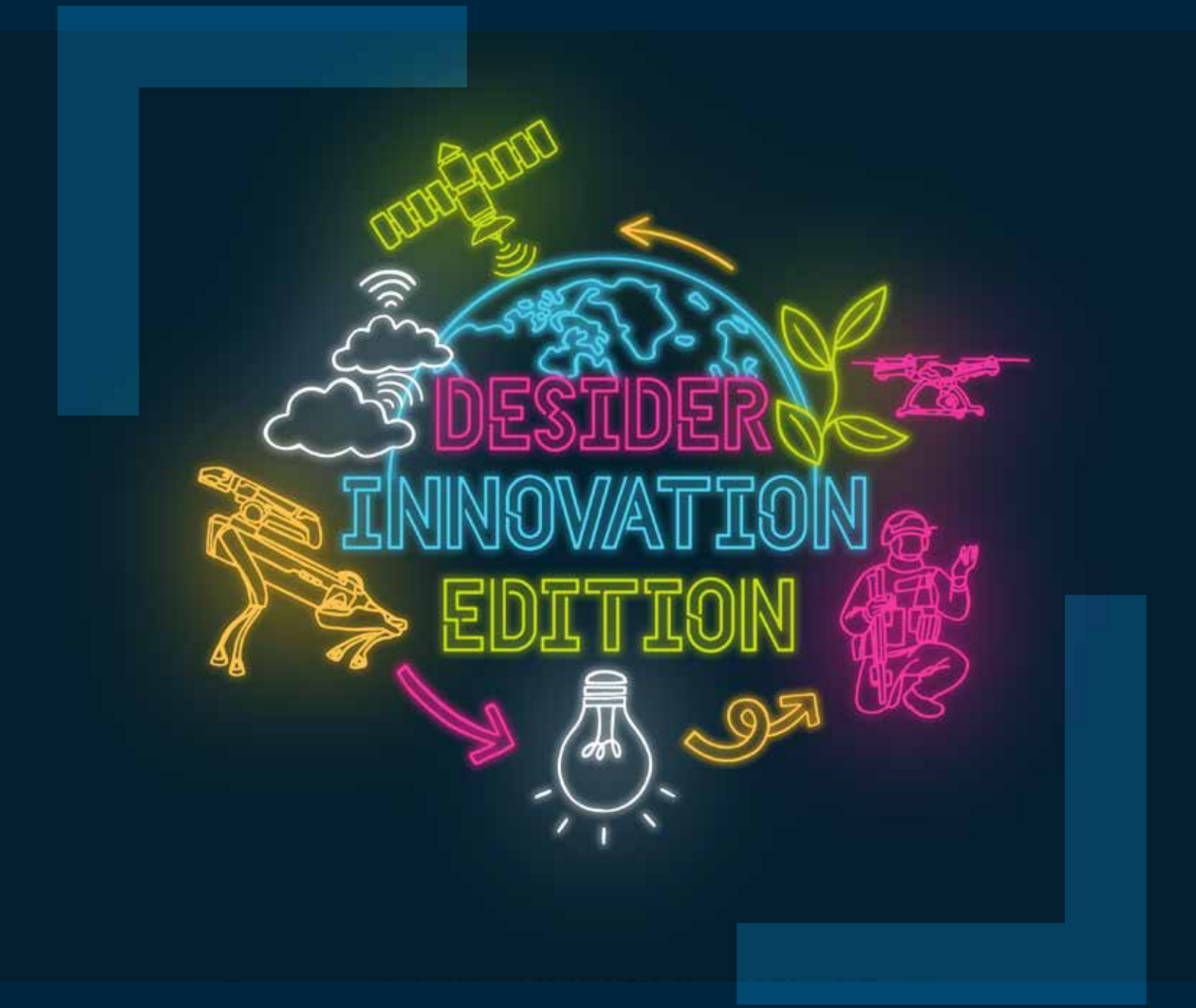
Ministry of Defence de&s

INNOVATION ISSUE 163 | MARCH 2022

# DESIDER

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




## INNOVATIVE BY INSTINCT

Proudly delivering for the UK's Armed Forces

# In this issue



*Cover: illustration, Hannah Bone*



# Foreword

**BY SIR SIMON BOLLOM**

**Putin's invasion of Ukraine is a significant moment for Europe, NATO, and for global security.** Modern warfare threats, and specifically what we are witnessing in Eastern Europe, reinforces the critical importance DE&S plays in protecting the UK and our allies. It also serves to emphasise the continued need for our highest security standards and behaviours.

We are bolstering our contribution to NATO and providing support to Ukraine with defensive aids and equipment, as well as through multiple pillars of aid, as reported nationally. While the current, deeply concerning circumstances unfold, we must draw confidence from being part of the world's largest and strongest defensive alliance. We will continue working openly with our global partners and allies as the defence landscape evolves.

Threats to the UK, and globally, are growing and diversifying at pace as systemic competition intensifies. DE&S' priority will always be to provide safe, capable, and trustworthy equipment and support to the Armed Forces, and we continue to take pride in helping protect our nation.

Now is a crucial time to remember that safety is not solely the responsibility of our safety specialists. It is important that every one of us recognises that we each have safety responsibilities. No matter what our job title, we must all be accountable and listen to safety concerns. Safety comes first: from ensuring the equipment and capabilities we procure and support for our Armed Forces is safe by design, to providing a safe working environment for all our people. A continued focus for DE&S when thinking about safety is considering our systems, people and structures. Integrating a safety by design and intelligent design approach will ensure that we remain persistent and diligent in our approach.

We aim to deliver safe, secure and innovative solutions at greater pace, recognising the opportunities of the Information Age. Focusing on our digital skillsets, we must capitalise on the automation work we have already done that lead to efficiencies. We must not be opposed to trialling and challenging systems and processes. As innovation is more than just products, it's also about mind set and I would encourage us all to question the way we work to improve and evolve.

This edition features some great articles highlighting innovation and agility in DE&S. I would recommend reading the article by Head of DE&S' Future Capability Group, James Gavin, and his views on innovation. As well as reading the feature on how we are delivering the new Command Support Air Transportation (CSAT) aircraft at pace.

We are driven by our commitment to the service men and women who place their trust in the solutions we provide. And as we strive to be the best at what we do as leaders in military acquisition and support, let's continue to make significant progress in advancing digital solutions in the equipment and support that we deliver.

Improving equipment availability through integrated support solutions has never been more important through effective collaboration between us and our industry partners. We continue to harness innovative ways of working to exploit advances, engage with our industrial partners and meet the future demands of the military customers for acquisition and support.

SENIOR LEADER COMMENT

## James Gavin

# Speaks to Desider about driving innovation in the UK defence industry

**Creating and embedding a culture of innovation across defence so it is 'innovative by instinct', when tied to an exploitation pathway is key to the success of UK defence.**

Innovation is pivotal in allowing the Armed Forces to acquire the best warfighting capabilities, implementing better and more agile processes and empowering a culture that is innovative by instinct. By embedding innovation into the people, processes and technologies across defence, it becomes innate. And that's what we're driving, at DE&S. Innovation is about putting novel ideas, technology, and ways of working into practise. It's our people, and the mindset of our people that is key to this.

Delivering military capability solutions for the Information Age, enables our armed forces to stay ahead of our adversaries and retain their operational edge. By developing and sustaining a coherent innovation ecosystem across defence and security, we will build on and create new and strengthened partnerships enabling us to find and utilise innovative solutions.

Our Innovation Bridge is brilliant for encouraging this coherent innovation. It's a collaborative space that connects our people with clients, users and partners to solve problems in real time. It's a space where teams can utilise modern digital solutions to bridge the current gap between experimentation and exploitation of emerging technology. Having the opportunity to collaborate in real time, encourage greater risk appetite and accelerate the growth of our performance driven culture helps us rapidly respond to our clients' needs. This helps us facilitate embed a cohesive end to end approach to find, test, trial, exploit and acquire capabilities to deliver incremental and transformative change.

Key to driving change is our acquisition process and developing the most effective commercial systems. Where we are pushing the BATSO - Buy and Try at Scale (Operationalise) – initiative, this is supporting organisations developing technologies in scaling up and overcoming hurdles to access routes to market. We're investigating new approaches, forming new relationships with industry and considering best practise for balancing the appetite for innovation with existing demands on the Defence budget. We're constantly looking at improving ways of working with SMEs to deliver better capability at the speed of relevance, to drive innovation in UK defence. Iteratively developing and getting capability into the hands of the users is becoming our standard way of working. We will continue to scale and develop this way of working into new technology areas, as well as ensuring that we embed agile practises into the continuous development of operational systems.

The DE&S Centres of Expertise were launched to bring together separate projects, and people, into single groupings to be more efficient and effective. Being more effective means a razor-sharp focus on exploitation and operational advantage as the goal. Our Centres of Expertise are key to rapid development and will help accelerate our capabilities into the hands of the users. By working in this way, we can be more innovative and faster in creating solutions that will mean a more effective capability overall.

The better we understand the unique challenges to innovative procurement, the more successful we can be at delivering innovative ideas into the hands of our customers. We continue to proudly play a huge part in ensuring that our Armed Forces maintain military advantage over ever evolving global threats.


The better we understand the unique challenges to innovative procurement, the more successful we can be at delivering innovative ideas into the hands of our customers

SENIOR LEADER COMMENT

FEATURE

# RICHARD BROWNING
## on making failure recoverable

**Having built the world's fastest personal jet suit, founder and chief test pilot of Gravity Industries – Richard Browning – talks to Desider about the biggest risks of innovation and how to deal with setbacks.**

So, how do you deal with setbacks and failures while innovating? My ethos is very much about recognising that innovation has to be about doing stuff that doesn't work. Because if all your experiments when you're innovating when you're exploring and creating, if all of them just work out great, well, you're either an absolute maverick genius, or more likely, you aren't trying anything that's new and truly unproven. To do anything new, to learn to ride a bike to invent a new submarine, to learn a musical instrument – whatever it is – you usually have to fail at it, to help calibrate and explore and uncover your learning or the new truths and facts. Which if you had before, you wouldn't need to learn to remain an innovator. A creative has to go down that pathway of doing stuff that is difficult, unproven and probably won't work at all the first time, such that you can learn and improve and iterate.

Now, in my view the way to deal with setbacks is you need to be completely aware that that road to innovation is all about failing all the time. The critical learning though, is how to deal with them. You've got to make every failure recoverable and recoverable from a safety, reputation and financial perspective. If you hurt anybody or yourself; no good. If you go to jail, upset the authorities and get shut down; no good. And if you run out of money because you threw everything at the experiment and you can't keep iterating then you also get shut down; no good. The way you deal with it is to make failure recoverable, make the inevitable, failures recoverable.

For me, the biggest risk of innovation is not innovating. It's hands down the biggest risk. Whether it's in the military or whether it's a corporation, or even in your personal life. In the case of the military, if you don't innovate you gradually just end up getting run over by the better technology the opposition has. In the case of corporations, you get out-competed by more efficient, better products and technologies by the competition. That is the biggest risk, much bigger, frankly, because it's an existential risk. Underneath it all, the biggest risk is not going and innovating.

> The biggest risk of innovation is not innovating

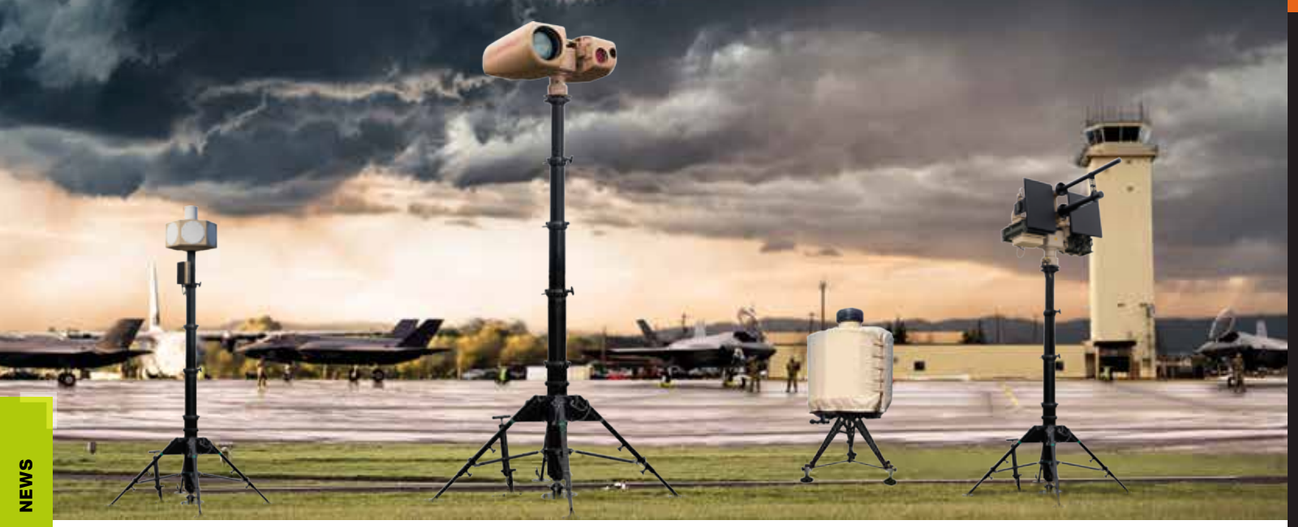
I am entirely sympathetic to the challenges that DE&S face because I used to be in a big corporate setting. So, I get this, but I think the message is, if you don't innovate, that represents a much bigger existential risk than actually the risk of incrementally innovating.

There's an opportunity here to get super practical and make everybody who holds a risk management role to make 20% of their job dependent on supporting and guiding and nurturing those who are trying to bring the new up through the organisation. Otherwise, if you have a cadre of people who are entirely incentivised towards zero risk, they will ensure you never progress. You've got to have those who worry about risk with some skin in the game for progress, otherwise, they never will innovate.

NEWS

# COUNTER DRONE DEVELOPMENT

**The Royal Air Force's SYNERGIA counter-drone research and development programme, undertaken on behalf of Defence, continues to go from strength-to-strength.**





**The programme was designed initially to understand the threats and technology mitigations associated with small unmanned air systems (sUAS) but has undergone a step change which now sees the ORCUS Counter UAS system providing direct support to operations.**

Managed by the DE&S Future Capability Group (FCG) and using technology acquired, delivered and integrated by Leonardo; the ORCUS system is considered of high importance to national security. Moreover, with an ever evolving sUAS threat SYNERGIA is now viewed as the key means of further protecting main operating bases and specific events both in the UK and abroad.

The programme sees DE&S work in partnership with Leonardo as the prime integrator, alongside sub-contractors Metis Aerospace and SRC Inc, the ORCUS system is now modular and scalable to meet the specific requirements associated with each situation. Furthermore, through spiral activities, the FCG has been able to follow a more innovative approach to the programmatic and commercial aspects of capability development than a traditional delivery team.

Through this FCG approach, the project has kept up with new technologies and introduced coalition capabilities.

DE&S FCG Head, James Gavin, said: "For me this is a success story for the Defence Innovation Ecosystem. By working closely together as a team, the RAF, DE&S and industry have shown that we can iteratively progress a capability from experimentation into Operations and now into a Programme of record."

The SYNERGIA programme was originally due to complete in March; however, because of the successful development of the system, Air Command and FMC have elected to continue funding for the next 3-years. This funding will also see activity transition to a programme of record and adopted by Defence as the sUAS Static Site protection capability for MOD installations. Andy Hooper, outgoing Senior FCG team leader, said: "For me SYNERGIA was aptly named. It almost impossible to tell who Military, Industry and Civil Service in
terms of the great co-teaming was that we saw on this programme."

> **This is a success story for the Defence Innovation Ecosystem**

NEWS

# DE&S defence fuels team procure blended Sustainable Aviation Fuel

## Wendy Hall, Defence Fuels Acquisition Programme (DFAP) Team Lead, speaks to Desider about the future of sustainable aviation fuel.

**Through the provision of sustainable aviation fuels to our clients, we are making a positive contribution towards delivering on net zero capabilities as set out in the DE&S 25 Strategy.**

Sustainable Aviation Fuel (SAF) is the main term used by the aviation industry to describe a non-conventional (fossil derived) aviation fuel. Sustainable Aviation Fuel is a liquid fuel alternative to fossil fuel. And in it's neat form and over its life cycle, SAF can achieve a reduction of up to 80% of greenhouse gas emissions compared to fossil jet fuel use. SAF can be produced from a wide variety of sources and processes. All of the approved pathways are classed as "Drop-In" fuels which means that they behave almost identical to conventional jet fuel. This means SAF can be safely blended with conventional jet fuel up to maximum stated percentages – most up to 50% – once blended, the fuel is recertified and as the same supply infrastructure can be used there are no requirements to any adaptation of aircraft or engines.

Examples of sources for these 'drop-ins' include hydrogenated fats and oils, wood waste, alcohols, sugars, industrial gases off-takes, household waste, biomass and algae. Using these fuels still produces CO2 emissions, but it is a positive reduction compared to using pure fossil-based fuel. In order to be called sustainable they must meet certain sustainability credentials and requirements such as a feedstock that can be continually resourced with no detriment to economic, social and environmental aims and conserves an ecological balance, there are various sustainability certification schemes. The Business Coalition for Sustainable Fuels advises that if a jet on a 1,000-nautical-mile journey burns enough conventional fuel to produce 22,787 pounds of CO2, then mixing a 30% alternative fuel blend with 70% conventional fuels will produce an approximate CO2 reduction of 18%. From November 2020, fuel suppliers have the ability to supply the MOD with up to 50% drop in fuel blends.

SAF was procured via DFAP's largest fuels framework directly serving the front-line commands. And the Framework, known as the 'Bulk Fuels Framework,' has a pool of 16 suppliers who compete to supply and deliver aviation, marine and ground fuel to meet front-line command requirements.

> The procurement and supply of cleaner fuels such as SAF will accelerate action in reaching the goals discussed at COP26 and meeting Defence's strategic 2050 ambition

FEATURE

# International Day of Women and Girls in Science

**International Day of Women and Girls in Science recognises the critical role women play in science, technology, engineering, and mathematics (STEM). Here Desider celebrates DE&S women in STEM.**

## Jo Osburn-Hughes

### Chief Operating Officer Land

**As DE&S Gender Champion I am delighted to be supporting International Day of Women and Girls in Science 2022 and recognise the outstanding work of the female engineers and scientists within DE&S.** It is brilliant to read about the experiences of members of our community and understand the real contribution they're making to our Armed Forces, in delivering essential equipment not just for today but in developing innovative solutions for the future.

Much has been written about the need to address the under-representation of women in STEM worldwide and events like this help to shine a spotlight on this issue and more importantly on the great ideas and examples of how organisations, like DE&S, are working to achieve full and equal access to science, technology and engineering opportunities. DE&S is committed to ensuring we can overcome gender disparity and increase the rates of female engineers and scientists in the organisation. Initiatives such as the STEM returners programme, our graduate and apprentice schemes and mentoring and coaching opportunities, are focused on helping to build the right conditions to achieve a truly diverse and inclusive culture which will enable greater success.

DE&S is also re-invigorating our support of the STEM Ambassadors programme. This aims to raise awareness of the fantastic opportunities available in the field of science, technology and engineering. Through supported learning, skills development and coaching it aims to help young people to think about their future in this exciting field. Inspirational role models and their stories are a real motivator and can show just what possibilities are out there and can help make vital connections to people who can support you in your journey.

## Aditee Desurkar

### Engineering Manager

**1. What inspired you to think about having a career in STEM?**
I spent my formative years in India and grew up in Pune, a city with a large air force base, so I was always curious about planes. After a gliding lesson, I was convinced I wanted to do something in aerospace. Being a pilot just didn't sound as exciting as being the one to design the plane, so here we are 10 years later!

**2. What do you see as the engineering challenges in the future?**
The increased levels of automation will bring unique challenges to the fore. It is already being felt in certain sectors, like the automotive sector. I think this will present challenges in the air environment, both in the design and operational space.

**3. What's your biggest piece of advice?**
Stay curious. Don't be afraid to ask questions, no matter how silly they might sound to you. Don't rule out a certain career option because you can't see anyone like yourself in that role - you could be the first one to achieve that milestone!



## Alison Farrand

### Training and Simulation Systems Portfolio Engineer

**1. What inspired you to think about having a career in STEM?**
I was that annoying kid that asked a million questions! How does that work? What's that for? Can it be better? The idea of solving problems excited me and paired with a natural interest in maths and science led me to engineering.

**2. What has been your biggest challenge/achievement so far?**
So far, my biggest achievement has been finishing the Entry Talent Centre of Excellence Engineering Graduate Scheme in 2021, and securing a job leading the engineering effort on two simulation systems. Completing the scheme during a pandemic was not exactly what I had in mind, but I have learnt so much and met so many interesting people throughout the business.

**3. What advice would you give to your past self at the start of your career?**
Take every single learning and development opportunity thrown at you (even if you don't think it's for you). A prime example of this for me was coding. I have been able to develop my computer programming skills utilising a MOD wide coding scheme, learning three new languages!

## Janet Young

### Air Support Safety & Engineering Team Leader

**1. What inspired you to think about having a career in STEM?**
As a child I loved to take things apart to see how they worked and see if I could fix things. Through exploring different career options at school, I realised that engineering was a fantastic match for an inquisitive mind and my fascination for aircraft led me into Aeronautical Engineering.

**2. What has been your biggest challenge/achievement so far?**
My biggest career challenge so far has been my role as Deputy Chief Engineer for Lightning aircraft. A busy role in a fast-paced programme combined with a wide breadth of technical issues and processes to get my arms around. I have thrived on the responsibility of airworthiness decision making and the opportunity to lead and support the endeavours of the engineering team. It has certainly given me a thirst for Chief Engineer roles in the future.

**3. What do you see as the engineering challenges in the future?**
I think tackling climate change and mitigating against the irreversible impacts of climate change is the most important and most difficult engineering and cultural challenge now and in the future. Combined with that, in the Defence environment, building our understanding and resilience in cyber security is a key area to continue developing.

## Chaniece Truelove

### In-Service Engineering Manager for Chinook

**1. What inspired you to think about having a career in STEM?**
The first time I considered going into a STEM career was back in college when I was chosen to be a part of the Engineering Education Scheme challenge, where a group of students from across the country were chosen, put into teams, and asked to come up with a solution to a real-life engineering issue. We got to go through the whole CADMID cycle and present our findings to industry at the end. This really sparked an interest for me and after this challenge I became set on progressing with a career in engineering.

**2. What has been your biggest challenge/achievement so far?**
The biggest challenge I have had so far also turned into one of my most proud achievements - to introduce an improved droop stop shroud assembly to the Chinook fleet. This was essential to the continued airworthiness of the fleet. I led the modification through design qualification and certification, coordinating many different technical disciplines to gain approval for this improved shroud assembly - and I was able to successfully deliver it within the target deadline. This was a high-pressure task but meant it's also a career achievement I will always remember.

**3. What's your biggest piece of advice?**
The world of engineering is constantly evolving and that is what makes it exciting. My advice is to stay innovative, creative, and passionate about change and improvement. Younger generations always bring new ideas and ways of tackling problems and I think that is something to really highlight. You have the ability to shape the future!

## Safa Firfire

### Defence Quality Assurance Field Force

**1. What has been your biggest challenge/achievement so far?**
I am proud of every milestone I have achieved in my life so far. Be it attaining a First Class with Distinction in BSc Physics or even my first job as an engineer.
When I decided to move from Kuwait to the UK, I had to quit my job in the petroleum industry that I absolutely loved and enjoyed, not knowing if I would find anything better. But I took the risk and landed a job with DE&S which I am most proud of. The scope of field in STEM is broad and the types of jobs found in this field are diverse, so you can be certain of securing a good job anywhere in the world. As they say, the world is your oyster.

**2. What advice would you give to your past self at the start of your career?**
Don't ever doubt yourself or your capabilities. You can achieve anything you want provided you put your heart and mind to it. Take risks and do not fear failures as even in failures there are great lessons to be learnt and it only makes you wiser and stronger.

**3. What's your biggest piece of advice?**
Engineers are, by definition, problem solvers and innovators. Engineers are always looking for ways to make everyday life better for their fellow human beings. Within STEM, the opportunities are endless. With hard work, focus, and dedication in these areas and others, engineers stand to make a big difference in the world. The challenges are there to be solved and the role of an engineer in society certainly isn't going away anytime soon.

## Cass Walker

### P-8A Avionics Engineering Authority

**1. What inspired you to think about having a career in STEM?**
I was lucky to attend a technology based secondary school where it was a core subject in the curriculum. This meant five years of Electronics, Metalwork, Woodwork as well as Textiles and Home Economics. As all pupils had to complete each topic, the subject was an even playing field and not subject to gender stereotyping. This was a fantastic introduction to the different types of engineering, and something which formed the foundations of my career and skillset.

**2. What has been your biggest challenge/achievement so far?**
My biggest challenge so far has been my first job role after promotion. Despite working at the level and being exposed to the work regularly in my previous role, while progressing through sift and interview I still had an element of imposter syndrome. Sometimes it is good to reflect throughout your career, as it's easy to forget you have earned where you are. I've turned this feeling into a positive and now use this to drive me forward and develop myself further, so that I can prepare for what's next.

**3. What's your biggest piece of advice?**
As somebody who came into their career through an alternative means to university, I think my advice would be to look at all of the options open to you and research even more! There are so many fantastic schemes out there from apprenticeships and internships, to university and graduate schemes. At the very start of your career, it can be daunting but find the path that is right for you, even if it is the one less travelled.

## Rachel Penter

### Air Domain Engineering Capability Lead

**1. What inspired you to think about having a career in STEM?**
My Dad was always fixing something, be it the family car or improving our house. I was often holding the toolbox or the one who squeezed into the smaller spaces to reach something he could not. At school Maths and Physics just made sense to me but it wasn't until I became an Air Cadet that I made the decision to undertake an Engineering degree.

**2. What has been your biggest challenge/achievement so far?**
I am a STEM returner. After serving 18 years in the RAF as an Engineering Officer, I had a seven year career break. Returning to an engineering environment, I knew the learning curve would be steep. When I'm not sure who I need to talk to or what system I should be using I ask questions, and so many of the people I've asked have been really helpful and understanding.

**3. What advice would you give to your past self at the start of your career?**
Get to know the equipment you are supporting. If you know what happens routinely with the aircraft or equipment, then when something goes wrong, you'll be able to understand the unusual occurrences more quickly. Also get to know the diversity of assets that are needed to support the aircraft and do not underestimate the importance of equipment like power sets, refuelling bowsers, high access equipment and even the 'honey wagons' to empty the aircraft toilets.



## Kersey Segger

### Type 23 Mechanical Lead

**1. What inspired you to think about having a career in STEM?**
From a young age I have been interested in cars and machinery and how it all worked, helping dad out at home with fixing things – I've always been practical in my approach in learning and so decided to pursue a career in mechanical engineering. It has not disappointed.

**2. What has been your biggest challenge/achievement so far?**
There have been multiple challenges and achievements throughout my career so far, but three achievements spring to mind: graduating from my bachelor's degree, which I completed over five years alongside full-time work; being able to work/visit the US every other month in one of my previous roles; and gaining my Level 3 engineering role at an early stage in my career.

**3. What's your biggest piece of advice?**
If you can effectively justify your opinion, you will be much more likely to influence a decision or outcome in the relevant direction. It takes dedication and hard work to achieve, but it's worth it for the reward whatever that may be. Never be worried to pick up the phone and communicate. Be confident in exploring something new or unknown.

## Laura Phillips

### Independent Environmental Auditor

**1. What has been your biggest challenge so far?**
My biggest challenge to date has been overcoming the perception that achieving business and defence related goals and environmental sustainability are disconnected or that they cannot co-exist, which is untrue! Changing people's views and opinions and helping them to understand how they can make a difference and why it is important, is what gives me the greatest sense of achievement.

Focussing on my current role in DE&S, engineering design mitigations can significantly reduce the environmental impact of defence equipment and services. For example, the Royal Navy can reduce air emissions, water discharges, waste disposal, hazardous materials usage and disposal, and the transfer of invasive species by undertaking environmental engineering from the concept stage of a project.

**2. What advice would you give to your past self at the start of your career?**
The best ideas and solutions don't always come from the people with the most experience. Be bold, challenge yourself and others, and speak up even if you have something you want to say.

**3. What do you see as the engineering challenges in the future?**
I think that climate change, the availability and cost of resources, and increased regulation are the biggest challenges to engineering; yet engineering is also the solution.

We are responsible for delivering environmentally sustainable solutions in all aspects of engineering and at the same time engineering needs to be resilient to reduced resources, increased regulation and the impact of climate change e.g. flooding, drought and extreme events. Science, innovation, and problem solving are critical to seeking alternatives and delivering a more sustainable outcome and future.

## Emma Fife

### DE&S Safety Consultant

**1. What inspired you to think about having a career in Science, Technology, Engineering and Mathematics (STEM)?**
Personally, it took me a long time to be certain over my career choice as an engineer. When I was young, I always thought I would become a doctor or scientist. However, engineering offers the freedom to challenge the way things are and create anew. With my passion for science and drive for solving problems it soon became apparent that engineering was my only way forward.

**2. What advice would you give to your past self at the start of your career?**
Have confidence in your abilities and just enjoy working with the people around you on projects that inspire you. Don't wait for those projects to find you, go find them!

**3. What do you see as the engineering challenges in the future?**
I think sustainability of products will be the engineering challenges of the future. Already proving problematic, the increased desire for the development of fully sustainable and environmentally sound products, I believe, will only continue to increase.

NEWS

# New aircraft enhances UK's international presence

**Under a new £80-million contract with Bristol-based Centreline, four BAe 146 aircraft will be replaced by two more sustainable aircraft to continue the UK's global engagement.**

The new planes will be more sustainable thanks to their smaller engines, leading to a reduction in fuel burn and emissions. They will also be able to fly further, providing the UK greater opportunity to engage with key allies and partners.

The contract with Centreline includes the purchase of both Dassault 900LX aircraft, two years of initial support plus three option years if required.

Darren Astall, DE&S delivery team leader, said: "I am incredibly proud of the team for working with great determination and flexibility to deliver these faster and more fuel-efficient aircraft. By challenging process and working collaboratively with partners we were able to deliver this programme at remarkable pace."

Dassault 900LX was successful in this competition as the standout candidate in performance, cost value and time requirements.

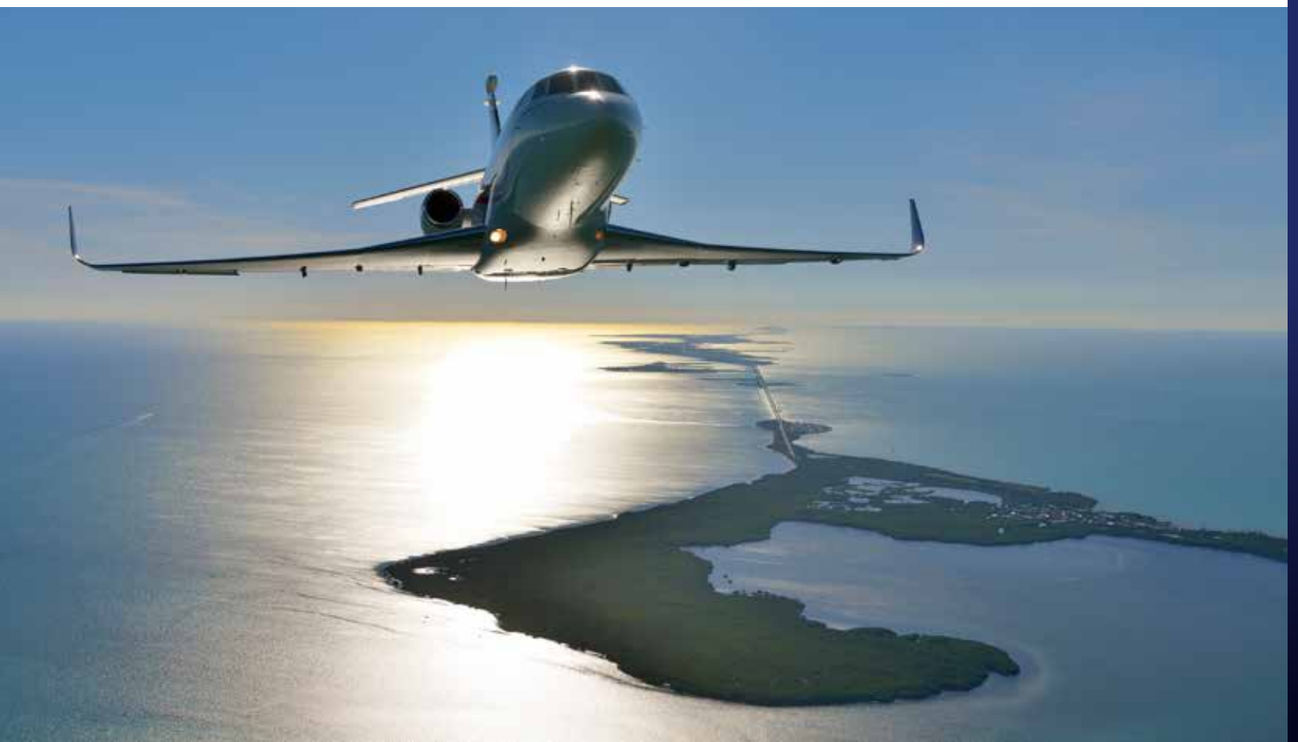
The two-phase programme will see the aircraft initially operated by a mixed crew of civilian and RAF personnel. The aircraft will be upgraded with military modifications such as defensive aid suites and military communications to deliver full capability and crewed by RAF personnel.

DE&S CEO, Sir Simon Bollom said, "I am incredibly proud of the team at DE&S who have worked innovatively and at pace to negotiate a contract that is exceptional value for money and ensures this critical capability is available."

The Integrated Review and Defence Command Paper set out a bold and global vision stressing the importance of soft power, enhancing our international presence, developing current relationships and building new ones.

Air Commodore Andrew Martin, the RAF's Programme lead said: "The DE&S and RAF teams have done an incredible job to procure these modern and efficient aircraft. I look forward to seeing them support the UK Defence Mission and our wider strategic partnerships."

After four decades of service, two BAe 146 aircraft are being preserved at the British Airliner Collection at Duxford, Cambridgeshire, and the South Wales Aviation Museum at St Athan in South Glamorgan. The remaining two aircraft have been bought by a civilian operator.



NEWS

# News in Brief

## Robotic dog systems

**The DE&S Future Capability Group (FCG) have completed a high tempo procurement programme, with 2 "robotic dog" systems.** Contracts have been awarded to Digital Concepts Engineering (DCE) and Marlborough Communications Limited (MCL) for the 'Ghost Robotics' and Boston Dynamics 'SPOT®' systems.

From gap identification to delivery of equipment took 2 months. FCG will look to work with industry to integrate this technology into the Theseus systems, to allow defence to continue to develop and understand the art of the possible using such technologies.

As FCG continues the development of Project Theseus for the British Army, recent experimentation and learning led to the identification of a potential gap in current experimentation systems. This led to the development of a requirement for the team to investigate a highly automated, extremely tactical mobility platform to conduct resupply to isolated dismounted forces in complex urban environments.

In addition to Theseus, further potential use cases and applications of this technology is being assessed by FCG's Expeditionary Robotics Centre of Expertise (ERCoE), and through the Human Machine Teaming (HMT) project which launches later in 2022. These will aim to drive further experimentation into areas this system can reduce risk-to-life and burden on military personnel. FCG stakeholders from the Theseus and HMT projects recently had the opportunity to visit these U.S suppliers, and in addition some of their associated partners such as IBM Research, to observe how they are utilising the Q-UGV systems. These visits offered the ability to not only grow and mature these relationships and gather the associated market intelligence for the Theseus experimentation, but also through sharing real life and current use cases within the commercial sector, continue to develop the understanding and potential of such cutting-edge technology.

## DE&S to deliver £272-million of savings for Defence

**DE&S to deliver £272-million of savings for Defence**

Placed in 2015, the 13-year Logistics Commodities and Services Transformation (LCST) programme contract covers the procurement of over 70,000 commodities including medical supplies, ration packs and clothing. Also covered in the contract is the storage and distribution of millions of Defence items to over 600 locations around the globe. Managed by Leidos, the team consists of the prime Leidos Europe Limited, and their key sub-contractors of Kuhne+Nagel, TVS Supply Chain Solutions and Agility Logistics.

It was under the LCST programme that more than 10,000 items of critical medical equipment were despatched to the NHS frontline in the first three months of the Covid-19 pandemic.

The new contract amendment to the LCST programme includes a contractual agreement to deliver a minimum of £272-million savings to Defence, enhanced performance metrics to drive improved customer outcomes, a greenhouse gas reduction target and a commitment to a Net Zero plan.

Brigadier Anna Luedicke, Head of the Commissioning and Managing Organisation at DE&S, said: "I am incredibly proud that my dedicated team were able to deliver this ambitious contract enhancement without any compromise to ongoing worldwide operational delivery.

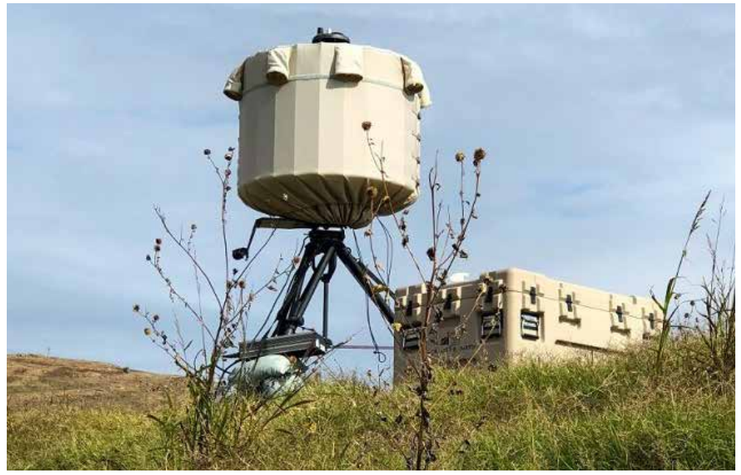
"This enhanced contract will ensure value for money for Defence and improved support to the UK Armed Forces."

Adrian Baguley, Deputy CEO DE&S, said: "The commitment made by Team Leidos to a contractually binding greenhouse gas reduction target is an exciting step forward. LCST is one of the first major Defence contracts to have such a commitment"

The LCST contract is due to run until 2028.



## Lightweight Counter-Mortar Radar



**New contract will ensure continued successful deployment of the system.**

The DE&S Artillery Systems team have awarded SRC team a circa £6.5 million contract for the provision of In-Service support to the Lightweight Counter-Mortar Radar.

LCMR was procured as an Urgent Operational Requirement during military deployments in Afghanistan, providing a 360 degrees detection, tracking and location system for incoming projectiles.

Still used in Operations today, this new In-Service contract will ensure the continued successful deployment of LCMR throughout the world.

## DE&S becomes ISO 9001 Certified

**DE&S has been awarded the International ISO 9001 certification for quality management from the independent certification body, National Quality Assurance (NQA).** ISO 9001 specifies a set of business principles that demonstrate DE&S' capability to deliver products and services in a consistent manner to MOD and the Front-Line Commands.

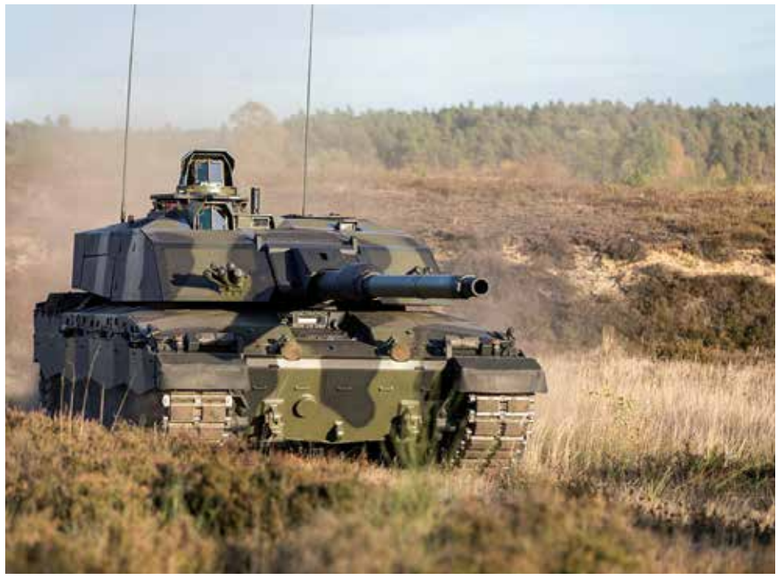
Meeting this globally recognised standard demonstrates DE&S' commitment to delivering safe, reliable and quality services. The independent certification raises awareness of the importance of quality management, drives standardised ways of working across DE&S and provides assurance to stakeholders.

Commenting on DE&S' achievement, NQA's Managing Director, Nick Wright, said: "Delivering quality in defence is of national importance. Through achieving accredited certification to ISO 9001:2015 with NQA, DE&S sets a strong example for its supply chain, end users and stakeholders. The internationally recognised standard for quality management provides DE&S with a strong platform from which to consistently deliver. NQA have been delighted to support DE&S on its improvement journey."

DE&S CEO, Sir Simon Bollom, said: "ISO 9001 certification is an important milestone achievement that demonstrates the progress we are making on continuous improvement and business performance management. Congratulations to Phil Sheldrick and his team for driving this work forward so effectively."

Ian Merriman, DE&S ISO 9001 Programme Manager, said: DE&S' Quality Management journey does not end with gaining ISO 9001, as we have a contract for a three-year certification cycle with NQA and need to maintain our focus on continually improving our ways of working.

## Challenger 3: Eyes on the battlefield



**A £90-million subcontract has been awarded to Thales UK, based in Scotland, to deliver next-generation sights for the British Army's upgraded Challenger 3 main battle tank.**

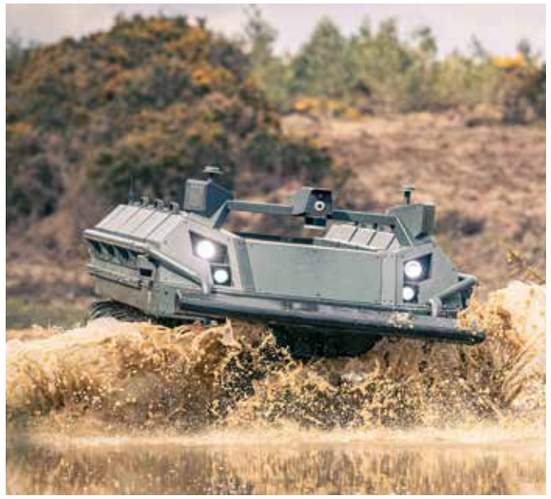
The partnership will deliver panoramic weapon aiming sights for both vehicle commanders and gunners. Thales will also provide a signal processing system, which will deliver state of the art video tracking and wide area search and detection capability.

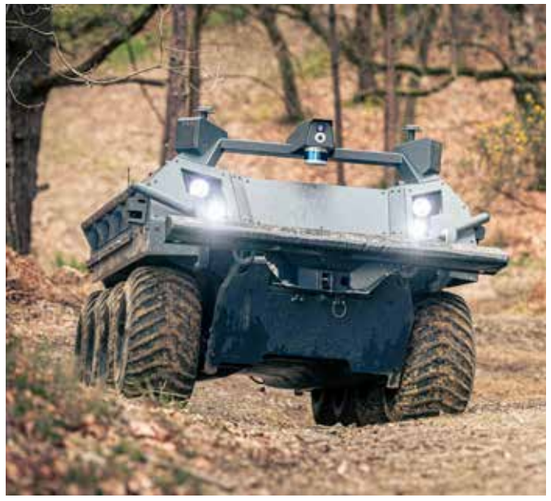
The sights will act as the eyes of the crew, enabling them to view the battlefield in high definition in all conditions, night and day. The system will increase the range and the detail available to the crew, as well as provide accurate target identification, tracking, digital imagery and firing ranges.

Secretary of State for Scotland, Alister Jack, said: "This is fantastic news. This contract gives the British Army the advanced capability it needs to ensure the country's security. This contract will support highly skilled jobs in Scotland - in total, UK defence spends around £2-billion a year in Scotland, supporting more than 12,000 jobs."

The sights will be tailored to meet Challenger 3 specifications and form an integral part of the wider £800-million upgrade programme that will make significant enhancements to the vehicle.

Dave Clark, DE&S Challenger 3 project manager, said: "This is an important milestone in the successful delivery of the Challenger 3 tank. The sights will provide the eyes on the battlefield to allow Challenger 3 to operate effectively both in the day and the night."





# Human-Machine Teaming

**Army HQ have demonstrated their commitment to pre-concept experimentation within the DE&S Future Capability Group (FCG). DE&S FCG have been tasked to explore Human Machine Teaming (HMT) concepts with the aim of shaping the future of Robotics and Autonomous Systems (RAS) for a further 3 years.**

Human Machine Teaming focuses on developing capabilities that support humans working with complex systems. The work FCG does will plan, design, develop, validate, integrate and field Robotics and Autonomous Systems within increasingly capable Human Machine Teams to the Field Army between Nov 21 and Mar 25.

The pan-domain Expeditionary Robotics Centre of Expertise (ERCoE) will be used that brings together robotics and autonomous systems experts from across defence, government, academia and industry and aligns with DE&S' strategy to deliver the edge through people, technology and innovation. ERCoE acts as a focal point for current innovative projects, and also assess unexplored, high-risk but rapidly maturing technologies.

HMT is an ambitious project which will aim to take a long-term view and a systems approach to fielding transformative technology as described in the Integrated Review (IR) and reflected within the Army's approach to RAS. To achieve this, novel commercial models and agile methodologies will be deployed in order to acquire, test and evidence require to inform subsequent BoI investment decisions and the next IR due in 2025.

Head of DE&S ERCoE, Suzy Harris, said: "The placement of a three-year task, within FCG to further explore RAS with an eye towards exploitation for the Army customer is exceptionally exciting. The longer-term financial footing will allow us to plan, resource and deliver quality evidence to support both the Army customer and to other domains exploring RAS capabilities in order to accelerate these findings at the pace the technology requires."technology requires."

> Human Machine Teaming focuses on developing capabilities that support humans working with complex systems

FEATURE

# Catalyst

## The new centre for innovation within the DE&S Air Domain

The definition of a catalyst is a substance which increases the rate of a reaction, or a person or thing that precipitates events. 2022 heralds a new dawn for the Catalyst team within the DE&S Air Domain. The vision is for Catalyst to be the focus for rapid acquisition and innovation within the Air Domain.

Previously known as the Combat Air Strategy Team (CAST) within the Combat Air Operating Centre, 2022 sees the team with a new name, a new role and a new leader. CAST was the right name for a team which focussed on delivering the DE&S elements of the Combat Air Strategy. But the launch of the DE&S 2025 strategy was the right time to reassess the role of the team, and it was decided that more could be done to respond to the needs of aviation customers across Defence for agile acquisition support to rapid capability delivery.

This doesn't mean work has finished on the Future Combat Air System (FCAS) programme; Catalyst will continue to lead the DE&S contribution to FCAS. But the team will also be looking beyond the 'traditional' customer base for opportunities to accelerate and mature aviation-related ideas from concept into deliverable in-service capabilities.

The team are already working with the RAF's Rapid Capabilities Office on Mosquito, the demonstrator programme for the Lightweight Affordable Novel Combat Aircraft (LANCA) concept, which could be deployed alongside combat aircraft in the future, and even provide an uncrewed combat air 'fleet'. Continued support has been given to the RAF's swarming drone project by delivering the Remotely Piloted Air System categorization report, and the team look forward to broadening their customer base by working with the Royal Navy's Carrier Strike and Maritime Aviation team on their Future Maritime Aviation Force.

In each of these projects, the customer requires something different to how projects have been managed before, and whether Catalyst is delivering the project, or one of a number of stakeholders involved, the team are working out how to do that.

One obvious way to do things differently is to exploit new technology such as advances in digital engineering. Although a broad subject, the team are looking at projects which increase the use of modelling and simulation within certification, as well as working with DE&S Digital to explore the creation and utility of digital twins, and their potential use in the creation of key project artefacts such as safety cases. To bring these together, Catalyst are now beginning to explore the establishment of a Digital Aviation Centre of Expertise within the Catalyst, with an aspiration to look beyond the FCAS enterprise to understand where digital tools and techniques can deliver transformation within Defence aviation.

The Catalyst team have begun 2022 with a new team leader – Rob Harrison – who has recently returned to the UK from the NATO Eurofighter and Tornado Management Agency and has extensive experience from the early days of Lightning. Rob joins with a determination to develop the Catalyst into the focus for rapid acquisition and innovation within the Air Domain, without losing the 'people first' ethos which already exists within the team.

> The vision is for Catalyst to be the focus for rapid acquisition and innovation within the Air Domain




FEATURE

NEWS

# Future Cruise and Anti-Ship Weapon

## Continued preparatory work for the Future Cruise and Anti-Ship Weapon (FC/ASW) has been launched.

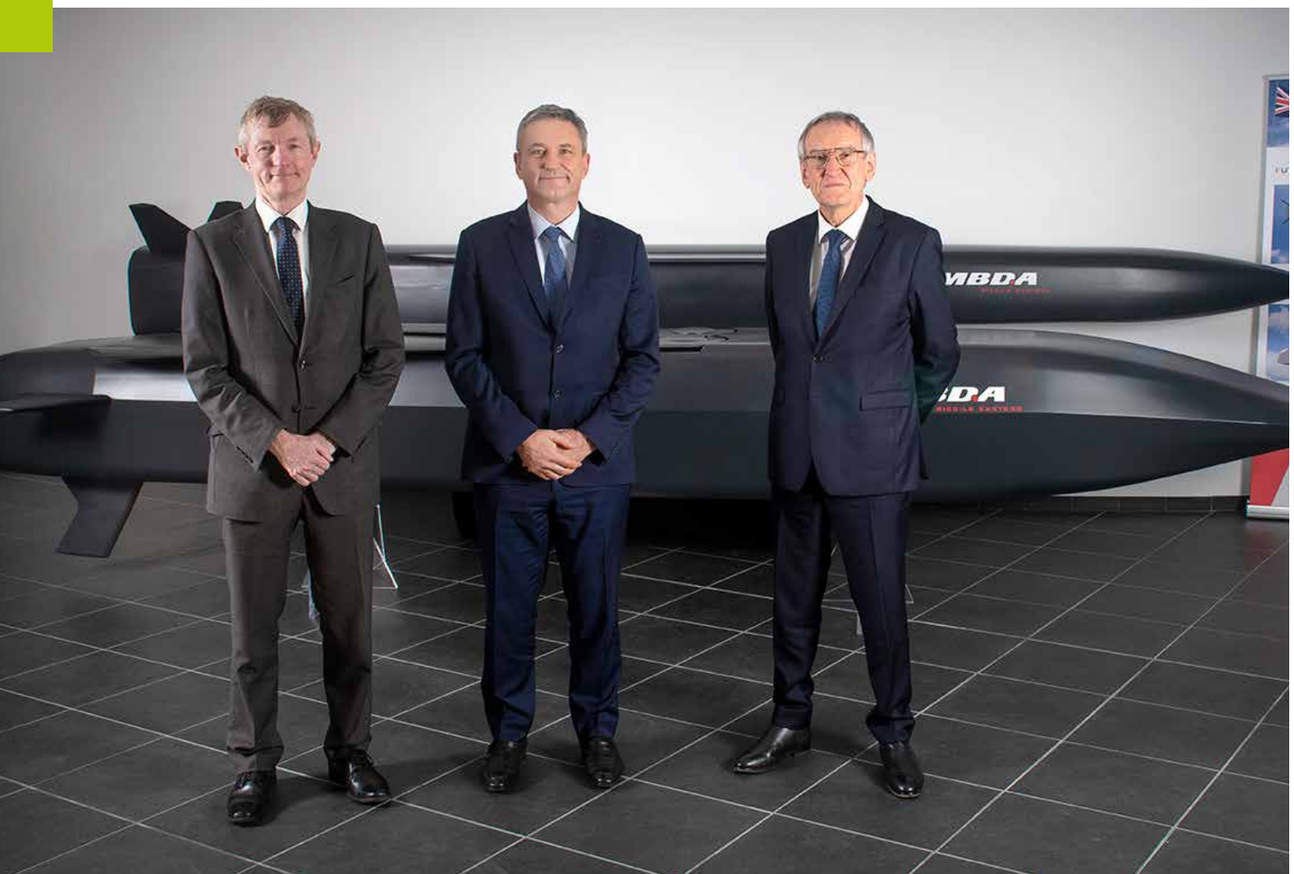
Following the signature of a bilateral agreement between the UK and France, and contracts placed with MBDA in both countries, DE&S CEO Sir Simon Bollom travelled to Paris to meet Joël Barre, Chief Executive of French procurement agency, the Direction Générale de l'Armement (DGA).

Sir Simon, said: "The objective of the FC/ASW programme is to introduce a step-change in lethality for the Royal Navy, Royal Air Force, French Navy and French Air Force for anti-ship and deep-strike missions.

"This joint programme has been underway since 2017, culminating in two weapon concepts. With these new contracts, MBDA, the European missile company, and its industrial partners from the two countries, will continue to work on the definition of two missile designs and will assess their performance to counter future threats for all missions.

"Since the beginning of the 2000s, France and the UK have been co-operating in the field of complex weapons on various bilateral programmes. This co-operation is one of the main pillars of the Lancaster House Treaties signed on November 2, 2010."

In the current phase of FC/ASW, a three-year study will provide a more detailed assessment of the two weapons concepts that have been generated through the previous phase. This will ensure the concepts taken forward into a Development Phase will provide the most suitable missile designs for both the UK and France to counter future threats.



PEOPLE

# Curtis Cleverley

**Job title**
Innovation Project Manager

**What does your role involve?**
As an Innovation Project Manager in Support Transformation, I am responsible for a portfolio of work that is improving how Support activity is delivered to Defence, both within the Defence Support organisation and across Front Line Commands. Currently, I manage an array of projects from Sustainability to Data Driven Organisations that feed into the Support Transformation Innovation Portfolio.

**What do you most enjoy about your job?**
As a Project Manager, stakeholder communication is imperative; in turn, the main aspect of my job I enjoy is the opportunity to collaborate with many different people from all walks of life to work towards a common goal. Additionally, being a Project Manager each day is different, the work I'm involved in is very diverse, I am faced with constant different challenges, it is never a repetitive role.

**What is your greatest accomplishment (in your role) to date?**
Although I have only been in this role for 6 months, and most of my projects are still in development phase. I would say my greatest accomplishment is developing a Data Driven Organisation Maturity Model, that allows for a handrail for teams/functions to strive to make their employees much more data driven.

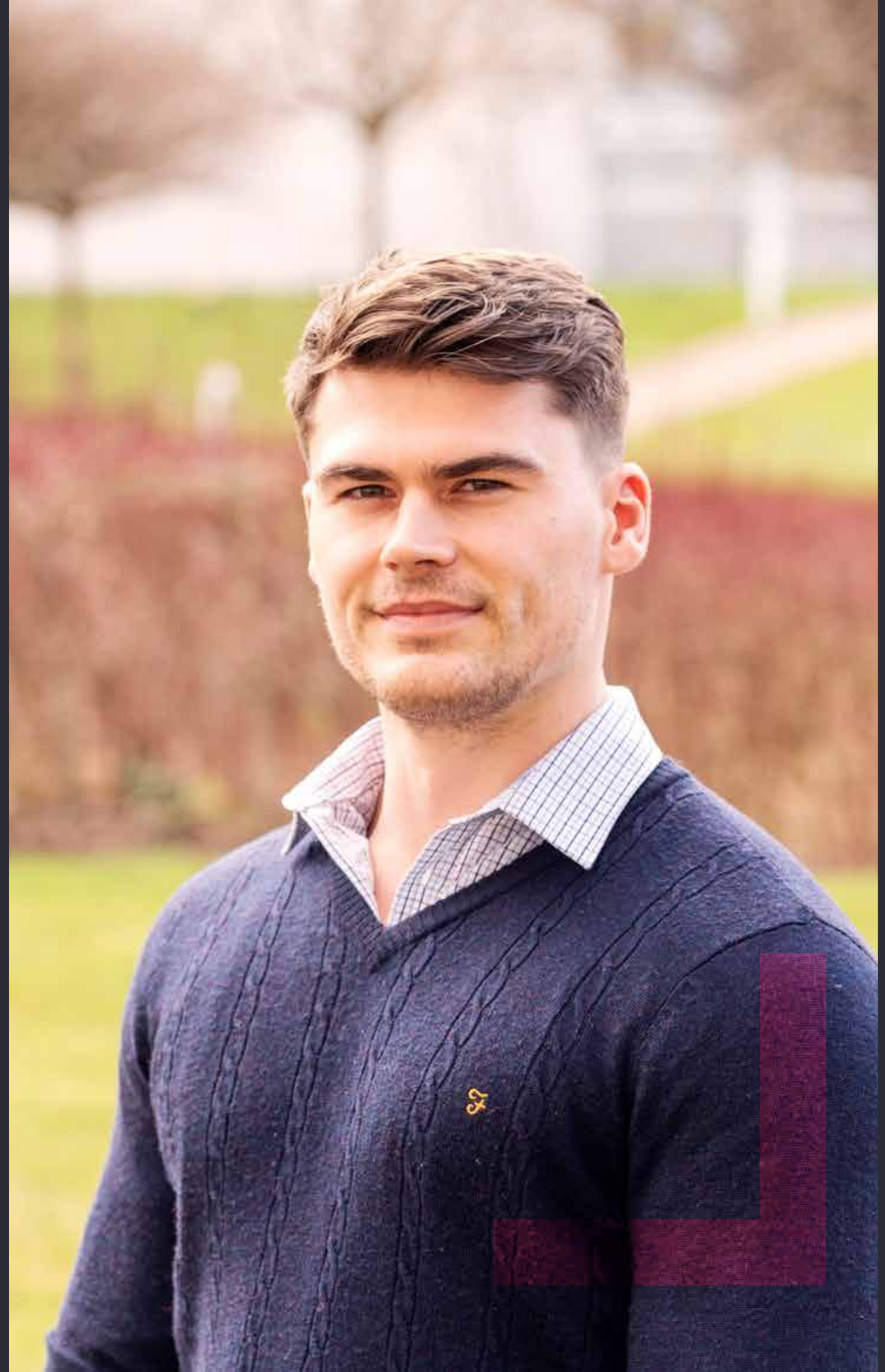
**What keeps you energised about your work?**
The main aspect that keeps me energised is the feeling of empowerment and trust I have from my senior leaders to carry out my role efficiently. This gives me a great sense of value and employee satisfaction when carrying out my responsibilities.

**Who or what has shaped who you are?**
The first person that immediately springs to mind that shaped who I am, is my Dad. My Dad grew up in a poor area when he was younger and did not get the best education but was an extremely hard worker. He became an electrician, and eventually brought his own house, but while working over 60 hours a week, he would single-handedly renovative his house after work and during weekends to then sell them at a higher rate. He has done this to over 22 houses, in which, 14 of them I have lived in when I was growing up. Ultimately, consistently observing and helping my Dad renovative these houses taught me about discipline, dedication, and overall motivation to always keep going and keep a driven and positive mindset.

**What do you enjoy doing in your spare time?**
Since I was 12-years-old I've always had a passion for working out, I used to train in a very small garage – I refer to as the 'Torture Chamber' – with incredibly old and rusty equipment. Over the years when I was younger, I used my pot wash salary to eventually turn the garage into an effective gym. I now currently go to PureGym about six times a week and have been training for almost 13 years. I also Box and I am looking to join AbbeyWood RFC to get back into Rugby. Additionally, I very much enjoy hiking, although this is something I haven't had the opportunity to get into recently, my aim for this year is to hike Pen Y Fan and other peaks.

**What might surprise people about you?**
Most of my life I had been very short sighted, in turn, I needed glasses and I never wore contact lenses as I hated the thought of touching my eyes! However, when I was 19, I underwent laser eye surgery. I'm 25 now and currently still have 20/20 vision ever since.

**What's the best advice you've ever been given?**
'When you talk, you're only repeating what you already know. But if you listen, you may learn something new'.





**Want to receive Desider direct to your inbox?**
**Email: louisa.keefe101@mod.gov.uk**

**Editor:**
Louisa Keefe
07971 013054
louisa.keefe101@mod.gov.uk

**Contributors:**
Daniel Evans, Lowri Jones, Tom Morris, Paul Mclennan, Hannah Swingler, Matt Price and Danielle Starling

**Design and Photography:**
Mark Hawke, Andy Wilkins, Katherine Williams, Hannah Bone, Jack Eckersley, Geraint Vaughan and Charlie Perham

**Distribution Manager:**
Dick Naughton
0117 9134342
dick.Naughton501@mod.gov.uk

**Advertising Manager:**
Edwin Rodrigues
07482 571535
edwin.rodrigues@noahsarkmedia.co.uk

@DefenceES
@DefenceES
Defence Equipment & Support
defence_equipment_support
DE&S
Desider

www.gov.uk/government/publications/desider-2021

cds.co.uk

**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 world wide 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.

This magazine is printed on Novatech Matt FS 115gsm which is Forest Stewardship Council certified material from well-managed forests and elemental chlorine free.

LAND AND AIRLAND DEFENCE AND SECURITY EXHIBITION

2022

# EUROSATORY

## 13-17 JUNE 2022 / PARIS

## THE DEFENCE & SECURITY **GLOBAL EVENT**

**1,800** exhibitors **+14,7%**
from 63 countries
65,9% of international
**65 startups at Eurosatory LAB**

**98,720**
**Total attendance**
(exhibitors, visitors, press, organisers)

**227**
**Official delegations**
from 94 countries
and 4 organisations
(representing 760 delegates)

**690**
**journalists**
from 44 countries

**75 Conferences**
**2,100 Business meetings made**

2018 key figures

GICAT

www.eurosatory.com

COGES EVENTS