Message from the Chief Executive

The 2015 Strategic Defence and Security Review (SDSR) described how economic and national security go hand-in-hand with a strong economy and provide a platform for investment in the nation’s security and global influence.

Operational sovereignty is a key characteristic of Raytheon’s ongoing contribution to the UK, with the company leading key programmes such as the Sentinel fleet, which will deliver its vital surveillance and reconnaissance capability into the next decade. As a result of the SDSR, Raytheon Company’s Space and Airborne Systems business will provide the primary sensor on the P-8 Poseidon, and the RAF’s Shadow fleet will be increased to eight, providing increased flexibility to its specialist user community and export potential into a number of global markets.

Each year we invest millions in our own technology, but there are also important things that we can do to promote innovation and skills in the defence and aerospace sectors, both in the supply chain and education system. Our National Quadcopter Challenge, rolled out earlier this year, has benefited more than 20 schools. Congratulations to Boswells School who won the national final held in Essex at the end of June.

Thank you for your support to Raytheon UK and I look forward to seeing you at one of this summer’s industry events.

Richard Daniel
Chief Executive, Raytheon UK

Boswells School Wins Raytheon UK Quadcopter Challenge National Final

Boswells School in Chelmsford, Essex has won the National Final of the 2016 Raytheon UK Quadcopter Challenge which took place at Stow Maries Great War Aerodrome in Essex on 30 June.

Students from five UK schools – Boswells School, Denmark Road High School for Girls, Inverkeithing High School, Sir William Robertson Academy and Flint High School – put their creations through a series of challenges to test their quadcopter designs for innovation, speed, agility and accuracy, to find out which one would become the national champion. Each team had won their regional final which took place around Raytheon UK’s major sites at Harlow, Broughton, Glenrothes, Waddington and Gloucester.

Designed specifically for year eight and nine students, the Quadcopter Challenge is part of Raytheon’s commitment to fostering student interest in Science, Technology, Engineering and Maths (STEM). Suzanne Jude, head of Transformation and STEM Lead at Raytheon UK, said: “Working with schools, helping to create courses at universities, attending major outdoor events such as airshows, organising competitions and challenges all help to kindle a passion for STEM subjects in young people and develop a future generation with the right skillset to drive the UK’s technology agenda.”

Raytheon UK Unveils GroundEye™ – New IED Detection System

Raytheon UK unveiled its world-beating IED detection platform at Eurosatory 2016, held in Paris during May.

GroundEye™ is a modular, non-invasive tactical manoeuvre support capability for the real-time detection, confirmation and diagnosis of Explosive Ordnance (EO) hazards, Improvised Explosive Devices (IEDs), mines and other buried/concealed threats.

The GroundEye system enables EO disposal/specialist high-threat search operators to view, in real-time, the exact position, orientation, size and shape of all individual components of an emplaced or suspected EO hazard, IED or other buried threat.

Designed for day/night operation, it delivers extremely high-definition, easy to interpret imagery.

Raytheon|Websense and Stonesoft Become Forcepoint

Raytheon|Websense has been renamed Forcepoint. The new venture is built on the successful integration of Websense, Raytheon Cyber Products and the recently-acquired Stonesoft next-generation firewall business. As well as multiple new products, it will bring defence-inspired cybersecurity to the global commercial market.
Rechargeable Armor Could Save Precious Power In Battlefield

A Raytheon engineering team has developed vehicle armor that doubles as a battery—a breakthrough that could power electronics, reduce engine run times and lessen the military’s demand for costly, dangerous fuel convoys.

The armor works by layering bullet-resistant electrical conductors such as high-hardened steel with sturdy insulators such as ceramics. The result: power goes through it, bullets do not. The batteries store the energy that vehicles generate while in motion. When stopped, the crew can switch to battery power, rather than having to run the engine just to power their on-board electronics.

Portable Power Generator

Soldiers in the field, accident scene first responders, construction engineers, site workers and even outdoor leisure enthusiasts could soon have easy access to electrical power, thanks to Raytheon UK’s innovative and versatile Portable Power Generator (PPG) units. Developed by the company’s Integrated Power Solutions (IPS) business unit in Glenrothes, in collaboration with key technology partners, the PPG is compact and lightweight, and can burn a variety of fuels (including diesel, kerosene and JP8 aviation fuel) to generate a regulated 28V DC output.

Military applications for the units include the recharging of field equipment, such as radios, GPS systems, SAT phones and night vision goggles, and the PPG can also act as an Auxiliary Power Unit (APU) for land vehicles. Commercial applications for the PPG also include the charging of equipment and as APU in light goods, heavy goods and recreational vehicles, for example.

A 2kW DC technical demonstrator PPG, capable of providing an anticipated 12 hours of power at full load depending on the operating environment, and demonstrator PPGs optimised for different loads will both be produced later in the year.

CONDOR MK 3 MSSR

Raytheon’s Affordable Radar Gives Air Traffic Operators the Big Picture

Condor Mk 3, Raytheon UK’s recently announced advanced Monopulse Secondary Surveillance Radar (MSSR) system, will make the skies significantly safer for air travel.

MSSR systems help air traffic controllers separate aircraft and safely keep them apart. The Condor Mk 3 employs advanced technologies to offer unprecedented awareness to air traffic operators, with such features as a higher-duty-cycle transmitter, full Mode S surveillance and built-in Automatic Dependent Surveillance-Broadcast technology.

Condor Mk 3, which also includes a new primary surveillance radar, gives air traffic operators a better picture of that air traffic and more effective warning function—even though it requires less capital investment and cuts life-cycle costs.

Jock Gordon, head of Raytheon UK’s Air Traffic Management Systems business, said: “This new radar fulfils the complete spectrum of requirements, from full turnkey co-mounted solutions to technology refresh programmes. It’s designed to extend the life of existing systems without replacing current antennae.”

Raytheon’s air traffic control radar solutions are presently monitoring more than two-thirds of the world’s airspace and are operational in more than 60 countries.
Raytheon’s developments with Silicon-Carbide based analogue circuitry make control and monitoring in high-temperature and harsh environments more of a reality.

Silicon-based components dominate the electronics industry. However, their operational limits, which is a product of the material properties of silicon, restrict the extent to which they can be used in harsh environments; and device ambient temperature must generally be kept well below 150°C.

Whilst technology variants, one of which is called Silicon on Insulator, can raise the bar to about 250°C, this is still not high enough for some industrial applications and thermal management is required. This typically employs heatsinks and fans for forced air cooling. But this all adds weight and is not desired within the aerospace sector, for example, where fuel savings and greater efficiency must come (in part) through weight reductions.

Readers will of course be familiar with Raytheon UK’s Silicon Carbide (SiC) experiences; and the opening of its SiC foundry in Glenrothes, Scotland in 2013.

To date though, the electronics industry has been focused on the development of SiC semiconductors for power electronics and exploiting the material’s ability to switch high voltages with low switching and ‘on-state’ losses and to dissipate internally generated heat.

However, SiC can also be used for so-called ‘small-signal electronics’; making possible the locating of monitoring and control circuitry that requires minimal, if any, cooling much closer to heat sources.

This is of great appeal in the aerospace industry where resilient electronics can, for example, be used to improve jet engine efficiency by making accurate measurements of exhaust gas temperatures closer to the heat source and enabling better combustion control.

There are other benefits too. The shorter the cable runs between sensors in hot areas and the signal conditioning circuitry means less electrical noise pick up. Also, by switching the outputs of multiple sensors (thermocouples, for example) onto a single data line, the overall monitoring system requires less cable and fewer connectors. This produces weight savings and can potentially simplify the manufacture and maintenance of engine and airframe components.
High Temp Thermocouple Multiplexer Unit

To validate the feasibility of ‘close-to-heat source’ switching electronics, in a practical circuit, Raytheon built a high temperature thermocouple multiplexer demonstration unit. It has five integrated circuits (ICs), all of which were fabricated using the company’s proprietary HiTSiC® CMOS process. The unit also has four two-wire thermocouples, which are effectively polled by the five-IC circuit.

At time of writing, the demonstrator’s HiTSiC® components have each amassed more than 100 hours of operation working at 300˚C. Also worthy of note is that, in a separate study, HiTSiC® digital device performance has amassed more than 1,500 hours continuous operation at 300˚C.

Growth Markets

The market segments for extreme-environment sensors and instrumentation for use in aerospace and other harsh environment sectors – such as oil and gas, geothermal and space exploration – are all set to grow as the technology develops and components capable of high temperature operation become more generally available. SiC-based small-signal ICs will certainly have a role to play in serving those markets. The exploration of Raytheon’s HiTSiC® technology is not stopping at 300˚C or even 400˚C through. Research groups are evaluating HiTSiC® circuit applications which extend above 500˚C, a temperature at which the material is just starting to glow red. Moreover, results are emerging where devices are able to survive, with good functional operation, for tens of hours under such conditions.

Electronics capable of surviving for even a few hours could even be used in probes sent to the Solar System’s hottest planets. ■

Below: Raytheon UK’s thermocouple multiplexer demonstration unit has five ICs (in the centre strip) all fabricated using Raytheon’s HiTSiC® CMOS process. The unit has recently returned from PCIM Europe, in Nuremberg, where it drew much attention – as visiting engineers to Raytheon’s stand got to see a practical electronic circuit working at 300˚C.

Circuits That Beat The Heat

A prototype module has currently amassed more than 1,000 hours of stable operation at 300˚C; a temperature at which traditional Silicon-based semiconductors cannot operate. Tests on the module, which includes two 1,200V Silicon Carbide (SiC) Bipolar Junction Transistors (BJTs), have been performed switching 500V at room temperature and switching 200V at 300˚C. The BJTs are controlled by integrated base driver circuitry, fabricated using Raytheon’s propriety High Temperature Silicon Carbide (HiTSiC®) process.

“The co-location of BJT base driver circuitry and power transistors into a single high temperature module is a major industry breakthrough,” comments David Gordon, technical lead with Raytheon’s IPS. “For example, in many instances it is necessary to switch power stage transistors at tens of kHz and that requires getting the base driver circuitry as close as possible to the power transistors. However, in a high temperature environment that presents a problem. While Silicon Carbide transistors can switch high voltage and handle high temperatures, traditional Silicon-based gate driver circuitry cannot cope with the heat. Silicon on Insulator raises the bar to about 220˚C, but that’s still not high enough for some existing and emerging applications for power electronics. Raytheon’s HiTSiC® CMOS circuitry on the other hand was designed to operate at 300˚C, and has been tested at considerably higher temperatures.”
Raytheon UK’s Airborne Solutions business provides the Royal Air Force with a world leading ISTAR (Intelligence Surveillance Target Acquisition and Reconnaissance) capability from the C-ISTAR hub at RAF Waddington, Lincolnshire, and the company’s site at Broughton, North Wales. In this special feature for Farnborough 2016, Raytheon UK’s Roland Howell and Roger Shone explain how Airborne Solutions’ international reputation as a one-stop business is having a positive impact on Wales’ supply chain, and generating economic value through inward investment.

The British Aerospace industry is vitally important to the future economy of the United Kingdom; it is the second biggest aerospace industry in the world and is the largest in Europe.

Raytheon UK’s Broughton and Waddington sites are home to its Airborne Solutions business. From there, Raytheon delivers two of the UK’s most vital strategic ISR (Intelligence, Surveillance and Reconnaissance) assets in the form of the Sentinel R1 and Shadow R1 special mission aircraft programmes.

“Airborne Solutions’ extensive portfolio includes the design, development, manufacture, integration, production trials, flight trials and support for our operationally-proven C-ISTAR assets, Sentinel and Shadow.

“We provide an end-to-end customer-oriented capability that guarantees the sustained operational availability of all C-ISTAR assets under our responsibility, while the delivery of innovative contextualised training solutions enables the operators to fully exploit the advanced capabilities of those assets.

“Additionally, a day-to-day close working relationship with the Royal Air Force’s Air Command’s AIR ISTAR Project Team and the unique co-location of Airborne Solution’s design organisation with the operator allows us to respond expeditiously with innovative solutions to urgent operator requirements,” says Roland Howell, Raytheon UK’s head of Airborne Solutions.

The Sentinel programme, extended by the Ministry of Defence (MOD) in service to 2021 and possibly beyond, has been a huge operational success providing invaluable international support in Afghanistan, Libya and Mali.

Based on a Global Express business jet manufactured by Bombardier and modified by Raytheon UK, the Sentinel R1 aircraft was originally intended for conventional war-fighting operations, to track armoured formations and conduct strategic reconnaissance tasks. The capability, however, has proven to be flexible in adapting to humanitarian crisis roles, such as mapping and scaling the flood crisis that hit Southern England in early 2014 and supporting the international search for more than 200 kidnapped schoolgirls missing in Nigeria in Spring 2014.
Inward Investment

Being a key supplier to the MOD and a centre of engineering excellence, Broughton has always received a high level of interest. Most recently, Economy Secretary Ken Skates visited Raytheon’s Deeside facility to hear how inward investment had created 50 highly-skilled jobs and is having a growing positive impact on the supply chain in North Wales.

“Between April 2015 and March 2016, Broughton’s head count increased from 66 to 116 permanent employees and 16 long-term contractors. During this period, Wales’ Government has provided Raytheon with support and assistance in support of our growth plans,” says Roger Shone, Raytheon UK’s general manager at Broughton. “We are in advanced talks with two Wales-based companies with a view to them becoming part of the long-term Raytheon supply chain with potentially multimillion pound contracts,” he adds.

Mr. Skates cited Raytheon UK as a great example of how inward investment from a high-quality global business can create direct and indirect benefits for the Welsh economy. He estimates the value to the Welsh economy from investments from companies like Raytheon UK to be “at least £660 million”, creating what he describes as “wider economic benefits, jobs and new business opportunities for Welsh companies through supply chains.”

Manufacturing and export is the bloodline of the Wales and UK economies, and thanks to inward investment Wales’ economy has developed significantly in recent years and today boasts a strong international reputation as an investment hub. According to Mr. Skates, 2015/2016 was “the second best on record for inward investment”, with Wales attracting 96 new projects.

The expanded and modernised facility in Broughton is the new head office for Raytheon’s Airborne Solutions business. With further expansion into a new hangar in 2017, the new facilities will enable Airborne Solutions to address burgeoning international and adjacent markets, including the development of unmanned platforms and the leasing of surveillance aircraft to support existing and emerging border control and civil contingencies requirements.

Building on more than 20 years of mission systems integration expertise, Broughton’s expanded capacity also creates a Middle East and North Africa hub for Mission Systems Integration and aircraft programmes to support key geographical markets for Raytheon Company.

Raytheon’s culture of innovation, STEM programmes, research and development into world-beating technologies, inward investment, commitment to new talent and creating highly-skilled jobs, works to ensure that it maintains its position as a global leader in today’s challenging Aerospace manufacturing industry.

For the past 23 years since its establishment in 1993, Raytheon Broughton has been a centre of excellence for technical innovation, quality and service.

Today, the Broughton facility is one of the UK’s prime airborne systems integration centres, utilising the site’s own indigenous capability and skills specialising in the design, modification and support of special mission aircraft and ground station platforms. This includes major projects such as the modification of Raytheon’s ASTOR (Airborne Stand-Off Radar) radar surveillance system (later to become the Sentinel R Mk 1 aircraft) and Shadow R Mk1.
Special Mission Aircraft

Raytheon UK’s extensive heritage in the delivery of complex ISR solutions to customers worldwide allows it to build and exploit its significant skills and knowledge in the development and integration of world-leading sensor technologies on to airborne platforms. “An example of this is the proven operational success of the RAF’s Sentinel R1 long-range wide area battlefield surveillance platform and the Airborne Stand-Off Radar (ASTOR) system. ASTOR’s high-resolution SAR (Synthetic Aperture Radar) and GMTI (Ground Moving Target Indicator) sensors delivers 24-hour, all-weather mission critical C-ISTAR information to UK and Coalition forces,” explains Howell.

Airborne Solutions has also exploited its ASTOR experience to deliver the Shadow R1 tactical C-ISTAR solution for the UK Ministry of Defence, with three extra aircraft set to join the fleet of five by 2025. Designed, developed, ground tested and flight tested at Airborne Solutions’ Broughton facility, this fleet with RAF 14 Sqn has provided invaluable tactical ISR support to the UK’s armed forces.

Overseer

Airborne Solutions is the design authority for Overseer, a next-generation Airborne Mission Management architecture that builds on the success of the ASTOR system and the Shadow R1 programme. Overseer combines intuitive user interfaces with a modular and flexible design to deliver a mission management system at the cutting edge not only in terms of its software, architecture and open standards implementation, but also its usability, trainability and maintainability – all critical elements to Raytheon customers around the world. Overseer’s off-boarding capability allows it to integrate with other ISR systems, and to be interoperable with a range of information exploitation systems.

Howell says: “While continuing to support and sustain the C-ISTAR assets under its responsibility, our business recognises that the future of its knowledge and expertise lies in the development of multi-mission solutions for airborne platforms which are not dedicated to single sensors or single capabilities, but which can overlay intelligence from multiple sensors to deliver a broader mission picture. Our engineers have already developed a Maritime Mode solution for the Sentinel R1 that enhances the aircraft with a significant maritime surveillance, detect and tracking capability.”

Delivered solely through the integration of additional software, the Maritime Mode functions do not impact the operationally proven overland Wide Area Surveillance (WAS) Synthetic Aperture Radar and Ground Moving Target Indicator capabilities of the platform.

- The Sentinel R1 aircrafts receive Whole Life Support at the main Operating Base in RAF Waddington, and in theatre globally through deployed Field Service Engineers under the Contractor ON Deployed Operations (CONDO) mechanism. Raytheon UK’s Accelerated Depth Maintenance (ADM) mechanism also provides priority depth support for the Sentinel fleet.

- Airborne Solutions at Waddington is accredited under the UK Military Aviation Authority (MAA) Maintenance Approved Organisation Scheme (MAOS) and Design Approved Organisation Scheme (DAOS); at Broughton Raytheon UK holds accredited approvals under the MAA (Military Aviation Authority), Civil Aviation Authority (CAA) and European Aviation Safety Agency (EASA).

- Airborne Solutions is an accredited MAA Contractor Flying Approved Organisation Scheme (CFOAS) operator – this allows Raytheon UK to fly Sentinel R1, Shadow R1 and other C-ISTAR platforms in design and manufacture support roles.
The principles of the company’s ASTOR training solution can also be applied to a range of different C-ISTAR platforms. Says Howell: “We have, over the past five years, expanded into a broader range of services and activities to provide additional training solutions for the Shadow R1 along with ASTOR flight testing hardware and software testing and verification support.”

TSS has capitalised on its experience to deliver Air Traffic Management System training for international customers, for example.

The Contractor Logistic Support

Airborne Solutions is the assigned Contractor Logistics Support (CLS) authority for the Sentinel R1 aircraft. CLS delivers Whole Life Support at the main operating base at RAF Waddington, and in theatre globally through deployed field service engineers under the Contractor On Deployed Operations (CONDO) mechanism.

Raytheon UK’s CLS support for operational C-ISTAR is effectively furnished through four delivery strands: Training Support Services, Design Support Services, Supply Support Services and Engineering Support Services. Co-located with the customer, Airborne Solutions is involved with every single aspect of the life of the Sentinel R1 to deliver a complete support service and guarantee the operational availability of the Sentinel R1 fleet.

The Design Support Services

Airborne Solutions’ Design Support Services (DSS) is the UK hardware design authority for the ASTOR mission system and Sentinel R1 platform.

A fully Design Approved Organisation Scheme for military aircraft design and development, DSS is responsible for upholding the design of the Sentinel R1 platform, providing configuration management and maintaining the design drawing sets of the aircraft, overcoming obsolescence, and evolving opportunities to improve capability.

During 2016, DSS has delivered an ASTOR Mission Management System (MMS) upgrade for the Sentinel R1 replacing the earlier core mission system servers, workstations and mission software with cutting-edge technology hardware; this upgrade delivers significantly reduced system size, weight and power consumption, while at the same time enhances the system’s image processing power and throughput by at least a factor of ten. The ASTOR mission software has also been upgraded for compatibility with the new MMS hardware. DSS has also integrated an innovative SATCOM solution on the Sentinel R1 platform which mitigates much of the earlier Ground Segment requirement, and delivers near-real time intelligence flow.

In addition, DSS has designed, developed and delivered a new ASTOR mission tool — the Integrated Digital Analysis Suite (IDAS) — which essentially replaces the earlier ASTOR Ground Segment with enhanced mission planning and mission image and data exploitation functions.

DSS’ unique systems knowledge and skillsets position it to respond to critical customer requirements with timely and innovative solutions. The team delivered the Conversational Hypertext Access Technology (CHAT) Urgent Operational Requirement to its customer to ensure data interoperability by SATCOM between UK Sentinel R1 platforms and coalition partners in theatre. In essence, CHAT is the secure SATCOM version of internet messaging used by the UK’s U.S. allies. To achieve this, Airborne Solutions installed a modification into its aircraft to ensure interoperability with this protocol.

The Engineering Support Services

Engineering Support Services (ESS) is Airborne Solutions’ MAOS-approved Sentinel in-service organisation tasked with sustaining the operational availability of the Sentinel R1 fleet.

ESS is primarily responsible for the provision of Sentinel System Depth Maintenance and Engineering Support to RAF No 5 (AC) Sqn, along with maintenance of the delivered software tools and the Software Support Rig at the Sentinel R1 Main Operating Base at RAF Waddington.

ESS also deploys CONDO Field Service Representatives in support of first line ASTOR/Sentinel R1 air and ground operations globally. These include Operations Herrick (Afghanistan), Ellamy (Libya), Newcombe (Mali) and Turus (Nigeria) and, more recently, Shader in support of Coalition operations against non-state actors in Iraq and Syria.

The Supply Support Services

Airborne Solutions’ Supply Support Services (SSS) is responsible for the management, accounting, re-provisioning repair and delivery of all ASTOR spares, and the management and accounting of all Government Furnished Equipment for the ASTOR programme. ESS is also able to exploit the support services made available by Bombardier (the platform provider for the Sentinel R1 aircraft) to its customer base, to ensure the continued operational availability of the Sentinel R1 fleet.
Raytheon has made another significant step towards a realistic More Electric Aircraft (MEA) architecture, having completed two out of three power system modelling exercises as part of an Innovate UK funded project, called Integrated Power & Propulsion Architectures (IPPA).

“Key to the MEA concept is the use of electrical power as a common energy carrier,” said Steve Clerkin, head of Aerospace Electrical Power Systems at Raytheon UK. “Compared to traditional aircraft, the MEA promises higher efficiency, significant weight reduction and less dependency on hydraulic and pneumatic systems.”

Optimising an aircraft’s power architecture – which includes electrical power generated by the aircraft’s engines, loads such as the avionics equipment, galley ovens and in-flight entertainment systems, and batteries as electrical storage devices – is not without its challenges because the power requirements are not uniform. Rather, they vary depending on the different stages of flight; generally regarded as taxiing, take-off, climb, cruising, descent and landing.

Static Modelling
The first phase of the power exercise was so-called ‘static modelling’, in that it considered only the steady-state, predictable electrical loading of an aircraft’s power system. This was followed by ‘dynamic modelling’, which considered how, in reality, the electrical loading does vary during the different stages of flight. Presently, Raytheon UK is working on phase three – ‘transient modelling’. Due for completion this summer, it sets out to determine how power quality is affected by voltage spikes (i.e. transients) as electrical loads switch on and off.

Designed for Optimum Load
Each consecutive phase of modelling is providing a clearer understanding of how the More Electric Aircraft’s power architecture behaves. This data supports the optimisation of a broad range of electrical systems and equipment for tomorrow’s lighter and fuel-efficient aircraft.

The Journey Ahead
Clerkin said: “This cross-corporation and collaborative performance modelling exercise is providing all IPPA members with a clearer understanding of how the More Electric Aircraft’s power architecture behaves. This data supports the optimisation of a broad range of electrical systems and equipment for tomorrow’s lighter and fuel-efficient aircraft.”

Post IPPA, the next step will be to embark on product development. Clerkin concluded: “Following the same partnership journey, we will launch a new ATI-supported programme in the autumn that will see our product roadmap in action.

“Aviation Power System-wide performance modelling provides aerospace engineers with the results to optimise the electrical systems of tomorrow’s aircraft for greater efficiency, minimised emissions and reduced operating costs. More Electric Aircraft

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“A suite of aerospace grade products that reach across conversion, distribution and power switching will be matured through a multi-year plan culminating in 2019 demonstrations. Our ability to challenge and win new business in this growing market thus becomes a reality.”
Flying High: Raytheon UK’s Quadcopter Challenge Finale

Raytheon UK’s National Quadcopter Challenge Finale took place at Stow Maries Great War Aerodrome in Essex on Thursday 30 June (see page 2, News).

Commending Raytheon UK’s STEM-based Challenge, Richard Bambridge, skills manager, Education and Lifelong Learning, Essex County Council said: “I would like to thank all the Raytheon STEM ambassadors for their time and energy, they have all played a massive part in helping to shape tomorrow’s future engineers.”

Raytheon Champions STEM Scotland Debate

Scotland’s industrial base, government and universities must work closely to support maths and science education and strengthen its pipeline of talented tech workers, a top Raytheon UK official told educators and business leaders at the Scottish parliament’s STEM Scotland 2016 conference.

“Collectively, we need to close the skills gap and provide the expertise required for Scotland’s economic future,” said Stephen Doran, who leads the company’s Power and Control business in Glenrothes, Fife.

Doran’s remarks came during a panel discussion to address the shortage of scientists, technologists and engineers, in an age where demand for those occupations is running high and women are particularly unrepresented.

Raytheon has a legacy of investing in people, skills and innovation in Scotland. The company sponsored the event as part of its worldwide effort to promote STEM education, as well as dispel the myth that university degree level entry is the only route into engineering.

“Our STEM initiatives are crucial to grow talent as well as maintain the long-term pipeline of resources in our company and industry,” Doran said. “We must work collaboratively to create the right environment for the UK to prosper, and we must exploit our competitive advantage in order to drive overseas trade growth as well as inwards investment into the UK.”

STEM ambassadors support Red Arrows event

STEM (Science Technology Engineering and Maths) ambassadors from Raytheon’s Waddington site supported a STEM day hosted by the Red Arrows on 13 June.

Held at RAF Scampton, home of the Red Arrows, more than 20 leading companies and organisations showcased their hi-tech work to 240 youngsters. The event even attracted TV presenter Rachel Riley, from Channel 4’s Countdown programme, who attended as a special guest. Ms. Riley was keen to stress the importance of urging more women to follow a career path in STEM.

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UPCOMING EVENTS

<table>
<thead>
<tr>
<th>Date</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>July 21</td>
<td>RAF Marham, Families Day</td>
</tr>
<tr>
<td>Sept 7 - 8</td>
<td>Defence Vehicle Show, Millbrook</td>
</tr>
<tr>
<td>Oct 3 - 5</td>
<td>AUSA, Washington D.C.</td>
</tr>
<tr>
<td>Dec 6 - 8</td>
<td>MEBAA Show, Dubai</td>
</tr>
<tr>
<td>Dec 8</td>
<td>Raytheon UK Annual Technology Conference, London</td>
</tr>
</tbody>
</table>

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A WORLD OF INNOVATION

Raytheon innovations help customers in more than 80 countries protect people, secure information, defend infrastructures — and make the world a safer place.

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