

Opinion: Analysis Of The NATO Summit

Rolf Clement

In the run-up to the 2018 NATO Summit, a word made the round that the factual decisions on the further development of the Alliance should be adopted in complete consensus, but that the political results would be difficult.

The first part came as predicted. NATO established two new headquarters to deal with the transfer of troops, one in Ulm/Germany and one in Norfolk/USA. It decided on the new training mission for Iraq. It has stepped up its engagement in Afghanistan, just to mention a few decisions. Wherever NATO is required to optimise its own processes or to transfer stability, it functions smoothly.

It was also a political summit in Brussels that laid down much of what was already NATO policy before, and many had feared that U.S. President Donald Trump, in particular, would no longer be so firm on this point. Above all, this concerns the situation in the border region between Russia and Ukraine. In the run-up to the meeting between Trump and his Russian counterpart Vladimir Putin, the American made statements according to which he would consider recognising the Crimean annexation. Following South Korea's experience at the U.S.-North Korea summit with the unspoken refusal of manoeuvres, the Baltic states were concerned about the practice agreements in the region. None of this was reflected in the NATO Communique. There, the NATO states unanimously agreed on all the positions they had already stepped in for before. There the Alliance was united and strong. This was then lost in most reportings.

This was largely overshadowed by a dispute on the second day of the summit. After the Alliance's further burden-sharing was confirmed on the first day, U.S.

President Trump came with an attempt to reopen the package on the second day. He wanted the allies to spend two percent of the gross national product on defence as early as January 1, 2019 and then let it grow to four percent. He linked this to the question of whether the USA would continue to be a full member of the Alliance. In a sub-clause, he made it clear what he was interested in: When Europeans say that their defence industry cannot deliver this new amount within the new timetable, he can help, the U.S. industry can deliver. What happened at this point is seriously affecting NATO's internal life. The subsequent, ultimate demand was rejected by everyone else at the meeting of the Heads of State. Everyone admits that Europeans need to do more. But they already do more. Since the Wales Summit in 2014, the European NATO states have spent over €80 billion more on defence than it had previously been planned. That's a hefty sip. Because all this must be enforced in the respective countries, also in domestic politics. This was the point where all the other leaders were against Trump.

But did he even notice that? He went to a press conference with a great victory pose and wrote the additional issues of the Alliance of the last and the coming years only on his flags. He repeatedly emphasised that he, Donald Trump, had caused this movement. This may bring him points at home – with the people who are interested in foreign policy. However, it makes him



(Photo: NATO)

a clown on the international stage, where nobody knows which one of his statements has a real background and will last. That makes cooperation with this president almost impossible. Trust is destroyed. Until now, it was still true that the Washington administration had repaired many broken fragments produced by the president. But at the working level this is becoming increasingly difficult. The president's volatility is slowly reaching the working level.

If NATO is fully operational wherever it agitates, this political finding must cause us great concern. The next crisis, which will certainly come, needs a political response from politicians whose statements can withstand the appropriate headwinds. You cannot trust the U.S. leadership right now.

British Combat Air Strategy

(df) The British Ministry of Defence has presented its new Combat Air Strategy at Farnborough International Air Show. At this occasion Defence Secretary Gavin Williamson also unveiled a concept model of a brand-new, next-generation fighter jet as he launched the strategy with a bold statement of intent for future British air power.

“We have been a world leader in the combat air sector for a century, with an enviable array of skills and technology, and this Strategy makes clear that we are determined to make sure it stays that way. It shows our allies that we are open to working together to protect the skies in an increasingly threatening future – and this concept model is just a glimpse into what the future could look like,” Williamson said. “Today’s news leaves industry, our military, the country, and our allies in no doubt that the UK will be flying high in the combat air sector as we move into the next generation.”

The concept aircraft shown during this presentation at Farnborough was made by British companies including BAE Systems, Leonardo, MBDA and Rolls-Royce. These companies have joined together with the RAF Rapid Capabilities Office to form “Team Tempest”.

“The Combat Air Strategy will bring together the best of our people, industry and international partners to support the RAF lift-off into the next century of air power,” said Chief of the Air Staff Air Chief Marshal Sir Stephen Hillier. “Team Tempest demonstrates our commitment in ensuring that we continue to build our capabilities, draw upon our experience and history to bring forward a compelling vision for the next generation fighter jet. In last 100 years, the RAF has led the way and today’s announcement is a clear demonstration of what lies ahead.”

Williamson stressed, that the MoD would now set up a dedicated team to deliver the combat air acquisition programme. These will deliver a business case by the end of

the year, and have initial conclusions on international partners by next summer – with engagement with potential partners beginning immediately. Early decisions around how to acquire the capability will be confirmed by the end of 2020, before final investment decisions are made by 2025. The aim is then for a next generation platform to have operational capability by 2035.

The Combat Air Strategy seems to be more a commitment to British industry. Like Williamson expresses in the foreword of the Strategy: “Our investment of nearly £2 billion over ten years in the Future Combat Air System Technology Initiative provides the means to develop the technologies of the future.”

“The UK will take a strategic approach to Combat Air, using a National Value Framework that maximises the overall value the UK derives from the sector,” the Strategy explains. “Effective international partnering in Combat Air is fundamental to the delivery of our national goals and management of cost. (...) The Government will take forward this programme of work to preserve the UK’s operational advantage and freedom of action while maximising the economic and strategic benefits that result from the UK playing a major role in any future Combat Air acquisition programme.”

On the broader timeframe the Strategy determines: “Following the retirement of Tornado in 2019, the UK’s Combat Air requirements will be delivered through a combination of upgraded Typhoon and F-35. The 2015 Strategic Defence and Security Review committed to an extensive programme of upgrades to ensure Typhoon’s operational effectiveness and to enable the aircraft to operate with the Royal Air Force until at least 2040.” The lifetime extension is also necessary due to more costly systems. “The integration of more technology and the increasing complexity of Combat Air systems drives greater cost into programmes. To counter threats effectively, governments are therefore forced to trade



between capability and platform numbers to ensure programmes remain affordable, while driving existing platforms to remain in service longer.” With regard to the retirement of existing platforms the document anticipates: “Fourth generation combat aircraft, which include Typhoon, Rafale, F-16, F-18 and Gripen, will start to be retired from service in the late 2030s. Typhoon platform and system upgrades will ensure it remains operationally competitive well beyond this point, but there will be a significant market for a successor to these capabilities over the period 2040-2060.”

The last part of the Strategy is more a kind of catalogue on capabilities the UK will implement in its aircraft, on programmes or solutions the British industry offers. Like the UK-developed open system architecture Pyramid, an approach that “will enable systematic re-use, reducing costs of software development and support and time to implement capability enhancements while enabling greater interoperability across systems”.

Therefore the Strategy is a quite interesting read for most air forces, even for those using different aircraft, to gain knowledge or get impressions of capabilities under (British) development, in order to consider these capabilities for their own air force. But what is missing in the Strategy is an explanation of the presented “Tempest” mock-up aircraft. Therefore its capabilities remain to be seen.

Technology

DARPA Programme On Machine Learning And Artificial Intelligence

(df) Machine Learning (ML) and Artificial Intelligence (AI) are the key aspects of future conflicts and warfare scenarios. But both require a huge load of data, for each and everything needs to have a label, so that machines will understand what that thing is and how it might interact. Due to low bandwidth and computer capability in possible theatres of operation the American Defence Advanced Research Projects Agency (DARPA) has set up a programme called Learning with Less Labels (LwLL) that seeks to reduce machine learning's dependence on labeled data by a million-fold. "Under LwLL, we are seeking to reduce the amount of data required to build a model from scratch by a million-fold, and reduce the amount of data needed to adapt a

model from millions to hundreds of labeled examples," said Wade Shen, a DARPA programme manager in the Information Innovation Office (I2O) who is leading the LwLL programme. "This is to say, what takes one million images to train a system today, would require just one image in the future, or requiring roughly 100 labelled examples to adapt a system instead of the millions needed today."

Within LwLL researchers will focus on building learning algorithms that efficiently learn and adapt. These algorithms should be capable of reducing the required number of labelled examples by the established programme metrics without sacrificing system performance. The second technical area challenges research teams to formally characterise machine learning problems, both in terms of their decision difficulty



(Artwork: Rodrigo Araújo/freeCodeCamp)

and the true complexity of the data used to make decisions. "Today, it's difficult to understand how efficient we can be when building ML systems or what fundamental limits exist around a model's level of accuracy," Shen noted. "Under LwLL, we hope to find the theoretical limits for what is possible in ML and use this theory to push the boundaries of system development and capabilities."

www.darpa.mil

Countering Drones With A Drone

(df) The U.S. Army has awarded a contract for a counter drone system to Raytheon. The solution will consist of Raytheon's Coyote unmanned aircraft system (UAS) and the company's Ku band radio frequency system (KRFS) radar.

"Enemy unmanned aircraft are among the biggest threats facing our ground troops today," said Dr. Thomas Bussing, Raytheon Advanced Missile Systems Vice President. "Our small, expendable Coyote provides the Army with an affordable and highly ef-



(Photo: Raytheon)

fective solution for countering the growing UAS threat."

Equipped with an advanced seeker and warhead, Coyote can identify and elimina-

te threat UAVs when paired with the KRFS radar, which acquires and tracks all sizes of UAS threats. Coyotes can be flown individually or netted together in swarms. They are adaptable for a variety of missions including surveillance, electronic warfare and strike. Raytheon announced it is finalising development of advanced Coyote variants that will fly faster and farther. Because of an urgent operational need, the Army is expected to use Coyote as a counter-UAS solution before the end of the year.

www.raytheon.com

Scalable Autonomy Kits For Logistic Trucks

(gwh) The U.S. Army Tank Automotive Research, Development, and Engineering Center (TARDEC) has commissioned Oshkosh Defense to supply \$49 million of scalable autonomy kits to initially equip 70 logistics trucks with a Palletized Load System (PLS). An option for another 80 systems was agreed.

Oshkosh has developed the TerraMax system for series production, which can be quickly installed in existing vehicles as a kit with sensors, actuators and control elements. The vehicles equipped in this way can be operated as command or following vehicles or autonomously.

The U.S. Army intends to keep personnel out of contested areas and is investigating possible technologies and procedures in



(Photo: Oshkosh)

the Expedient Leader Follower (ExLF) program.

www.oshkosh-defense.com

www.tardec.army.mil

U.S. Army Orders More Shoulder-Launched AT4CS RS

(df) The U.S. Army has ordered the shoulder-launched AT4CS RS (Confined Space Reduced Sensitivity) anti-armour weapon system from Saab. Order value is \$50 million. AT4CS RS is a fully disposable, pre-loaded weapon system with a specially developed warhead that weighs less than 8 kg and has an effective range of 20 to 300 metres.



(Photo: Saab)

Since 1987, Saab has delivered more than 600,000 AT4s, both directly and under licence, to U.S. forces. "This order demon-

strates the continuing strong belief by the customer in the AT4 system," says Görgen Johansson, Senior Vice President and head of Saab's business area Dynamics. The weapon has been continuously upgraded since that time to provide even greater capability and effect to the user. Newer versions currently under development will offer even greater ranges and additional flexibility, Saab announced.

www.saab.com

Oshkosh Defense JLTVs For The U.S. Army

(df) The U.S. Army has commissioned Oshkosh Defense to produce a further 1,574 Joint Light Tactical Vehicles (JLTV) and related equipment worth €413 million. "This latest order follows the completion of the Multiservice Operational Test and Evaluation (MOT&E) conducted by the U.S. Army and Marine Corps and further demonstrates that the JLTV program con-

tinues to be a top modernisation priority for our armed services," said George Mansfield, Vice President and General Manager of Joint Programs at Oshkosh Defense. "The JLTV is ready to support our troops, and we look forward to getting more soldiers and Marines into this extremely mobile, protected, and proven next-generation light tactical vehicle."

In addition to the recently completed operational testing, the JLTV also completed



(Photo: Oshkosh)

Reliability Qualification Testing earlier this year, accumulating over 100,000 miles and exceeding reliability requirements.

www.oshkoshdefense.com

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GlobalEye Heading To A Flying Start

(df) Saab's new GlobalEye Airborne Early Warning & Control (AEW&C) aircraft achieved a number of significant milestones in 2018, commencing with the rollout of the first aircraft in February 2018. At the Farnborough International Airshow Saab explained the achievements being delivered with this newest addition to its airborne surveillance system family.

According to the company GlobalEye is a true swing role multi-mission solution. "It combines multiple sensors and sophisticated data fusion into an intuitive mission system on the Bombardier Global 6000 jet



(Photo: Saab)

with fully networked communications," the company stated. "This capability gives excellent flexibility across the full mission spectrum in peacetime to warfighting, and particularly benefits joint force commanders managing combined air, sea and land operations."

The Development and production contract for GlobalEye was awarded at the Dubai

Air Show in November 2015 by the United Arab Emirates with an initial order for two systems. An additional order by the UAE for a third system was announced in 2017. "In a period of just over two years Saab has rolled out and then, a few weeks later, flown GlobalEye," said Lars Tossman, Saab's Head of Airborne Surveillance Systems. "The flight test programme is running according to plan with the flight envelope being opened up, whilst on the ground the mission system completed all its rig testing. We are very satisfied with all these results and believe GlobalEye is going to be unrivalled in the capabilities it offers."

www.saab.com

First Remote Controlled Transatlantic Flight Of A UAV

(gwh) The landing of the MQ-9B Sky Guardian at the Royal Airforce (RAF) in Fairford (UK) on 11 July 2018 marked the successful completion of the first remote-controlled transatlantic flight of an unmanned MALE (Medium Altitude Large Endurance) class aircraft. The flight from the General Atomics test site in North Dakota over al-

most 7,000 km took 24 hours and two minutes. After participating in the Air Tattoo for the 100th anniversary of the RAF, the aircraft is on display at the Farnborough Airshow. Built by General Atomics, the Sky Guardian can carry a maximum payload of 2.2 tons at speeds of up to 389 km/h. Patrol flights at 12 km altitude can last 40 hours. Great Britain wants – as a first customer – to procure 16 MQ-9Bs as "protector plat-



(Photo: General Atomics)

form" and put them into operation at the beginning of the 2020s.

www.general-atomics.com

www.spezialtechnik.de

Introducing New Capabilities On A Combat Proven Fighter

(df) Aero, the biggest Czech aircraft manufacturer, and Israeli Aerospace Industries (IAI) introduced their cost-effective, combat proven fighter attack aircraft at Farnborough. The F/A-259 Striker is a multirole aircraft for close air support, counter-insurgency operations and border patrolling with interception capabilities. "The F/A-259 Striker combines the robustness and effectiveness of its successful predecessor, the L-159 Alca, with the latest advances in avionics and aircraft systems technology," the companies announced. "Powered by the same 'best in its class' Honeywell F124 engine and using benefits of a wet wing, F/A-259 Striker provides superior performance, great manoeuvrability, and a high range."



(Photo: IAI)

"The F/A-259 is able to operate from unpaved runways and has seven hard points for any combination of fuel, weapons, or mission equipment, allowing smart weapons integration and standoff weapon capabilities. As an optional upgrade, the F/A-259 can be equipped by EASA radar and helmet mounted display. Another optional upgrade is air-to-air refueling, increasing the aircraft's range and endurance," said Benjamin Cohen, General Manager of IAI's Lahav Division. "With advanced 4th gen-

eration avionics the F/A-259 Striker has an open architecture concept, allowing future updates based on customer's requirements and use of Real Time Data Link, supporting a high situational awareness capability. The advanced digital cockpit is equipped with two large multifunctional displays, electronic flight instrument system, and other features."

Giuseppe Giordo, President and CEO of Aero, added: "Nowadays, national air forces are looking for a solution how to fulfill a great variety of missions in an affordable way, while keeping high survivability of the aircraft and its crew. Aero and IAI are introducing a multirole fighter F/A-259 Striker with a wide range of combat capabilities that meet those needs of air forces."

www.aero.cz

www.iai.co.il

Sea Lion Subject To Qualification

(gwh) The first flight of the second prototype in series configuration on July 10, 2018 marked the start of the qualification phase for the NH90 Sea Lion naval helicopter in Donauwörth. The helicopter is tested by a team of representatives of the manufacturer, Airbus Helicopters, and representatives of the Bundeswehr from the Navy, the German Military Aviation Authority (Luftfahrtamt der Bundeswehr) and the German BAAINBw procurement agency.



(Photo: Airbus Helicopters)

The aim is to obtain the type certificate so that the helicopter can be delivered. The Navy is scheduled to receive the first three aircraft at the end of 2019.

The Sea Lion was designed from the outset as a naval helicopter and is intended to re-

place the Sea King Mk41 fleet of the German Armed Forces. It is compatible with the frigates F124 (SACHSEN class), F125 (BADEN-WÜRTTEMBERG class) and the joint support ships (BERLIN class). It will also be possible to operate the Sea Lion from the planned multi-role combat ship 180 (MKS 180).

The Bundeswehr has ordered a total of 18 Sea Lion, which are to be delivered by 2022. From then on, the helicopter will also take over the SAR role of the Sea King.

www.airbushelicopters.com

Next Generation V-200B

(df) At the Farnborough International Air Show UMS SKELDAR announced the launch of the SKELDAR V-200B, a modification of their mid-sized heavy fuel engine Vertical Take-Off and Landing (VTOL) UAV. The SKELDAR V-200B completed its trials earlier in 2018, following an intensive modification audit, based on in-theatre performance feedback and the strategic imperative to further widen competitive advantage.

“It is no secret that more players are attempting to enter the maritime market for rotary UAVs,” said David Willems, Head of Business Development at UMS SKELDAR, the UAV joint venture between Sweden’s Saab and UMS AERO of Switzerland. “Recent navy contracts have stipulated the role and specification, and this has confirmed our strategy of development is absolutely the right move at the right time. We are able to fly longer, over five hours, at



(Photo: UMS SKELDAR)

maximum payload capacity through weight savings from design modifications and our 2-stroke engine configuration provides significantly unmatched time between overhauls (TBO).”

www.umsskeldar.aero

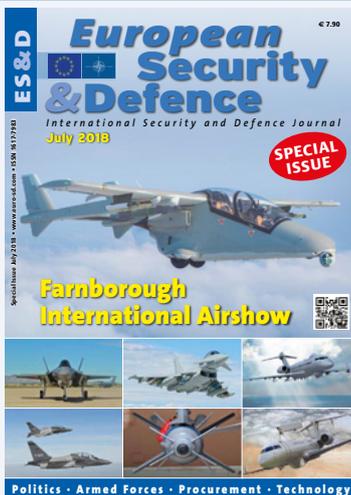
Successful Guided Flight Tests Of ESSM Block 2

(df) The U.S. Navy announced it completed the first successful guided flight test of Raytheon’s ESSM Block 2 intermediate-range, surface-to-air missile. The Block 2 variant was fired from the Navy’s self-de-

fence test ship and scored a direct hit on an aerial target off the coast of southern California. The ESSM Block 2 missile will feature a new guidance system with a dual mode active and semi-active radar. The latest flight evaluation follows two successful test firings last year.

The Block 2 variant is on track to enter production and achieve initial operating capability in 2020. With more than 2,500 missiles planned for production, this variant represents the future of the NATO SeaSparrow program.

www.raytheon.com



Special Digital Edition On The Farnborough International Air Show

- Generation X: Thoughts on the Future of Combat Aircraft
- Modern Aircraft Integration into NATO Air Operations
- Recognition of Military Aviation Authorities Strengthening Cooperation, Developing Synergies, Saving Resources
- Airborne Situation Awareness

- Multi- and Special Mission Aircraft
- Interview with Rick Edwards, Executive Vice President of Lockheed Martin
- Masthead 35 T-X: “Why aren’t we just buying it?”
- Interview with Howard Miller, Senior Capture Manager and Strategist at Raytheon
- Platform-Related Developments and Statistics in Air-To-Ground Weaponry

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Multitouch Display For Safe And Easy Operation

(gwh) The new fanless VistaMaster-17 PPC MFD Multitouch Display from ATM Computer enables recognition and processing of information in 16:9 full HD resolution. As on smartphones and tablets, the user makes several simultaneous touches on the display's capacitive touch sensor. This simplifies procedures as



the soldier is used to this kind of man-machine interaction. Multitouch makes it easy to move, select or enlarge objects shown on the display. The projective capacitive PCAP technology used by the touch sensor supports the use of the display even with gloves.

The VistaMaster-17 MFD PPC Multitouch automatically scales the video input data. With its high, adjustable brightness and contrast, the VistaMaster-17 PPC MFD Multitouch is suitable for changing light conditions, from sunlight to the use of residual light amplifier glasses. The display has been tested according to current military environmental standards and for electromagnetic compatibility.

www.atm-computer.de

Geospatial Maritime Security Platform

(df) This Tuesday Leonardo's SEonSE (Smart Eyes on the SEas) geospatial maritime security platform went online. By using cloud computing and advanced big data analysis models SEonSE makes it possible to access customised information on what happens at sea in real-time, even from tablets or smartphones.

SEonSE processes information acquired from satellites and coastline radars and merges them on an automatic and continuous basis, thanks to proprietary algo-

rithms, with positioning data sent by vessels (AIS, VMS, LRIT), registries of ships and various databases along with meteorological and oceanographic information. This data is then compared with historical information and customary behaviors, making it possible to identify anomalous activities and potential threats to security.

The result is timely and easily accessible information, crucial to identifying possible risks which are signalled by automatically generated alerts to intercept the vessel in question, to plan the actions of the relevant authorities and to

trace secure routes in hostile environments.

SEonSE merges data coming from various sources, such as COSMO-SkyMed and Copernicus satellites, the exactEarth service providing the position of vessels, the world registry of ships, meteorological and oceanographic information. SEonSE also leverages on over 7 million AIS signals sent every day by about 165,000 vessels which are managed by exactEarth, a satellite AIS data services for global tracking of commercial ships.

www.leonardocompany.com

SmartForce For Military Data Analysis

(g) Airbus is expanding its civil aviation data analysis services to military use under the name SmartForce. Airbus Defence and Space, together with Airbus Helicopters, introduces the SmartForce suite,

which enables military operators to use the data collected from their aircraft to increase operational safety, increase operational availability and reduce maintenance costs. Operators can benefit from services to improve troubleshooting, optimise maintenance efforts, predict maintenance

activities and intelligently plan material requirements. The system includes private data clouds on site to support specific military security requirements, but also lays the foundation for operational data exchange between allies.

www.airbus.com

DigitalTwin Of Organisations

(df) BOXARR presents at the Farnborough International Air Show their vision of holistic inter-dependencies across systems and organisations within a digital framework. The so called "DigitalTwin". Coordinating the inter-dependencies within and across digital business transformation initiatives is key to success of the enterprise.

Creating a DigitalTwin of the organisation helps to optimise enterprise architecture, and technology innovation leaders to prio-



ritise, guide, plan, monitor, analyse and scale complex initiatives. Gartner Analyst, Marc Kerremans, has published a "Market Guide for Technologies Supporting the Digital Twin of an Organisation" with BOXARR

been featured as a leading technology provider in this space.

"The whole concept of DigitalTwin of Organisations is effectively what we have been delivering for years – helping organisations to collaboratively model, visualise, analyse and optimise their systems-of-systems to drive optimal operational performance," said BOXARR's VP for Global Alliances, Fraser Hamilton.

www.boxarr.com

www.gartner.com

Industry & Trade

New Team For NATO's BMD Command And Control

(df) Lockheed Martin and ThalesRaytheon-Systems are joining forces to provide NATO with a territorial Ballistic Missile Defence (BMD) command and control capability. This teaming agreement, that was signed in the presence of Raytheon and Thales, establishes a transatlantic team that combines the decades of expertise from Lockheed Martin and Raytheon with Thales' European air command and control capabilities.

ThalesRaytheonSystems will be prime contractor and system integrator for the defence solution, which will combine operational experience and components coming from different partners. Lockheed Martin developed the ballistic missile defence



(Photo: Lockheed Martin)

planning capability through its Defence Design System. Additionally, both Lockheed Martin and Raytheon bring in expertise and experience as prime contractors for the United States' ballistic missile defence capability. The focus of the programme is the upgrade, test and integration of NATO's

command and control (C2) systems and underlying communication network to enable effective information exchanges between various NATO and national missile defence systems.

With the ever-increasing threat of proliferation of ballistic missile technology and weapons of mass destruction, NATO is redoubling its effort to deal with this threat and to protect European populations and territories, which, according to Western leaders, is a key element of NATO's collective defence. This integrated system-of-systems architecture will provide NATO forces with the capability to defend NATO territories.

www.lockheedmartin.com

www.raytheon.com

www.thalesgroup.com

MASTHEAD

ESD Spotlight

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Type 31e Suppliers' Conference

Babcock Team 31 invites industrial specialists to its second Type 31e Suppliers' Conference in Bristol – building on growing interest in its T31e bid. Following on from the first conference in Rosyth, which saw the official unveiling of the proposed Arrowhead 140 design and a tour of Babcock's Rosyth facility for delegates, Team 31 is meeting with supply chain companies to share the potential opportunities the UK Ministry of Defence's (MOD) new £1.25 bil-

lion Type 31e general purpose light frigate programme could provide for organisations throughout the UK and in future, for export.

The Bristol Suppliers' Conference, hosted by the Society of Maritime Industries, will provide a platform for SMEs and the wider supply chain to network with Team 31 representatives and to find out more about how their specific expertise could be utilised across the programme.

www.arrowhead140.com

Alliance Of Trust

SOBRA 2018, the 7th International Fair of Defence, Security, Protection and Rescue, will run from September 20 to 23, 2018 in Gornja Radgona, on the crossroads of Slovenia with Austria, Croatia and Hungary. SOBRA 2018 will present equipment, know-how and the most important institutions that provide defence preparedness, citizen security as well as protection and rescue in natural and other disasters. It will offer professional exhibitions and conferences,

with advice for visitors, dynamic presentations, as well as educational and social events in which the Ministry of Defence of the Republic of Slovenia, the Slovenian Armed Forces, the Police, the Administration for Civil Protection and Disaster Relief and the Firefighters Union of Slovenia will participate.

For further information:

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www.pomurski-sejem.si

4th International Symposium on Development of CBRN

The 4th International Symposium on Development of CBRN will once again provide a professional platform for encounters and exchange of the international CBRN protection community. International experts will inform representatives from the fields of politics, administration, industry, academia, civilian and military organisations about latest developments in security policy and provide an up-to-date risk assessment with a view to chemical, biological, radiological and nuclear risks and the challenges they represent for military and civilian systems when it comes to hazard prevention.

September 3-5, Berlin, Germany



DARPA's 60th Anniversary Symposium

D60 is a three-day Symposium hosted by DARPA in honor of its 60th anniversary. The Symposium will highlight DARPA's innovative approach to creating breakthrough technologies and capabilities from the Agency's past, present, and future. DARPA's mission requires a constant stream of novel ideas and contributions from innovators looking beyond what is possible now. D60 will provide attendees the opportunity to engage with up-and-coming innovators, scientists and technologists, as they continue to provide these contributions.

September 5-7, Washington, USA



MS&D – International Conference on Maritime Security and Defence

In its 10th year of existence, MS&D – the international conference on maritime security and defence – will attract more attention than ever. During the extended two-day conference, speakers and lecturers will address pressing topics – including cybersecurity, climate change and naval technology. Be part of it and seize the opportunity to get together with high ranking global delegations.

September 6-7, Hamburg, Germany



SAHA EXPO

The exhibition which is organised by Turkey's largest Defense and Aerospace Clustering Association, SAHA ISTANBUL, aims to bring together the national and international leading manufacturers that produce special products and systems for the defense industry, civil aviation and space industry. The exhibition, where advanced technological developments in these sectors will be exhibited, will also be a meeting place for representatives of public and private institutions and procurement delegations from domestic and foreign countries.

September 13-15, Istanbul, Turkey



SOBRA 2018

SOBRA 2018, the 7th International Fair of Defence, Security, Protection and Rescue, will present equipment, know-how and the most important institutions that provide defence preparedness, citizen security as well as protection and rescue in natural and other disasters. It will offer professional exhibitions and conferences, with advice for visitors, dynamic presentations, as well as educational and social events in which among others the Ministry of Defence of the Republic of Slovenia, the Slovenian Armed Forces, the Police will participate.

September 20-23, Gornja Radgona, Slovenia



ADEX

Azerbaijan International Defence Exhibition, ADEX, is the largest event in the region, the aim of which is to present a wide range of military products while promoting the innovative development of the Azerbaijani military-industrial complex. The exhibition is also a platform for cooperation between foreign arms-producing companies and the Azerbaijani military departments and defence industry enterprises.

September 25-27, Baku, Azerbaijan



FUTURE FORCES FORUM

International exhibition and expert events on the latest trends and technologies in defence and security. All events are focused on the presentation of needs of armed and security forces, state-of-the-art technologies, R&D programmes, and business opportunities, with interactions between all participants due to the interconnected topics. Government, international organisations, industry, R&D institutions meet at one place. NATO and the European Defence Agency are involved in shaping the programme.

17 - 19 October, Prague, Czech Republic



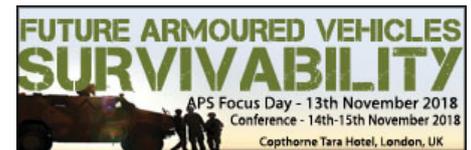
International Platform
for Trends & Technologies
in Defence & Security
www.future-forces-forum.org



FUTURE ARMoured VEHICLES SURVIVABILITY

As the only event purely dedicated to the area of vehicle protection, Future Armoured Vehicles Survivability 2018 will deliver a strong focus on the relationship between current requirements, emerging technologies and how these might be leveraged to enhance force protection. Building on 2017's focus day, SMI will host an exclusive pre-conference Active Protection Systems focus day, dedicated to this important capability.

November 13-15, London, UK



TechNet Europe 2018

The two-day conference organised by AFCEA Europe in cooperation with the AFCEA Rome and Naples chapters, will be held under the patronage of the Ministry of Defence, Italy. Representatives from some of the highest levels of the European and NATO institutional, academic and industrial world will discuss the current situation, challenges and the various prospects of Maritime Situational Awareness.

November 6-7, Sorrento, Italy



NIDV-Symposium – 30th edition

During the NIDV-Symposium and exhibition, more than 130 companies show their potential. The top political level of the Ministries of Defence, Economic Affairs, Foreign Affairs and Security & Justice are invited. A special programme for the military attachés accredited in the Netherlands is offered. Sister organizations of the NIDV from abroad are also invited. And last but not least, representatives of the armed forces, the police, the fire brigade, the ambulance dispatch center, the coast guard and other public security organizations are present.

November 15, Rotterdam, The Netherlands



I/ITSEC

The Interservice/Industry Training, Simulation and Education Conference (I/ITSEC) is the world's largest modeling, simulation and training conference. It consists of peer-reviewed paper presentations, tutorials, special events, professional workshops, a commercial exhibit hall, a serious games competition, and STEM events for teachers and secondary students. I/ITSEC is organized by the National Training and Simulation Association (NTSA).

November 26-30, Orlando, USA



EDEX – Egypt Defence Expo 2018

Held under the patronage of His Excellency, President Abdel Fattah El Sisi, President of The Arab Republic of Egypt, The Supreme Commander of The Egyptian Armed Forces, Clarion Events is proud to present EDEX – Egypt Defence Expo 2018. EDEX is fully supported by the Egyptian Armed Forces and presents a brand new opportunity for exhibitors to showcase the latest military technology.

December 3 - 5, 2018, New Cairo, Egypt

