

# DESIDER

AN INSIDE LOOK INTO LIFE AT DEFENCE EQUIPMENT & SUPPORT



**SECURE BY DESIGN**

Proudly delivering for the UK's Armed Forces

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# Foreword

BY SIR SIMON BOLLUM



**Events in Ukraine and an increasingly unstable world order remind us that security is both an individual and collective responsibility, and we should all foster a strong departmental security culture.** Supporting business resilience and keeping our information secure is key to the UK's national interest and vital to defending Defence.

Modern military equipment is increasingly characterised by high-tech equipment and software intensive systems as we strive to keep pace with the ever-evolving threat. We must all continue to take responsibility for our personal security, for the security of the information and equipment we procure and support, and for the wider security of Defence. Now more than ever, we need key security behaviours to be followed and that security expertise is valued among us all.

With current ways of working, we increasingly use sensitive information outside of the workplace. Smarter working enables people to work in home environments and adapted spaces, and we must be conscious that there will be those who are seeking to exploit this as our adversaries pose an ever-increasing cyber

threat to Defence. We need to be smarter about how Defence secures and maintains resilient systems and ensure that our equipment and systems are inherently protected against cyber-attacks rather than relying on procedural mitigations. This is where 'Secure by Design' as a core requirement for our new equipment comes in. Read more about this approach we've adopted on page 6 as Stephen Wilcock explains 'Secure by Design.'

In this edition, you will also read about some excellent examples of innovation and where we have worked with our industry partners to deliver for our armed forces such as the new body armour tailored for servicewomen and V-tails for the new Protector aircraft. Collaborative acquisition with allies and industry partners, where our needs align, can help us achieve more affordable, interoperable, and technologically advanced capabilities. By harnessing collaborative working, both at home and internationally, we will remain at the forefront of delivering state-of-the-art joint programmes with our partners and allies. Just this month, I met with my French and Swedish counterparts to look ahead to our upcoming joint ventures. It is

alliances like these that help strengthen our defence posture in the changing defence and security environment. We mustn't underestimate the importance of nurturing these strategic partnerships.

It continues to be the talent, commitment and professionalism of our people and our partners that drives' the changes that are required to deliver that battle-winning edge for the UK Armed Forces. I am confident DE&S is best placed to deliver the further step-change in performance crucial to the successful delivery of military equipment solutions, safely and securely for the information age.

## FEATURE

# Harvey Moore

Directorate of Security and Resilience Acting Head speaks with Desider around the security implications of evolving technology

I've always seen security as a competitive activity. Terrorists, hostile states, subversives, and criminals are increasingly targeting us. State and non-state actors are sophisticated, well-resourced and their risk appetite, particularly in cyber, has grown in recent years. You can guarantee that those who would do us harm are also trying to exploit emerging technology. It's important that we remain vigilant to this and don't forget this is a competitive activity. Everything that we're doing to try and exploit emerging technology our adversaries are also trying to do. Every great system or bit of kit that we have created, we will also need to protect and

protect ourselves against something similar being used against us. Take drones for example. A brilliant case of emerging technology with improving capabilities, however, in recent years we have seen them being utilised for both good and nefarious purposes. There are always two sides to security and it's essential that we remain attentive to this.

Really, the evolution of cyber and Artificial Intelligence (AI) carries a huge opportunity for us all. Yes, there are huge risks with the rapid evolution of AI, but there's also huge potential that we need to capitalise on. If we continue to keep pace with this evolution, there's opportunity to

exploit emerging technology in developing capability. As well as vastly improve data flows and analytics in our organisations.

Anything that provides us with more – and better – information, makes us a more informed customer and can lead to better internal processes. I think this rapid evolution will really improve the way we deal with complex and big data. And of course, Defence has vast quantities of that. So, anything that we can do to better analyse or use to trawl through all our complex and big data sets, I think will be really beneficial for all parts of Defence, including DE&S.

But this leads me to highlighting the importance of working with allies to collate information and share intelligence. Another huge opportunity, particularly in an environment of fast-evolving technology. Because without this we're at risk of losing momentum and losing the competitive race in security. The security sphere has a bit of a culture of not wanting to share. But sharing of information is so important to ensure we keep up with emerging threats and exploit best practice. We've got to learn how we can improve security when things go wrong. By the nature of security, we are cautious, sometimes to our detriment. Where there are opportunities

to learn from previous security incidents, we need to be willing to share so we can learn from experience and progress. It's crucial that we share intelligence between us and our allies to prevent the same thing happening somewhere else in Defence or with our industry partners. This is an area I'm very keen for us to improve in: sharing of actionable information that people can use to improve their security behaviour.

The key for me is that security is not a blocker, but an enabler. Unfortunately, some may view security as a blocker to be worked around rather than leading by example and setting the high security standards that the business of Defence requires. But it's a two-way street. If you leave security considerations to the end of the project, you are not likely to find accreditation or security approval easy. We must consider how security can best be enabled and 'designed in' from the outset,

not seen as a last-minute obstacle at the implementation stage.

Everyone has a part to play. We are only as good as our weakest link. And it's true that just one vulnerable area could jeopardise the strategic advantage we have in our capability. I believe we need to think a bit more holistically about security. It's important that we think in wider terms to begin with and then focus in on the niche and specialist areas. We need to stop looking at just cyber security, just physical security, technical security and personnel security. Increasingly we need to look more at how we utilise a broad range of mitigations to protect our assets, information and our people. And we need to continue to invest and develop our protective capabilities to make sure we do not start losing the security race.

Everyone needs to be security-aware, vigilant, and conscious of threats to our security. Security is not solely the responsibility of our security specialists and it's important that everyone understands the security fundamentals and their personal responsibility and be alert for anything that looks suspicious.

The evolution of cyber and Artificial Intelligence carries a huge opportunity for us all

## SENIOR LEADER COMMENT

## DE&S Director Engineering & Safety, Stephen Wilcock

Talks to Desider about DE&S incorporating a 'Secure by Design' approach to procurement

DE&S needs world-class engineering and science expertise to ensure that the equipment we buy and support for the armed forces is safe to operate, fit for purpose and delivers the operational edge that Defence needs. Most of the equipment that DE&S provides to the armed forces has a dependence on digital information and software which could provide a doorway for malicious attacks. This could be offensive cyber presenting safety, capability and operational risks that we need to defend against. As our adversaries are posing an ever-increasing cyber threat to the UK and to Defence, we need to be smarter about how Defence secures and maintains resilient systems. This means that we need to ensure that our equipment and systems are inherently protected against cyber-attacks, rather than relying on procedural mitigations. This is where Secure by Design (SbD) as a core requirement for our new equipment comes in. SbD is an initiative spearheaded by Defence Digital to improve the way cyber security is delivered across Defence. It is an approach that will ensure that Senior Responsible Owners (SROs), delivery organisations and our industry partners build cyber security into system and capability designs from the outset. It is an approach that seeks to put the ownership of Security firmly in the hands of delivery through contract, design and build, including upgrades and enhancements throughout the life of the capability, assured with independent assessment of this resilience. SbD will impact the way we manage our corporate and logistics capabilities as well as all the equipment and system capabilities we are responsible for delivering and supporting across our order book.

It is important that everyone understands the fundamentals of Secure by Design

While the front line commands have a heavy reliance on procedural mitigation measures to protect their equipment from cyber-attacks, we are taking active steps to apply SbD as a core capability requirement to ensure that cyber risks are always understood and that the equipment we provide is inherently secure against these risks. We are in a good place in terms of the equipment we are bringing into service having worked closely with our suppliers. We have provided focused guidance on what is required, however, as there is more we could do on our legacy equipment and we are working with our Front Line Commands



to provide them with opportunities to improve the inherent resilience of their equipment to cyber-attack. This SbD approach also aligns with Defence Digital's modernisation programme for how we undertake accreditation and ensures that we can focus on providing the best inherent cyber protection against rapidly evolving threats for the capabilities we acquire for our customers as well as for our corporate systems.

This challenge does give us a much higher bar reach in terms of the skills and experience we need to develop to support the delivery teams and the design requirements we ask for from our industry partners. I am therefore responding to the SbD challenge through the Equipment Cyber Resilience change programme which will educate and upskill security experts across DE&S and in due course provide Security as a Service (SaaS) across the delivery community. This will commonality of approach and sufficient suitably qualified personnel to support our teams.

It is important that everyone engaged in delivering military capabilities understands the fundamentals of Secure by Design. To respond to very real and ever-increasing cyber threats, we have to change our culture from 'accrediting systems' as they near delivery, to one that understands and identifies the risk early, continuously managing the evolving cyber risks. DE&S are absolutely committed to setting and maintaining high standards of safety and security in everything that we provide to our military clients. To help embed this increased focus on Cyber Security we are intending to change in the way we consider security risks as part of our safety assessments where there is a risk to life. In the same way that DE&S delivery teams are accountable for equipment safety, we intend to manage security in the same way so that safety and security risk are considered together with the same system of accountability using the same governance and risk escalation.

While the current environment has provided a renewed focus on our cyber resilience, we are already ahead of the game with our newer programmes. However, it is all too clear that we cannot stand still and that we need to rapidly build on this success with our skills, governance and focus on cyber security to maintain the pace and technological advantage on this moving target.

## FEATURE

## Body armour improvements for women in UK Armed Forces

Updated combat clothing and body armour, designed to improve the experiences of women serving in the Armed Forces, will soon be rolled out.

The body armour is being developed by the DE&S Land Equipment team, with input from DSTL and industry partners, Source Tactical Gear.

The armour, known as the Virtus Scalable Tactical Vest (STV), has been adapted following extensive trials with serving female soldiers ensuring personnel have more tailored protective equipment and demonstrates the MOD's commitment to meet the needs of the growing number of servicewomen.

Originally designed for those in close combat roles, the STV was used predominantly by men. After the opening of all roles throughout the military to women, the new range of equipment is part of DE&S' efforts to continuously improve the design of soldiers' body armour, to ensure it is fit for purpose, improves comfort and continues the modernisation of the UK military.

Amy Morgan, project manager for the DE&S STSP Survivability team, said: "This work is incredibly important as originally, the VIRTUS Generation 1 System was designed around the male fit and form – due to males only being able to join Ground Close Combat (GCC) units.

VIRTUS is now being rolled out to the whole Army and since females can now join GCC Units, elements of the VIRTUS System need updating to reflect the inclusion of female users."

"Users wearing the Narrow STV will find it more comfortable, that it moves with their body a lot better and reduces gaping and interference with other parts of the VIRTUS system."

"The Narrow STV will increase user ability to complete military tasks, increase user confidence in the personal protective equipment (PPE) they are wearing and ultimately, improve their survivability,"

she added.

The new body armour, which will be available to British military personnel from April 2022, was demonstrated in front of Minister for Defence People and Veterans, Leo Docherty, during a visit to the Army Training Regiment in Winchester on International Women's Day March 8th.

He said: "All roles within the military are open to women and we are committed to providing the best equipment to help them do their jobs.

"This is one of the many changes we have introduced to improve the experience for women in the Armed Forces and the new body armour and range of clothing sizes will increase the choice for our serving women."



NEWS

# £695-million investment in Hawk training jets and Red Arrows

The UK MOD is investing £695-million over the next 11 years to provide in-service support to the Royal Air Force's fleet of Hawk T2 training aircraft and the Hawk T1 jets flown by the Red Arrows.

**This will support hundreds of jobs at RAF Valley in Anglesey, North Wales which is home to a fleet of 28 Hawk T2 jets. These aircraft provide fast jet training for trainee pilots as part of the UK Military Flying Training System (UK MFTS) programme.**

UK MFTS provides the aircraft, synthetics and training devices to train the next generation of front-line aircrew of all three Services. Upon graduation, these pilots will go on to fly F-35B Lightning and Typhoon fighter jets.

Defence Procurement Minister, Jeremy Quin, said: "This contract will provide aircraft support to maintain the delivery of pilot training and the Red Arrows long into the future. It underlines our commitment to providing the highest quality training and aircraft to the future pilots of our Armed Forces."

The Hawk Integrated Support Solution comprises of two separate contracts placed by DE&S. These contracts will provide support for Hawk T2 aircraft, and the T1 Hawks used by the RAF's Aerobatics Team, the Red Arrows.

The Hawk contract with BAE Systems, valued at £590-million, will cover all Hawk T2 airframe support elements. This work will ensure the Hawk aircraft

continue as global ambassadors for the UK.

In addition, a separate £105-million contract for engine support has been placed with Rolls-Royce.

Air Vice Marshal Simon Ellard, DE&S Director Combat Air, said: "This is a major milestone for UK MFTS and the culmination of many months of hard work from the team at DE&S. Through this investment, we will continue to train our student pilots to become the best in the business."

Group Captain Andy Turk, Station Commander RAF Valley, added: "The announcement represents excellent news for Anglesey, our workforce, and for sustaining our core business of delivering world class training to our future fighter pilots. The Hawk T2 is a fantastic platform to train our Typhoon and Lightning pilots on, readying them for the demands of the frontline; this level of ongoing investment ensures UK Defence will retain our military edge within the contested air environment."

The new contract will secure more than 500 highly skilled jobs working for BAES and its maintenance partner Babcock International. These are mainly based at RAF Valley, with a small number of BAES support roles located at their other UK sites.

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## NEWS

# First UK manufactured V-tails fitted to new Protector aircraft

**The first set of V-tails manufactured by GKN Aerospace on the Isle of Wight has been fitted to one of 16 new Protector aircraft destined for the RAF.**

GKN Aerospace now manufactures the V-tails for all MQ-9B aircraft variants which are manufactured by General Atomics-Aeronautical Systems-Inc (GA-ASI) at a facility in California. The MQ-9B aircraft will be known as Protector once it enters RAF service by mid-2024.

Protector will be deployed in wide-ranging Intelligence, Surveillance, Targeting and Reconnaissance (ISTAR) operations where its ability to fly consistently for up to 40 hours, offers the RAF vastly improved armed ISTAR capability.

Michelle Sanders, team leader of the Remotely Piloted Air Systems delivery team at DE&S, said: "This milestone demonstrates the continued progress being made on this important programme which will provide the RAF with a cutting-edge capability. As well as equipping the UK Armed Forces for operations now and into the future, this key programme promotes prosperity in the UK and supports highly-skilled jobs."

With 12 UK industry partners, the programme is bringing together world-leading technology and service providers to work with GA-ASI, supporting over 200 UK jobs with £400 million being reinvested into UK industry.



There are a significant number of nations interested in MQ-9B, with Belgium having already agreed to procure Protector for its Medium Altitude Long Endurance (MALE) Remotely Piloted Air System (RPAS), and Australia having selected MQ-9B too. All MQ-9B variants sold anywhere in the world will now be fitted with GKN Aerospace manufactured V-tails with 11 of our 16 aircraft expected to be fitted with GKN manufactured V-tails

Protector will have to meet stringent NATO and UK safety certification standards meaning it could operate in civilian airspace. Protector would also be available, if requested, to support civilian agencies in the UK, for example in search and rescue and disaster response missions.

## FEATURE

# Challenger 3 tanks reach next milestone

**Work to fabricate the turret structures for Challenger 3 has started. The milestone was marked during a special steel cutting ceremony held at Pearson Engineering in Newcastle.**

The steel structures will house the turret subsystems which will ensure Challenger 3 is a network-enabled, digital 'Main Battle Tank' with state-of-the-art lethality, upgraded survivability, plus world-class surveillance and target acquisition capabilities.

The work was secured under a £25-million subcontract awarded to Pearson by Rheinmetall BAE Systems Land (RBSL) who have been contracted to upgrade and deliver 148 tanks under an £800million contract award, announced in May 2021.

The ceremony was attended by Minister for Defence Procurement, Jeremy Quin, British Army Director Programmes, Major General Simon Hamilton and DE&S Head of the Challenger 3 delivery team, Dave Clark.

#### Challenger 3 will feature:

- High velocity ammunition with faster speeds and increased range.

- Ammunition which can be digitally programmed from a new turret with a 120-millimetre smoothbore gun.
- A turret which can be fitted to the tanks of allies and global partners
- An upgraded engine with a new cooling system and suspension to improve accuracy when firing in transit.
- A new automatic target detection and tracking system to identify threats.
- New thermal long-range cameras modernising the day/night image system.

Officially announcing this milestone at Pearson Engineering, Defence Procurement Minister Jeremy Quin, said: "Challenger 3 tanks will be at the forefront of the British Army's ground force deterrent against our adversaries. They will be equipped with the latest digital enhancements and weaponry, providing support and reassurance to our allies. "This steel cut represents progress on delivering on our ongoing upgrade

to British Army capabilities and on investment in skills and manufacturing in the North East and across the U.K."

Dave Clark, Head of the Challenger 3 programme for DE&S, said: "This is great news for the Challenger 3 programme and for our industry partners in the North East. This Scotswood road factory was the birthplace for the Challenger 2 and it's great to see it will have an important role in the future of Challenger 3.

We are now beginning to see these tanks being brought to life and we remain on track to deliver a formidable capability to the British Army."

The Challenger 3 subcontract, alongside other current land programmes managed by Pearson, is a valuable investment in the North East of England and will sustain 285 skilled roles at the company. It will also help the company recruit several new technical roles across project management, engineering and design, as well as 20 apprentices under an expanded STEM outreach programme. Additionally, Pearson is expected to invest a further £4-million in its' machining capability as a result of the sub-contract.

# Exoskeletons minimise manual handling risks



Across all DE&S munition depots, military and civilian personnel carry out a wide range of tasks that require manual handling. This can cause a safety risk as manual handling places stress on a range of muscles, including the lower back.

It's important that sites carefully consider the safety of any powered equipment near munitions stockpiles, and DE&S Digital had been monitoring an emerging technology where an exoskeleton – a hard outer structure – provides support to the user.

In this case, the exoskeleton shifted the muscle load away from areas of the body vulnerable to injury to larger muscle groups more able to handle the load. Personnel at DM Kineton were impressed with the assistance it gave them.

Chris Chennell, DE&S Digital, said: "These exoskeletons are ergonomic chairs for people that don't work at a desk. It also makes the valuing our people aspect of DE&S 2025 personal, by making sure that no one is uncomfortable at work and safety risks are minimised."

Ben Goodwin, Defence Munition Districts Section at DM Kineton, said: "The passive exoskeleton – which means it is not powered – is ideally suited to environments like our munitions depots and helps support you, forcing you to lift correctly and eliminating risk of injury through bad practice."

A trial of the units is now underway at Defence Munitions sites, utilising the equipment in varying scenarios to identify where and how this technology can deliver the most positive impact.



NEWS

# CHINOOK DELIVERS CRITICAL RADAR EQUIPMENT



A Chinook helicopter delivered 4 critical components of radar equipment to Rock Gun – a key step in RAF Gibraltar’s upgrade to its Air Traffic Management systems. The fragile equipment was flown to the Upper Rock by experienced aircrew from 27 Squadron, RAF Odiham.

The air operation was in support of Programme Marshall, UK Ministry of Defence’s programme to upgrade and support air traffic management capability across 65 units in the UK and around the globe. RAF Gibraltar’s Air Traffic infrastructure at Rock Gun will benefit from this investment, with an enhanced air traffic picture and improved system monitoring and remote management.

The four underslung loads that the Chinook delivered were components of the new STARNG Radar, including radar units and drive mechanism. Also flown to the top of the Rock was a new navigational beacon.

RAF Gibraltar’s Station Commander, Wing Commander Nel Doherty, paid testament to the skill of the teams involved in the successful lift, saying: “I am genuinely delighted at the manner in which this difficult task has been achieved. As always, The Rock poses its own set of unique challenges, which makes a like-for-like replacement trickier than normal.” “However, a talented and very broad

This critical piece of work has enabled the installation of these new modern more reliable radars under Programme Marshall

team have ensured that all safety considerations were in hand, and that disruption to the people of Gibraltar was minimised. I’d like to thank them for their patience. We expect that this activity will be remembered by many for quite some years to come.”

It is hoped that the radar will be operational in September 2022 after a period of verification and testing. Controllers will continue to use the Watchman radar until then.

Mark Nileshwar, DE&S Marshall team leader, said: “I am very proud that a team effort from a wide range of parties culminated in the successful lift of key radar components to the uniquely challenging Gibraltar radar site. This critical piece of work has enabled the installation of these new modern more reliable radars under Programme Marshall”

RAF Gibraltar personnel were supported by specialists from the UK, including those from the Joint Air Delivery Test and Evaluation Unit who prepared and tested the underslung loads. Overseeing the various teams were the Project Officers from Aquila and Thales, who form part of the delivery team for Programme Marshall.

Recently, 27 Squadron has provided tactical air transport to front-line troops in Afghanistan. The Squadron operates the Chinook helicopter, an extremely capable and highly versatile support helicopter. It can carry up to 55 troops or up to 10 tonnes of mixed cargo.

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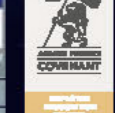
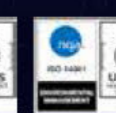


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## FEATURE

# NATIONAL SHIPBUILDING STRATEGY

DE&S relishes the challenge of delivering the next-generation Royal Navy ships outlined in the refreshed National Shipbuilding Strategy.

Working closely with the National Shipbuilding Office and Navy Command the refreshed strategy reaffirms the direction we are taking that will deliver and support our growing fleet

**First published in 2017, the strategy set out ambitions to transform naval procurement, securing export and design contracts for British naval ships.**

Building on that success, the refresh launched by the Prime Minister and Secretary of State for Defence announces the Government's further ambitions to reinvigorate the British shipbuilding industry while increasing productivity, pay, jobs and living standards.

More than £4-billion of investment will support shipyards and suppliers across the UK over the next three years alone, with new measures including better access to finance, vital skills-building and funding for crucial research and development into greener vessels and infrastructure.

Designed in partnership with industry and delivered by the recently formed

National Shipbuilding Office (NSO), the longer-term vision laid out in the refresh will deliver a pipeline of more than 150 new naval and civil vessels for the UK Government and devolved administrations over the next 30 years.

Many of these will be procured and delivered by DE&S. The vessels include warships such as Type 26 and Type 31 frigates, Fleet Solid Support ships, Border Force cutters, lighthouse vessels and the new National Flagship.

Vice Admiral Sir Chris Gardner KBE, DE&S' Director General Ships, said: "Since 2017 the National Shipbuilding Strategy (NSBS) has set the context for how DE&S has engaged on the recapitalisation

of the Royal Navy, building a resilient maritime enterprise and deepening our sovereign capability. Since then, we have cut steel on 2 new classes of frigate in Scottish shipyards, built patrol boats in a third yard on Merseyside, established the National Flagship programme at record pace, relaunched the Fleet Solid Support programme aligned with NSBS, landed the Future Maritime Support Programme and let contracts for upkeep and support in docks from Middlesbrough to Devon. Working closely with the National Shipbuilding Office and Navy Command the refreshed strategy reaffirms the

direction we are taking that will deliver and support our growing fleet while increasing the diversity and resilience of the maritime enterprise across the United Kingdom to make sure that with industry we respond to this call to arms and take the opportunity presented."

During a visit to Cammell Laird Shipyard in Merseyside, where the Type 45 Power Improvement Project (PIP) is taking place, Boris Johnson and Ben Wallace set out how the new strategy will "level up" regions across the UK by supporting high-quality jobs, technology development and injecting investment.

Encouraging investment in domestic shipyards, the pipeline seeks to maximise the social value contribution shipbuilding can make in the UK while balancing the need to deliver value for money and solutions that fully meet the requirements of the Royal Navy.

DE&S consider the priority themes of "tackling economic inequality", "fighting climate change" and "equal opportunity" when awarding a contract and social value criteria are considered when a contract tender is evaluated.

The strategy also includes a new Home Shipbuilding Credit Guarantee Scheme (HSCGS), which will give UK shipyards access to finance for underwriting

domestic contracts. This will level the playing field with competitors' export credit guarantees and ensure UK shipbuilders have a fairer chance of securing valuable contracts.

The Department for Transport will invest £206 million in the UK Shipping Office for Reducing Emissions (UK-SHORE) to fund research and development in zero emission vessels and infrastructure.

This refreshed NSBS moves beyond the Ministry of Defence's commitment to double its shipbuilding investment over the life of this Parliament to more than £1.7 billion a year, supported as part of the £24 billion increase in Defence spending over the next four years.



NEWS

# Heavy Lift Challenge: Putting Uncrewed Aircraft Systems to the Test

**The DE&S Future Capability Group (FCG) have launched the second round of the Heavy Lift Challenge. The challenge, which sees uncrewed aircraft systems (UAS) put through their paces, was organised in collaboration with the Royal Navy 700X Naval Air Squadron and for the Royal Navy Office for the Chief Technology Officer.**

The Heavy Lift Challenge is an innovative approach to engaging with and stimulating the market, developed jointly between the Royal Navy and DES FCG. It encourages UAS manufacturers to showcase crewless technology which has the potential to deliver supplies and equipment to ships and personnel at sea. This could enable the armed forces to autonomously transport vital supplies, such as ammunition and medical equipment, to combat zones – reducing the risk to personnel.

The Royal Navy Heavy Lift Challenge (HLC) aims to increase the number of UAS available on the market, at a rapid pace. This will enable DE&S FCG and the Royal Navy to explore, understand, develop, and rapidly acquire autonomous systems to deliver heavy payloads at range in demanding Maritime and Commando Force environments.

This competitive framework will also quicken the overall procurement process,

delivering the latest uncrewed technology to the frontline, faster, cheaper and better in an exponential world.

The first stage of HLC saw autonomous aircraft lift and deliver payloads more than 100kg, passing speed, endurance, and accuracy tests with flying colours. Two companies – Malloy Aeronautics and Windracers Autonomous Systems – were awarded £300,000 contracts to develop their UAS.

Now, the Heavy Lift Challenge has tested how ready and scalable the UAS are. Both the Malloy T-600 and the Windracers Ultra have proven capable and on track to scale.

The Malloy T-600 series is amongst the world's most advanced heavy-lift quadcopter, capable of carrying weights more than 250kg. The Windracers Ultra is a world-leading Fixed Wing UAS with highly precise long-range air-drop capabilities, carrying loads in excess of 100kg to 1000km.

James Gavin, Head of the Future Capability Group said: "This an important milestone for the Heavy Lift Challenge. We have tested how scalable and usable the autonomous technology is, with promising results. We have demonstrated how our collaboration with the Royal Navy and industry partners can expedite the procurement process – enabling us

to deliver cutting-edge technology at pace. Ultimately, this work will help the UK Armed Forces retain and grow its operational advantage and also deliver cost efficiencies."

Royal Navy Chief Technology Officer, Brigadier Dan Cheesman CBE Royal Marines said:

"HLC is surpassing all our expectations. Genuinely game-changing collaboration between the Royal Navy, DE&S FCG and industry has, so far, produced quite spectacular results – all inside the same commercial framework we are able to iterate as one-team. We are not there quite yet, but in perhaps as little as two months' time, we will have the final 'show don't tell' evidence we need to commence scaling to the hands of the warfighter at unprecedented pace. And who doesn't want a vertical lift, militarised quadcopter with a 250kg+ payload? And who wouldn't want a 100kg payload delivered 1000km, able to launch and recover from a QEC-Class Carrier or rough strip, and drop pinpoint resupply missions while swooping down low and slow as and when you want them from its 3 pairs of bomb-bay doors? For the Royal Navy, HLC is big news."

NEWS



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## NEWS

# News in Brief

## MOD Donnington donates thousands of helmets to Ukraine Military



DE&S is proud to play a crucial role in supporting Ukraine. The DE&S Defence Fulfilment Centre (MOD Donnington) has processed and packed 84,000 surplus helmets, bound for the Ukrainian Army.

Working closely with the British Army and the MOD Delivery Partner, Team Leidos, soldiers processed up to 12,000 helmets a day. The task includes physically stripping the helmets of any British Army webbing or identifying badges and packing them in crates each holding 100 of the life-saving pieces of head gear. The team were able to process the vital equipment in just two weeks.

This vital work falls under the DE&S Logistics and Services Transformation (LCST) programme.

Sergeant Oliver Church who is co-ordinating the mission on the ground said: "The lads are more than happy to help the cause – hopefully what we are doing will be going to help our military counterparts in Ukraine providing them with the vital protection they really need at the moment"

The achievement has been made possible by soldiers from the 2nd Battalion The Royal Anglian Regiment who have worked from morning until night to process the helmets.

Roger West, DE&S Director Logistics and Support, said: "We are proud to have supported this important effort, in delivering helmets to Ukraine. The team have worked round the clock to fulfil the processing and packing requirements. It has been a fantastic collaborative effort from DE&S, Team Leidos and the British Army."

This is not the first time that the UK has supplied helmets to Ukraine. In 2014 the UK supplied the Ukrainian Armed Forces with hundreds of Mk7 helmets together with earlier Mk6 and Mk6A helmets, which were used by the Ukrainian service personnel during the war in Eastern Europe.

## DE&S welcomes Stephanie Hill



DE&S were delighted to host Stephanie Hill, executive vice president of Rotary and Mission Systems for Lockheed Martin Corporation, to bring Women's History Month to a close.

Stephanie shared her inspirational career journey – from late nights working as a junior software engineer, to spearheading a global billion-dollar enterprise with dignity and grace. She shared stories about the people and experiences that have shaped her journey, and emphasised the importance of mentorship, allyship, and empathetic leaders.

"The key to innovation is diversity, inclusion and having a culture of belonging. There are countless studies that prove that more diverse teams outperform homogenous teams. And diverse teams can only drive innovation if you have an environment of inclusion; where every idea is welcome."

## DE&S celebrates British Science Week

Last month DE&S held a five-day event to celebrate British Science Week. The theme this year was growth and Professor Dame Angela Mclean, the MOD Chief Scientific Adviser formally opened the week in person at the CFB lecture theatre in Abbey Wood. Dame Angela praised the efforts of the DE&S to celebrate British Science Week with such a diverse programme of events. Eighteen sessions were delivered to DE&S staff by thirty-six speakers from eight different organisations across the Defence Enterprise to shine a spotlight on growing science and technology knowledge, capability, communities, teams and specialisms. With more than 700 attendees, the topics discussed were as diverse as Mathematical and Statistical Thinking, Human Factors and Naval Architecture to the work of deep technical specialists from the DE&S and SDA's Specialist Fellowship Scheme and MOD Wreck



Management Programme. Reflecting on the event, Technical Discipline Lead for Science, Dr Eluned Lewis, said: "It was an inspiring week and I was delighted with the depth and breadth of science

showcased. It's important to shine a spotlight not only on our own amazing scientists at DE&S but to learn more about the fantastic science and scientists from across the Defence Enterprise."

## Work begins on new training facilities for UKMFTS

Construction has begun on extending the existing infrastructure at RAF Valley, as part of a £175 million investment in the UK Military Flying System (UKMFTS).

A breaking ground ceremony was recently attended by VIPs and stakeholders. Contracted by the UKMFTS delivery team, part of DE&S, the new infrastructure extension will house new simulators and classrooms, where additional instructors will enable more trainee aircrew to progress over the coming years.

The project will directly support the local Anglesey economy in North Wales, with local providers considered throughout the project.

Michelle Østergaard, Programme Manager for UKMFTS delivery team, said: "This new build extension to the existing infrastructure at RAF Valley is an important milestone for Defence. Through our contract with Ascent Flight Training, we are working with local supply chain providers and partners to support the local economy, for both the initial infrastructure and then for the ongoing management of

the facilities. The DE&S team worked hard with multiple stakeholders to get us to the stage where ground can be broken on what will be a world-class training facility for future frontline pilots."

The UKMFTS trains and prepares the

next generation of world-class aircrew from across the three services. Upon graduation, these pilots will proceed to frontline roles, operating the UK's most advanced combat aircraft such as the F-35 Lightning and Typhoon.



FEATURE

# FIRST £22 MILLION MINERVA SATELLITE SUPPORTS 100 UK JOBS

The DE&S Space delivery team has placed a three-year contract with Surrey Satellite Technology Ltd (SSTL) to design and build satellites to support military operations.

Helping to improve the UK's ability to collect and process data from UK and allied space assets, the washing-machine-sized satellite is the first to be designed and built under MINERVA – a £127-million science, technology and innovation programme focussed on integrating space with land, air, sea and cyber technologies.

Supporting 100 high-skilled roles at the Guildford-based company, the contract covers the design and build of the 150-kilogram satellite.

It is the critical first step of the MINERVA programme, which focuses on learning and demonstrating what UK Space Command requires in terms of the processing power, radio frequencies, imagery capabilities and data streams to provide timely and accurate space-based intelligence in support of UK Armed Forces.

DE&S CEO Sir Simon Bollom, said:

"I'm delighted the Space delivery team at DE&S have demonstrated a speed and agility that has allowed them to place this contract in response to the Defence priorities highlighted in the Integrated

Review and recently-published Defence Space Strategy."

Outlined in the Defence Space Strategy published earlier this year, the MINERVA programme's findings will underpin the £970-million ISTARI programme which will deliver a multi-satellite constellation to support greater global surveillance and intelligence for military operations over the next 10 years.

Forming the building blocks of the UK's Defence Space intelligence, MINERVA will also enable better understanding of the necessary security and risk requirements to inform the wider ISTARI programme.

Defence Procurement Minister Jeremy Quin, said: "The MINERVA programme provides the route to use space to be fully interoperable and able to share data with our close allies.

"This is the crucial first step in delivering this capability and I'm delighted that we're working together with UK companies to remain at the forefront of innovation in space."

This first contract comes as the UK Space Command celebrates its one-year anniversary and takes control of the MINERVA project delivery, ensuring the UK continues to push the frontiers of space innovation.

SSTL Managing Director Phil Brownnett, said: "We are delighted that Space Command has signed with SSTL for a Carbonite+ satellite, and we are looking forward to working together on this pivotal mission for the UK.

"We have established an excellent relationship with Space Command and by working closely together we have evolved and enhanced our Carbonite+ spacecraft design for the programme."

The recently released Defence Space Strategy outlines how Defence will protect the UK's national interests in space in an era of ever-growing threats, stimulating growth across the sector and supporting highly skilled jobs across the UK.

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2018 key figures

FEATURE



## PEOPLE

# Molly Bliss

## Job title

I am a CSG Chartered management degree apprentice in my first placement within Corporate Performance Reporting (CPR).

## What does your role involve?

I am studying for 4 years while rotating through various 1-year placements in the organisation. The idea is learning academic theories then reflecting on how they fit in the organisation and my current role. In CPR, we are responsible for reporting on organisational performance against the Objectives, Goals, Strategies and Measures and Key Performance Indicators. I work between the Internal team who deliver outputs such as the Chief Finance Officer report as well as the External team who produce the Project Performance Summary Table reporting on important Cat A projects.

## What do you most enjoy about your job?

I love learning about the different academic theories and then exploring their success or relevance in my placement. The combination of academia and working in my placements help me to understand processes and skills in much greater detail.

## What is your greatest accomplishment (in your role) to date?

After being in the organisation for only 6 months, my biggest accomplishment is being trusted with responsibility. My development at the age of 19 is being hugely propelled forward due to the projects I am challenged with such as planning a department team event as well as the work I contribute to including important performance spreadsheets that inform Senior leadership.

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

I am energised by networking with people. I try to say 'Yes!' to all the opportunities that are offered to me such as being involved in the Corporate Social Responsibility volunteering workgroup and invites to shadow leaders.

## Who or what has shaped who you are?

My parents helped shape me into the woman I've become. From a young age regarding school and sports they were supportive but also pushed me to be the best I can be. They instilled my drive to consistently work hard and be dedicated to improving and achieving.

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

I spend time with my friends going out to bars or shopping and going on weekends away around the country. I also like to read when I get the time.

## What might surprise people about you?

I have played cricket for around 9 years now and currently play for a men's thirds team at a local club. I went on an overseas tour to Sri Lanka with Gloucestershire county side in 2018 which was an amazing experience. I would describe myself as an all-rounder and love playing or watching a nice long game of cricket in the summer sunshine.

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

During school, playing cricket or from my family, I have always been told that to be successful you must put the time, effort, and work in. I have always put my all into everything I do and pushed for more which is how I came out of my A-levels with 3 A\* and am continuing to develop every single day in this scheme.



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