with DE&S playing a key role in that, and has already committed to sustain that level of military support again in 2023.

Dean Rosenfield, Group Managing Director of Saab UK, said: "Our strong relationship with the British Army is built upon delivering proven capabilities that help them to meet the threats they face and the Carl-Gustaf M4, like NLAW, is in prime position to do this."

NEWS

New defence supply chain mapping tool provides crucial visibility, insight and intelligence

SCRIPT, a new mapping tool, will allow DE&S teams to better understand and improve defence supply chains.

DE&S has unveiled a new tool that will give its teams the ability to thoroughly map and interrogate defence supply chains, from primary partners to sub-contractors, to identify and mitigate risks and vulnerabilities.

The innovative supply chain mapping tool, named SCRIPT, was developed by the DE&S Supplier Management and Resilience team (SM&RT) and DE&S Digital, and supported by industry partners Methods Analytics. Utilising the digital capability DE&S has developed as part of its wider Management Information programme, the tool gives users the ability to analyse data from a huge range of sources. It combines information from DE&S' applications with data from Tier 1 partners about their supply chains, and open-source data covering suppliers' financial, security and ownership status, to create a 360-degree view of each link in the supply chain.

According to SM&RT team lead Shaun Goodman, in SCRIPT, Methods Analytics and the DE&S Digital have developed "a tool that will make supply chain resilience and analysis thorough. We now have a tool to illuminate the supply chain and answer questions we have never been able to previously."

Launched at the Defence Procurement Research Technology Exportability (DPRTE) event, users engage with the mapping tool through an innovative dashboard, where information can be filtered through different lenses. This covers everything from the projects each supplier delivers to their location, financial health and cyber security.

Where the tool identifies risks in the supply chain, mitigating actions can be taken before they have an impact on equipment availability. This is particularly important when companies that provide a unique capability within the supply chain, which cannot be delivered by other suppliers, are highlighted as vulnerable.

DE&S CEO Andy Start said: "This new technology means that we have even greater supply chain visibility, insight and intelligence. We've worked across UK Defence to develop an integrated solution so that we can continuously monitor and scan for threats, risks and fragilities, and be ready to respond quickly to new opportunities and challenges."

SM&RT's work on the SCRIPT project is part of DE&S' Management Information Strategy and Solution programme. The programme uses appropriate, good-quality data and modern analytical methods, coupled with quality training solutions, to develop DE&S' ability to work with management information and improve decision-making.

One of the primary suppliers that worked with SM&RT to provide data on their supply chain was Raytheon UK. David Carter, Director of Supply Chain Management at Raytheon UK, said: "Raytheon UK has worked collaboratively with the DE&S team to share knowledge of the tiers of the supply chain. By working together, we have developed a more detailed picture than working individually. While the output is a 'work in progress', we remain committed to improving it over time. The tool provides a user-friendly way to jointly identify, assess and mitigate risk. Great progress has been made and, as more data is loaded into the tool, DE&S will also be able to assess the risks that span multiple programmes."

NEWS

DE&S CEO signs tank ammunition partnering agreement with German counterpart

Germany and the UK sign agreement to collaborate on advanced armour-piercing tank ammunition.

Germany and the UK will work together on the next phase of development for advanced armour-piercing tank ammunition for the Challenger 3 main battle tank.

DE&S CEO Andy Start, in his role as UK National Armament Director, and his German counterpart, Vice Admiral Carsten Stawitzki, have signed a Statement of Intent to collaborate on the Enhanced Kinetic Energy (EKE) round, which will provide a step change in the British Army's ability to defeat enemy threats. This marks a significant milestone.

The next phase of qualification will demonstrate that the new munition passes all legal and regulatory standards.

Ongoing discussions will seek to establish a joint programme this year.

EKE rounds will be fired from the L55A1 turret on Challenger 3 and German Leopard 2 main battle tanks, further supporting interoperability between NATO allies. The agreement follows both countries announcing the gifting of a squadron of their respective main battle tanks to support Ukraine's fight against Russia's invasion.

DE&S Director General Land Chris Bushell said: "Whilst the wider capability benefits of this agreement is great news for Defence and the Armed Forces, the real-term benefits of this collaboration will be felt in procurement. For those of us delivering front-line capabilities such as Challenger 3 this is welcome news."

Under the terms of the new agreement, other nations may also be able to join this co-operation or be export recipients, as well as continuing discussions on potential collaboration for other types of 120mm tank ammunition.

Andy Start said: "The UK will continue to drive stronger collaboration between partner nations to address current and future procurement needs. This approach maximises our collective strength to drive standardisation across NATO and provides the opportunity for nations to improve availability and realise efficiencies."

As the programme develops, the sharing of work between the countries will be key to ensuring a sustainable industrial capacity for both nations' industries.

In February, the MOD announced that it had approved the Critical Design Review for Challenger 3 ahead of schedule. The swift progress of this programme was made possible thanks to collaborative working between DE&S, the British Army and their industry partner RBSL.

Defence Secretary Ben Wallace said: "We're very pleased to work with Germany on this programme, helping equip our respective armed forces with a crucial battle-winning capability. The standardised ammunition will not only benefit battlefield collaboration with many of our NATO allies, but has important export potential for UK and German defence industry partners."

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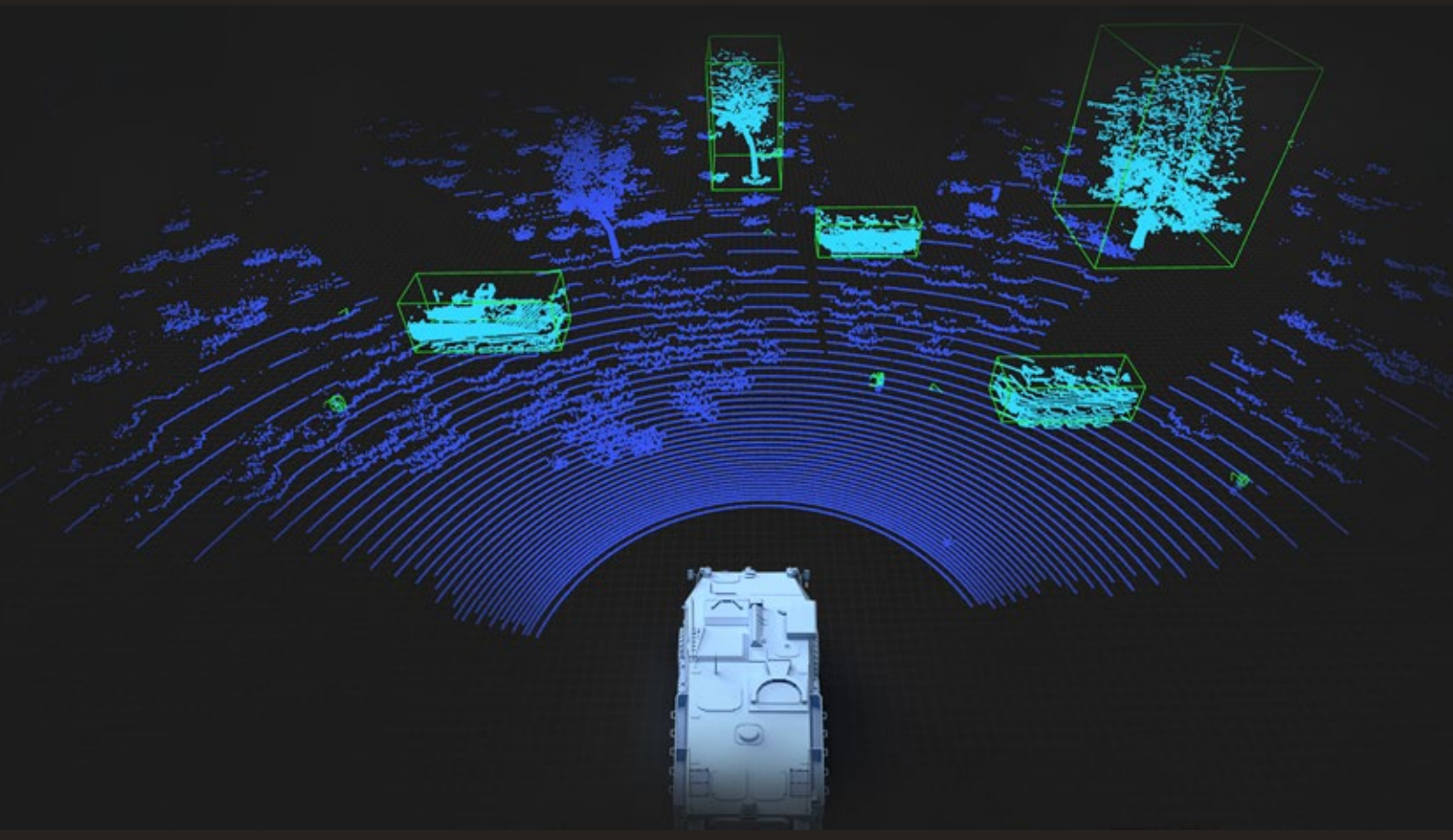

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NEWS

Prototype of world-class radar system for Typhoon delivered

The prototype radar will be fitted to the UK's Typhoon fleet and has been delivered to BAE Systems' flight-testing facility.

The state-of-the-art European Common Radar System Mk2 (ECRS Mk2) prototype has been delivered to BAE Systems' flight-testing facility in Warton, Lancashire. Over the next year, the radar will be integrated into the UK's Typhoon fleet, with a view to conducting initial flight testing in 2024.

The prototype arrived at BAE's site in March from Edinburgh where it was developed and manufactured by Leonardo. Only days earlier, Air Vice Marshal Simon Ellard, DE&S Director Combat Air, had visited to check on progress and to help send it on its way from Leonardo's Scottish site.

ECRS Mk 2 will transform the Eurofighter Typhoon's control of the air, bringing world-leading electronic warfare capability that will allow the aircraft to simultaneously detect, identify and track multiple targets in the air and on the ground.

It will support operations in the most challenging situations, equipping pilots with the ability to suppress enemy air defences using high-powered jamming and engage targets while beyond the reach of threats. This will cement the Typhoon as the backbone of combat air capability, defending the UK at home and abroad for decades to come.

Lyndon Hoyle, head of the Typhoon Delivery team at DE&S, said: "Delivery of the prototype radar to Warton is the latest key milestone in this exciting programme. It was only possible thanks to a lot of hard work and excellent collaboration across DE&S, Air Command and industry; ingredients for success that we shall take forward into the next phase of the programme."

The radar will now undergo integration work and ground-based testing in preparation for its first flights on-board the Eurofighter Typhoon next year.

DE&S CEO Andy Start said: "I'm proud to say the integration of ECRS Mk2 on Typhoon will provide the RAF with battle-winning technology with which our adversaries will struggle to compete."

The development and integration of the ECRS Mk2 radar is taking place under a £2.35 billion investment that will generate and sustain up to 1,300 high-quality jobs across the UK. Overall, the Typhoon programme will continue to support more than 20,000 UK jobs.

Group Captain Mat D'Aubyn, Air Capability Typhoon Programme Director, said: "The new radar is eagerly anticipated as it will further enhance the superb capabilities of Typhoon and keep it at the leading edge of combat air for years to come."

FEATURE

New Ships insights and efficiencies to be delivered by Project Kraken

The DE&S Ships domain are rolling out Project Kraken, a data integration tool that promises to break down siloes and provide high-quality data-driven decision-making.

In this data-dominated age, large, multi-armed organisations like UK Defence face a significant challenge in quickly sifting, interrogating and effectively deploying the data they gather.

Project Kraken is a data integration tool, owned by the Navy Digital programme, as part of Project Renown. It gives users access to a wide range of Navy, support, logistics and engineering sources, enabling better analysis and collaboration across platforms, with real-time data that can be used to make fast, informed decisions.

There is a recognition across all those involved in ship support and acquisition, whether in DE&S, the Navy or industry, that current systems make data access and exploitation difficult and inefficient. This can harm operational outputs and hamper efforts to increase front-line availability. Project Kraken is a robust response to this.

Kraken is a smart, agile, easy-to-use tool that allows users to manipulate and present data in various ways, from simple, automated workflows to a full open-source code development library for machine learning. It provides users with a single point of access to multiple linked data-sets, doing away with archival spreadsheets and isolated databases.

According to Commander Suzanna Seagrave, DE&S Project Renown Data Sheriff, Kraken is "freeing up people's time, through automating and streamlining repetitive daily tasks, so it can be re-invested in more highly skilled, high-value tasks. This isn't just about a tool though, it's about becoming an organisation where we use data to empower our people and help ensure every decision they make improves availability at the speed of relevance."

Engagement with the Ships industry has been essential to this project. Even at this early stage of roll-out, over 400 industry partners from more than 30 different companies are using Kraken to support the Navy in a variety of ways. One of the features that distinguishes Kraken from other similar solutions is its ability to set precise levels of access without having to disaggregate the underlying data-sets, thus supporting true collaborative working without compromising security.

With around 2,000 users in DE&S alone, Kraken will enable greater supply chain efficiency, with predictive ordering and reduced stock write-offs. Data-driven scheduling will allow teams to optimise maintenance periods and better understand their options and the impact of each choice, so that any knock-on effects can be understood and mitigated.

Kraken will greatly benefit all those working to ensure the Royal Navy has the right equipment, at the right time, always properly serviced and maintained, with data-driven decision-making leading to improved operating capabilities. It will lead to increased availability and operational outputs, and intelligent management and data-sharing. As a result, Kraken will be part of a substantial step forward for the ability of the Royal Navy and DE&S to work more effectively together as One Defence.

NEWS

HMS Birmingham steel cut milestone supports thousands of UK jobs

HMS Birmingham becomes the fourth Type 26 anti-submarine frigate to begin construction at BAE Systems' shipyard in Glasgow.

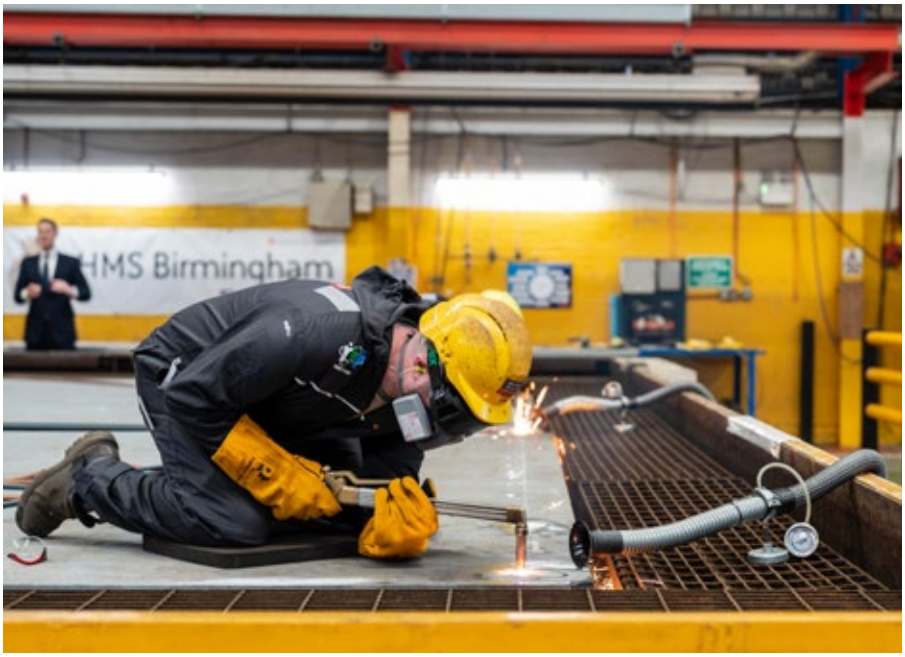
Steel has been cut for HMS Birmingham, formally marking the start of the build of the second batch of Type 26 frigates. This follows a £4.2 billion contract awarded to prime contractor BAE Systems in November 2022.

Then Minister for Defence Procurement Alex Chalk KC marked the occasion at a steel cutting ceremony, with HMS Birmingham becoming the fourth of eight Royal Navy anti-submarine warships to begin construction at BAE Systems' shipyard in Govan, Glasgow.

"This is yet another significant milestone for the Type 26 programme, supporting thousands of jobs in Scotland and across the wider UK supply chain. Working closely with our industry partners, we are bringing in a cutting-edge class of warships for the Royal Navy, bolstering our maritime capabilities into the coming decades."

Building on ambitions laid out in the National Shipbuilding Strategy Refresh, this represents another key moment for the Type 26 programme, the Royal Navy and UK Defence, and reinforces their commitment to shipbuilding in Scotland. All eight frigates will be built in Govan and outfitted in nearby Scotstoun, with the work sustaining roughly 1,700 jobs in Scotland and a further 2,300 jobs across the wider UK supply chain.

At just under 150 metres long, with a top speed of more than 26 knots and a range of more than 7,000 nautical miles, the primary role of the frigates will be protecting the UK's Continuous At-Sea Deterrent and Maritime Strike Group from the threat of submarines. The vessels will also be capable of countering piracy and delivering humanitarian aid and disaster relief.



The Type 26 will be armed with the Sea Ceptor missile defence system, able to destroy airborne and sea surface targets, and will carry a five-inch medium calibre gun.

DE&S Director General Ships Vice Admiral Paul Marshall said: "The steel cut for HMS Birmingham is a significant moment for everyone who has worked, and is working, on the Type 26 programme to deliver the best possible warships to serve the Royal Navy for decades to come. I look forward to seeing the second batch of frigates taking shape."

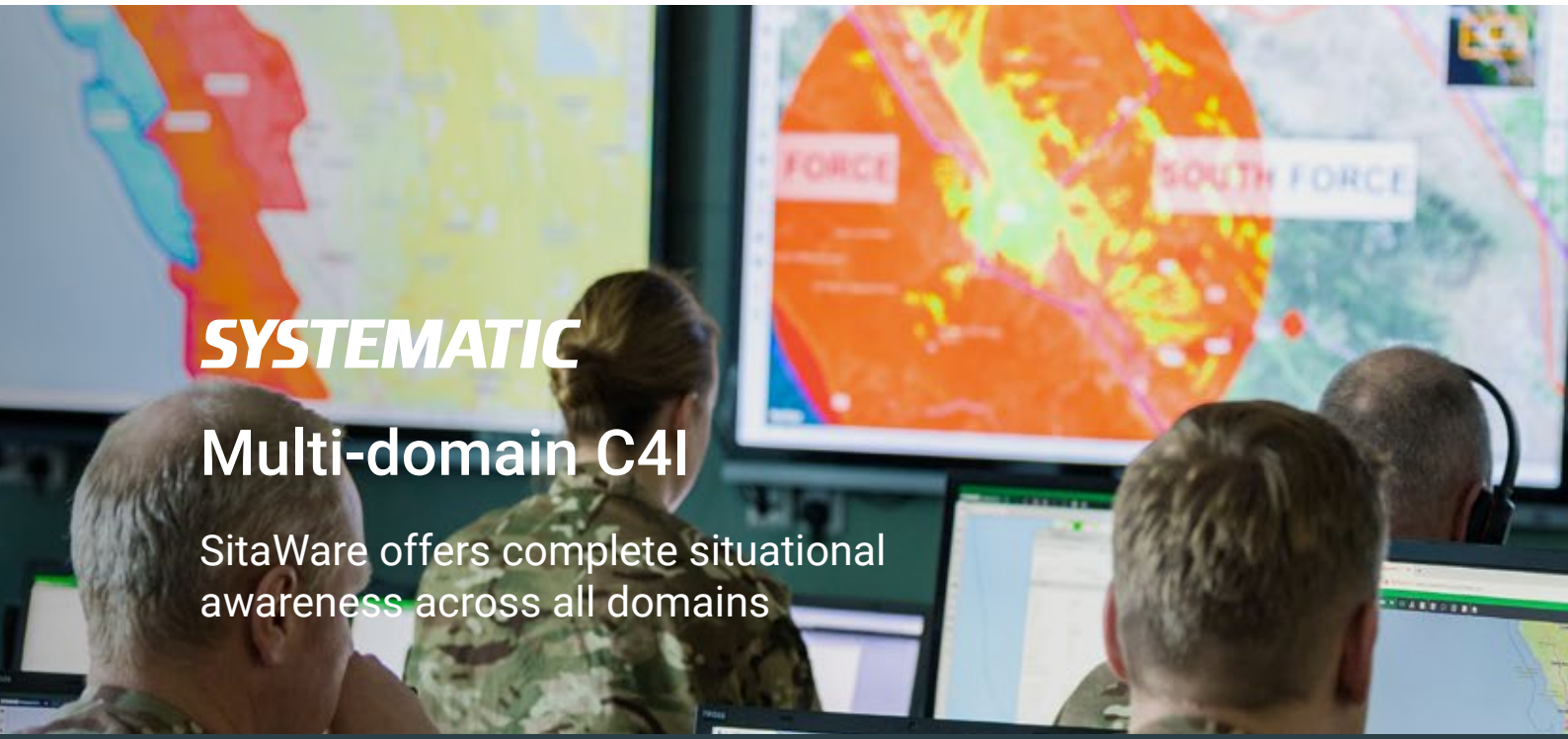
BAE Systems continues to invest in the programme and has received planning approval for a new 175-metre long, 85-metre wide shipbuilding hall at Govan, which will allow two frigates to be built under cover at the same time. This investment will be a major factor in the final five ships costing less and being delivered more quickly than the first three.

HMS Birmingham will join HMS Glasgow, HMS Cardiff and HMS Belfast. Construction of all the city-class frigates is expected to be completed by the mid-2030s, with HMS Glasgow, the first in class, entering service by the end of 2028. Designed for a service life of at least 25 years, the Type 26 will serve in the future Royal Navy surface fleet into the 2060s.

DESIDER

DEFENCE EQUIPMENT & SUPPORT

Desider is the monthly corporate magazine for DE&S. It is aimed at readers across the wider MOD, armed forces and defence industry. It covers the work of people at DE&S and its partners, and other corporate news and information.



NEWS

Teaming up with industry to unlock the benefits of additive manufacturing

DE&S and the Defence Support organisation have awarded the MOD's first contract framework for additive manufacturing, the first step towards utilising the defence potential of an exciting new process.

The MOD has set up the first contract framework for additive manufacturing (AdM), often known as 3D printing. Within Strategic Command, the Defence Support (DefSp) organisation is leading the project in close collaboration with DE&S. Framework contracts were awarded by DE&S' Future Capability Group, on behalf of DefSp, to five companies. This is an important step in exploring how DE&S and its industry partners can use AdM to its best effect.

The five companies – AMFG, Babcock, NP Aerospace, RBSL and Thales – will tackle the first phase of this work; focused on fitting 11 non-safety-critical metallic parts on to in-service platforms.

These contracts represent the first phase. Under the framework, DE&S will work with industry on tasks of increasing complexity, all focused on scaling-up the use of AdM to produce defence inventory parts for in-service platforms.

Charlotte Robinson, head of the Defence Support Innovation team said: "Through awarding these contracts we seek to unlock the issues which prevent us and our industry partners from using additive manufacturing to best effect. This includes tackling challenges such as upscaling its use, certifying additively manufactured parts for use on our platform systems, and redesigning and manufacturing parts which are no longer available.

"More broadly, we are looking at how to open the doors to manufacturing innovation by streamlining the end-to-end process. We recognise that this is a joint effort, not just between our organisation and DE&S, but importantly with our industry partners who hold many of the levers to enable change. We must work with them if we are to see the changes that all sides want and need. As a result, we have established a collaborative governance framework that runs alongside the spirals to provide support and challenge to all involved."

Colonel Dan Anders-Brown, FCG's High Value Manufacturing lead, said: "The industrial manufacturing base of our nation is critical to the success of future military operations and additive manufacturing plays an increasingly crucial role in Defence, boosting availability of parts for Front-line Commands globally. This is a vitally important area for our armed forces and one which has the potential to transform how we run defence logistics."

He added: "From ensuring parts are much more readily available to Front-line Commands to reducing our overall global carbon emissions, additive manufacturing offers so many benefits now and in the future, and we look forward to continuing this work with Defence Support and working closely with our industry partners to unlock the full potential and capability of this exciting technology."

NEWS

DE&S explores the future of additive manufacturing at the 3D printing hackathon

DE&S' Future Capability Group organised possibly the UK's first 3D printing hackathon to test design, analysis and additive manufacturing techniques, and engage industry partners.

Some of the UK's leading lights in the field of additive manufacturing (AdM), better known as 3D printing, came together in teams to compete at a special hackathon event organised by DE&S' Future Capability Group (FCG).

The intensive two-day competition saw AdM experts from industry working alongside armed forces personnel in mixed teams. They were tasked with reverse engineering actual pieces of kit used by Front-line Commands – such as hooks, clamps and battery brackets – using 3D printing techniques.

For several years Front-line Commands have been using 3D printing for a wide range of activities, from producing spare parts to creating protective covers for equipment being shipped globally. The purpose of the hackathon – believed to be the first of its kind in the UK – was to investigate how to better embed AdM technology into defence supply chains.

Teams used 3D scanners to reverse-engineer old or broken spare parts. They then used computer-aided design, topology optimisation and element analysis software to fix or improve the part and ensure it was light weight and strong enough. Once the designs were ready, the teams 3D printed prototype parts using a range of materials, including carbon fibre, titanium, aluminium and stainless steel.

The competition's eventual winner, Team Endeavour, was made up of experts from DMC Ltd, Siemens and Kaisen Babcock Marine, with second place going to the team from 71 Inspection and Repair Squadron RAF Wittering.

Project Tampa, a key initiative for FCG, has been focused on enabling suppliers to use 3D printing to help reinforce existing supply chains, reduce logistics burden and increase availability. In the future, once a digital design has been created and approved, the part can be manufactured by either MOD users at point of need, a nearby SME third party or the original equipment manufacturer.

"AdM is already having a profound positive impact on how we support our armed forces and this will only increase in the coming years," said Colonel Dan Anders-Brown, High Value Manufacturing lead in FCG. "We're moving away from traditional large procurements of spare parts and heading towards greater resilience in our supply chains through the ability to manufacture parts at the point at which they are needed.

"The industrial manufacturing base of a nation is critical to the success of future military operations, and our hackathon was an opportunity for our industry partners to work collaboratively with the MOD to show exactly what can be achieved through the process of 3D printing. Everyone who took part worked extremely hard, showcasing their AdM manufacturing capabilities, demonstrating how they can contribute to and support our ambitions using this exciting technology around the world wherever our armed forces operate."

NEWS

Valuable discussions between DE&S and industry at first Land Enterprise Working Group

DE&S leads first meeting of the new Working Group, alongside industry and MOD representatives.

The first meeting of the newly established Land Enterprise Working Group took place in April, led by DE&S' Land domain. The Working Group was created to explore ways for the MOD to work more collaboratively with its defence industry partners. The meeting saw discussions covering a range of issues facing land-based UK Armed Forces.

Last year the UK Government published its Land Industrial Strategy, which set out a vision for future collaboration between the MOD and the defence industry. A key pledge within the Strategy was the establishment of the Land Enterprise Working Group. This was envisaged as a forum where the MOD, industry and academia could talk openly about a variety of topics from capability goals to investment plans and technology priorities.

Speaking after the event, DE&S Director General Land Chris Bushell said:

"As part of the Land Industrial Strategy we made a pledge that we would get everyone involved in the Land enterprise into a room to ensure we are all on the same page about where we are and where we need to go. The importance of this forum is not just that we are demonstrating a joined-up, collaborative approach between ourselves and industry; it is an opportunity and a platform for all sides to both have their views heard and challenge what's being said.

"I personally came away from the first Land Enterprise Working Group forum feeling invigorated by the honest and robust views that were aired by all sides, which have certainly given me plenty to digest as we look at and think about the ways we work to make our processes as efficient and fit for purpose as possible."

He added: "As well as there being many of the prime defence suppliers in attendance, I am very pleased to say the SME [small- and medium-sized enterprise] community was also well represented. At a forum such as this, it's crucial that we listen to as wide and varied a cross-section of views as possible, including hearing from SMEs who play a vital role in the defence supply chain and ecosystem."

"We are at the start of a very long journey and there are many challenges ahead for the Land domain, not least the support which DE&S and industry is quite rightly providing for Ukraine. In addition, we must look at how we deliver against time and performance while at the same time getting our programmes on contract and accelerated delivery to the front-line."

Ministry of Defence

de&s

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PEOPLE

Sylwia Gasperowicz

Name:
Sylwia Gasperowicz

Job title:
Cost controller

What does your role involve?
As a cost controller, I ensure the financial forecasts for the Training and Simulation Systems Portfolio team's projects are a true and fair reflection of reality and I work closely with my project managers to ensure forecasts are also correct. I liaise with our management, schedulers, risk, engineering, transport and logistics, and commercial teams and contractors to make sure they provide us with the correct details to enable informed decisions at all levels.

What do you most enjoy about your job?
I love working with people. The incredible knowledge, skills and experience that we can share with each other means we can make huge personal and professional progress and development. I feel empowered, supported and trusted by my leaders and team members, and this helps me to do my job more efficiently and with a great sense of satisfaction.

What is your greatest accomplishment (in your role) so far?
I am an ambitious and motivated person, but I've only been working in my role for a year and that's not long enough to be claiming accomplishments for myself yet. I'm very happy to be part of the DE&S team because, working together, we can provide better equipment and support to our armed forces.

What keeps you energised about working at DE&S?
The people I work with and meet at DE&S. They have all been really welcoming and supportive, and my daily collaboration with every person in my team is great.

Who or what has shaped who you are?
My family is my everything. My grandparents and parents taught me to always treat people the way I would like to be treated, so treat them well and with respect. Thanks to my family, I have learned how to appreciate everyone and everything every day of my life. My family always believe in me, so with them by my side, I pushed myself to work hard and achieved the highest education at university, while working in a bank. I started my career as the manager of a business incubator for students who wanted to open their own businesses. It's my greatest achievement, which gave me real life and career satisfaction. I'm very proud of my students; many still have their own thriving businesses.

What do you enjoy doing in your spare time?
I love and do many sports activities, most often running, cycling, boxing and cardio exercise. I also love dancing, singing, listening to music, and reading books for myself and my older neighbours. I always find time for volunteering at a children's hospice and helping my older neighbours.

What might surprise people about you?
I love boxing, skydiving, driving sports cars, playing football and taking long-distance trips into the mountains.

What's the best advice you've ever been given?
Always be yourself and believe in yourself, and no matter how difficult life can be, never give up.

Griffin and Puma helicopters helicopters, part of 84 Squadron based at RAF Akrotiri in Cyprus.

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Cover photo: A soldier inspects a Carl-Gustaf M4 rifle

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Printing
Desider is distributed free to DE&S employees and the equipment capability organisations. Copies may be sent to readers outside MOD, including in the defence industries and is published on the web via GOV.UK and www.des.mod.uk. While the editor takes care to ensure all material produced is accurate, no liability can be accepted for errors or omissions. Views expressed in desider, and products and services advertised, are not necessarily endorsed by DE&S or the MOD. All editorial submissions must be cleared by the relevant MOD authorities.

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