European Security SPOTLIGHT Defence

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REPORT

China Steals \$600 Billion Each Year

Looking at China's huge technological leaps within the last few years, especially in the cyber domain, there arises the question, how a country with low university standard (at that time) and only state owned industry was able to achieve the now seen technological advantages compared with western countries and especially Europe. European Security & Defence spoke with Alan R. Shaffer, Deputy Under Secretary of Defense for Aquisition and Sustainment at Department of Defense, United States, on this topic.

ESD: How many dollars American intellectual property are stolen every year by China?

Shaffer: 600 billion. That is our high end estimate.

ESD: How is it stolen?

Shaffer: Cyber theft. They come into our networks – and by the way, European nation networks also – they copy data and steal it.

ESD: So, it is also a problem for Europe? **Shaffer:** Yes, it is huge problem for Europe, not only for industries. If you value intellectual property, then it is a problem for Europe.

ESD: How is China using this stolen intellectual property?

Shaffer: The worst, it allows them to do is make great technological leaps without investing in the fundamental research un-

derlying it. So they have been able to make tremendous advances very quickly. That is a problem if you are looking at an economically competitive world. Do you want Chinese technology to advance from both Chinese investment and European investment? So, if European nations are investing in research, I would say theft of European intellectual property is a problem.

ESD: How does the U.S. secure their net-works?

Shaffer: There is a whole layer of different things. It starts with awareness of the problem and taking hygiene steps. If you have secure data or data you want to protect, you don't go out and browse the web with this computer. These are just simple steps and then you go from there to more hardened systems. You can do a data encryption on everything. You pay a penalty but then all people can get at is encrypted data and they cannot make any sense of it, or they

have to spend a lot of time decoding the data. There is a layered number of steps, everything from computer hygiene to encryption to disconnecting people from



public browsers. It will allow you to have more secure intellectual property.

ESD: Does the U.S. support their industry in taking these steps?

Shaffer: We are in the process of doing that, and we will have a policy and funding in place by the end of the year.

The interview was conducted by Dorothee Frank.





www.euro-sd.com



Spike LR Fired From JLTV

(gwh) For the 16th time, the NATO Support and Procurement Agency (NSPA) brought together the members of the Spike Users Club (SUCM) – this time in Slovenia. The Spike anti-tank missile system manufactured by Rafael is used by armed forces in 31 countries (including 18 EU and NATO members). NSPA supports the NATO countries (as far as they are members of the weapon system partnership) with regard to procurement, life cycle management and maintenance of missile systems.

The conference of the Spike User Club traditionally ends with an industry day where European companies present and demonstrate products and solutions around Spike. From Germany, Eurospike and Rheinmetall were present, among others, with the MELLS variant (Multi-Roll Light Missile System) used by the German Armed Forces.



The Slovenian Army demonstrated Spike in a sharp shot. For this purpose, the Oshkosh JLTV (Joint Light Tactical Vehicle) was equipped with the Samson Mini MLS remote-controlled weapon station (RCWS), which contains a Spike launcher. This was the first time a Spike missile was fired from a JLTV. A second Spike missile was fired by the Slovenian soldiers from a portable launcher that had been positioned in a room. The two missiles were guided by a combined daylight/IR finder and hit their targets as expected. Moreover, Firefly was demonstrated, a miniature spike variant that can be "parked" between 500 and 1,500 m above the target for up to 15 minutes. The three-kg munition can reach targets behind obstacles/ covers, especially in built-up areas.

Slovenia is currently introducing new infantry units in battalion size. This will include an anti-tank platoon equipped with JLTV, the core of which will have an integrated RCWS.

www.nspa.nato.int www.rafael.co.il

Flame-Retardant Material for 3D Printing

(ck) The company CRP Technology has developed a new composite material for 3D printing. The new material is from the WINDFORM family of composite materials for Additive Manufacturing and is called WINDFORM FR1. FR stands for Flame Retardant. It is the first Flame Retardant (UL 94 V-0 rated) material for additive manufacturing which is carbon fiber reinforced; it successfully passed the FAR 25.853 12-second vertical and 15-second horizontal flammability tests as well as the 45° Bunsen burner test which makes it suitable for Aircrafts and Aerospace applications. WINDFORM FR1 is a halogen free polyamide-based material, that combines superior mechanical properties with excellent stiffness and lightweight.

www.crp-group.com

DESPOT Presented At Partner 2019

(df) At Partner 2019 in Belgrade TRB presented their new DESPOT vehicle, whose prototype was revealed on the National Day of Republic of Srpska on January 9, 2019. DESPOT is a multi-purpose, highly protected, survivable, off-road 4x4 vehicle, jointly developed by TRB and the Government of Srpska.

The vehicle ballistic protection is according to STANAG 4569 level 2 protection, or optionally level 3. It is also protected from explosions with level 2a and 2b protection under STANAG 4569.

DESPOT is 6.05 m long, 2.70 m high and 2.56 wide. The maximum weight is 14 t,

and the volume of the passenger area is 12 m3, which can comfortably accommodate 9 crew members. Despot can carry a payload of over 3 t. Maximum speed is more than 120 km/h, with the ability to overcome gradients of 50%, lateral gradients of 30%, vertical obstacles of 0.5 m, fording of 1.1 m, with an approach angle of 40° and departure angle of 43°. Engine power is 240 kW, with automatic transmission.

It has driveline system with independent suspension, run-flat inserts, central tire inflation system, anti-lock braking system (ABS) and a wide range of standard equipment. It is able to operate at temperatures



ranging from -30°C to +50°C. Two 240Ah - generators supply the vehicle with electricity. According to the company various weapon stations can be integrated into the vehicle.

www.trb.ba



Joint Digitisation Of Land Forces

(df) Germany and the Netherlands will coordinate the digitisation of their land forces. A corresponding agreement was signed by the defence ministers of both countries in June. Preliminary agreements were made during the past months with Germany considering to adopt the battle management system developed by the Netherlands for the Bundeswehr.

€12 billion are earmarked for the joint project "Tactical Edge Networking" (TEN), which has now been launched with the signature of the agreement and which, according to the current itinerary, will ensure financing until 2030. By that time, the land forces of both countries should be fully interoperable in digital terms. This is necessary due to an increased level of cooperation. After all, there is already the airborne brigade integrated with the German armed forces, Dutch air defence forces



protect German soldiers and some German tanks are under Dutch command. In all of these cases, however, it was necessary for one party to hand over its communication and command systems or equipment, and for the soldiers to be trained accordingly. As a result, TEN's initial focus will be on a common radio base to ensure communication.

In 2018, both countries launched their land force digitisation programmes. In the Netherlands the FOXTROTT programme was launched, in Germany D-LBO (Digitali-

sation of Land-Based Operations) to prepare armies for the digital battlefield. So far, the Netherlands has relied on proprietary developments, while Germany has been heading for commercially available solutions. The two programmes are now merging into TEN to form a joint and bilateral approach.

TEN's headquarter will be in Koblenz, Germany. A design and prototype centre is being built in Amersfoort in the Netherlands. Here, the physical momentum for the programme is to be generated.

New C2 System For German Deployable Command Posts

(df) The German Army has selected Systematic's SitaWare Headquarters to enhance the command-and-control capabilities of its deployable command posts. Within this decision SitaWare will extend the capabilities of German Army's legacy C2 system and enhance it to a level, where it will be able to ensure a seamless connectivity between existing national and international systems. The software can be operated on in-service IT platforms.

The first operational deployment of Sita-Ware Headquarters will be in support of the service's role as the Framework Nation in NATO's Lithuania-based Enhanced Forward Presence (eFP) Battlegroup. There, the C2 system will be fielded with the 10th Armoured Division's 104th Tank Battalion, which is spearheading the army's contribution to the eFP. The eFP Battlegroup in Lithuania is one of four multinational battlegroups established along NATO's Eastern flank. The deployments are intended to



enhance security and undertake training to improve cohesion and interoperability between NATO members.

SitaWare functions across all echelons of the battlespace, from multi-national headquarters through to mounted applications and dismounts. SitaWare is operationally proven and in service in over 30 countries, with both conventional and special forces personnel.

Among other tasks, SitaWare Headquarters will provide a detailed Common Operating Picture to commanders and enable shared situational awareness with partners, notably the Lithuanian Land Forces, who are equipped with SitaWare Headquarters and Frontline and will be fitting their new Boxer armoured fighting vehicles (Vilkas) with SitaWare Frontline.

"The advanced command-and-control functions and comprehensive situational awareness picture that the system features improve the existing C2 capabilities of the German Army," explains Sven Trusch, Vice President of Business of Development at Systematic. "Interoperability is a core element of SitaWare's capabilities and the software will greatly improve the army's ability to undertake operations with its partners. Few militaries conduct missions independently, therefore we understand that it is crucial for information from our systems to be made available to others, even those that do not operate with Sita-Ware."

The C2 package will largely be deployed at division and brigade command posts and will be complemented by Systematic's IRIS WebForms software, which provides a Military Text Format (MTF) capability.

www.systematic.com

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Royal Navy Starts AI Project

(df) Autonomous vehicles using artificial intelligence (AI) are gaining more and more importance for the future battlefield. The Royal Navy (UK) is now exploring the use of artificial intelligence to task autonomous submersibles with hunting underwater mines. BAE Systems Applied Intelligence and Envitia, a British geospatial and data com-



LCS 17 Completed Acceptance Trials

(df) Littoral Combat Ship (LCS) 17, the future USS Indianapolis, completed acceptance trials in Lake Michigan. The trials included a full-power run, maneuverability testing, and surface and air detect-to-engage demonstrations of the ship's combat system. Major systems and features were demonstrated, including aviation support, small pany which has expertise around applying AI and machine learning to complex data problems, have been selected to deliver these new capabilities.

The Royal Navy's Route Survey & Tasking Analysis (RSTA) project will adopt autonomous vehicles, open architectures and AI, with the intention to deliver an unmanned capability for routine mine countermeasure tasks in UK waters by the year 2022. It is one of the first AI projects for the Royal Navy.

At the moment the Royal Navy, just like almost any other navy worldwide, is hunting mines with a fleet of manned mine-hunter ships using sonar to survey seabeds and looking for anomalies. New AI-enabled submersibles could be much quicker and more precise when scanning an object, identifying a threat, and deciding what to do with it.

Under the Mine Countermeasures and Hydrographic Capability (MHC) programme, RSTA will intelligently task a fleet of autonomous vehicles, utilising machine learning to analyse mission conditions and improve the success rate of all its missions over time. "Al is set to play a key role in the future of the service," said outgoing First Sea Lord, Admiral Sir Philip Jones. "As modern warfare becomes ever faster, and ever more data-driven, our greatest asset will be the ability to cut through the deluge of information to think and act decisively."

www.baesystems.com www.envitia.com

boat launch handling and recovery and ma-

chinery control and automation. This is the ship's final milestone before it is delivered to the U.S. Navy this year.

"LCS 17 is joining the second-largest class of ships in the U.S. Navy fleet, and we are proud to get the newest Littoral Combat Ship one step closer to delivery," said Joe DePietro, Lockheed Martin Vice President and General Manager, Small Combatants



and Ship Systems. "This ship is lethal and flexible, and we are confident that she will capably serve critical U.S. Navy missions today and in future."

www.lockheedmartin.com

F125 Baden-Württemberg Enters Service

(gwh) The German class F125 BA-DEN-WÜRTTEMBERG frigate was officially put into service as the first-of-class on June 17, 2019. The frigate was built by ARGE F125 (Lürssen and TKMS) under the leadership of thyssenkrupp Marine Systems (TKMS).

With the BADEN-WÜRTTEMBERG as the first of four F125 class frigates, the navy has received a warship featuring leading-edge technology. With some 28,000 sensors, the class F125 features a very high degree of automation, which makes it possible to halve the number of crews compared with previous frigate classes. The ships can remain in service for up to two years.



As a result, the number of very long transit voyages can be considerably reduced. The F125 BADEN-WÜRTTEMBERG is the first ship worldwide to successfully implement the intensive use concept.

In addition to the traditional tasks of state and alliance defence, the ships are designed for conflict prevention and crisis management as well as for intervention and stabilisation operations on an international scale. In addition to their ability to engage targets on land and at sea, they also have air defence systems and helicopters specially equipped for ASW.

The 2nd class F125 ship, the NORD-RHEIN-WESTFALEN, will also be handed over in 2019. Delivery of the 3^{rd} and 4^{th} units is to take place successively within the next 2 years.

The operational tests of the BADEN-WÜRT-TEMBERG will be continued. The special focus will be on the test sections addressing intensive use and multi-crew concept. The next journey will be for deep-water testing on the Norwegian Atlantic coast.

www.luerssen.com www.thyssenkrupp-marinesystems.com

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Modification Of The U.S. Amphibious Combat Vehicle

(df) The U.S. Marine Corps has awarded a \$67 million contract modification to develop new variants for the Amphibious Combat Vehicle (ACV) Family of Vehicles Program for enhancing battlefield situational awareness and firepower to BAE Systems and Iveco Defence Vehicles. The con-



Carl-Gustaf M4 For Sweden

(df) Saab has signed a framework agreement with the Swedish Defence Materiel Administration (FMV) to provide the Swedish Armed Forces with Carl-Gustaf M4. The Carl-Gustaf M4 is the latest version of the portable, shoulder-launched, multi-role weapon system. It gives users a wide range of engagement options and allows troops to remain agile and effective in any scenario. It builds on the system's formidable capabilities, offering a higher degree of accuracy, lighter construction and compatibility with future innovations. The M4 tract calls for the design and development of the command (ACV-C) and the 30mm medium caliber cannon (ACV-30) variants. The ACV-C incorporates seven work stations to provide situational awareness and control of the battle space. The ACV-30 integrates a 30mm cannon to provide the lethality and protection the Marines need while leaving ample room for troop capacity and payload.

"The ACV has proven to be a versatile platform capable of numerous configurations to meet current and future mission requirements," said John Swift, director of amphibious programs at BAE Systems. "With this award, BAE Systems will be able to develop a family of vehicles that will deliver the technology and capability the Marines require to accomplish their mission in support of our national security."

BAE Systems was already previously awarded a low-rate initial production contract in June 2018 for the personnel variant (AC-V-P). The Marine Corps announced the ACV had successfully completed anticipated requirements testing and would no longer be pursuing an envisioned incremental ACV 1.1 and ACV 1.2 development approach. The programme is now known as the ACV Family of Vehicles, which encompasses the breadth and depth of the vehicle's capabilities and multiple variants.

www.baesystems.com www.ivecodefencevehicles.com

is also compatible with future battlefield technology developments such as intelligent sighting systems and programmable ammunition.

The framework agreement will allow FMV to place orders during a ten-year period. An initial order for Carl-Gustaf M4 weapons, of approximately MSEK 330, has been placed with deliveries taking place during 2020-2023. "We are happy to announce that the Swedish Armed Forces, the first and original user of the Carl-Gustaf system, have decided to modernize their shoulder-fired support-weapon capability," says



Görgen Johansson, head of Saab business area Dynamics. "This order will provide the Swedish soldiers with the most modern support weapons, ammunition, and accessories."

www.saab.com

Proposal For Germany's Next Air And Missile Defence System

(df) The German missile defence project is advancing. In addition to the ongoing modernisation of the German Patriot systems, elements of the MEADS technology, originally a trilateral development programme involving the USA and Italy, have now been offered in response to the Bundeswehr's missile defence requirements.

The TLVS consortium, an MBDA Deutschland and Lockheed Martin joint venture, announced the submission of its proposal to the German BAAINBw procurement agency covering the development,



testing and delivery of the TLVS system as the successor version of MEADS and possibly – according to a decision of the Chief of Staff of the German Armed Forces in 2015 – Germany's future integrated air and missile defence system. The tender proposes a four-phased approach that includes development, integration, testing and delivery of a fielded multi-mission system.

"A brief glance at the headlines shows significant advances in adversarial threats in just the last five years, and we are today operating in an environment where those threats will likely continue to proliferate," said Dietmar Thelen, Managing Director of the TLVS joint venture. "Germany needs a future-proof solution that can grow with the emerging threat."

www.mbda-systems.com

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Digital Tower For NATO Air Base

(df) Saab Digital Air Traffic Solutions has received an order to install a digital tower at NATO NAEW&CF E3A Component in Geilenkirchen, Germany. NATO Air Base Geilenkirchen will use the digital tower for live operations during the refurbishment of the



Swiss Air Defence And The Air2030 Project

(df) A consortium of Mercury Mission Systems International, Raytheon and Rheinmetall Air Defence announced they would join forces to modernise the Swiss air defence. In the scope of the cooperation the three companies submitted a joint bid for the modernisation of Raytheon's proven Patriot air defence system in response to the BodLuv (Bodengestützten Luftverteidigung = ground based air defence) tender for the Air2030 Project.

A Patriot fire unit consists of a radar, command and control system and an intercept current control tower. This is the first order for an operational digital air traffic control tower at a military air base. Delivery will take place in 2020.

The digital air traffic control tower was introduced during 2015 in Sweden when Örnsköldsvik Airport became the first airport in the world with remote air traffic control. Commissioning of Örnsköldsvik Airport was followed by Sundsvall Timrå Airport in December 2017, and starting in 2019, air traffic control at both Linköping/ Saab Airport and Scandinavian Mountains Airport in Sälen will be conducted remotely from Sundsvall. Saab has developed

system. The solution identifies and neutra-

lises threats capable of carrying out attacks

or espionage missions against Switzerland,

like enemy aircraft, hostile cruise missiles

and drones. In addition to the U.S., seven

European countries rely on Patriot as a

crucial element of their air defence capa-

bilities. Germany, Sweden, Spain, Greece,

the second generation of digital air traffic control towers, which will be installed at Geilenkirchen.

"We are proud to be trusted by NATO to deliver an operational digital tower. Saab being selected to install the first air base solution is a huge breakthrough, not only because it's for NATO, but because it means we're entering the German as well as the military market. With the equipment, NATO will possess new capabilities, enabled by a digital air traffic control solution," says Per Ahl, head of Saab Digital Air Traffic Solutions.

www.saab.com

the Netherlands, Poland and Romania are among the global Patriot users.

"By working with two leading Swiss defence contractors, we can offer the Swiss population a solution based on the world-renowned Swiss engineering and production quality that will boost the domestic economy," said Tom Laliberty, Vice President Integrated Air Defence at Raytheon Integrated Defence System. "With the Patriot solution, Swiss defence companies from all cantons can strengthen their market potential."

www.mrcy.com www.raytheon.com www.rheinmetall-defence.com

DIRCM System For The German A400M Fleet

(df) J-MUSIC Directed Infrared Counter Measure (DIRCM) systems will be integrated with the A400M Defensive Aids Sub-System (DASS) for the German Air Forces' fleet. The corresponding contract was signed by the German BAAINBw procurement agency and Airbus Defence and Space during the Paris Air Show. The German DE DIRCM system will be provided by Diehl Defence and be based on a J-MUSIC System from Israeli Elbit Systems. The contract covers a period of four years

DIRCM systems detect incoming missiles using an integrated a missile approach war-

ner before the infrared seeker head decoys, blinds or even neutralises incoming MANPADS by engaging them with a laser beam directing laser energy at the incoming missile's seeker head using a highly stabilised system, for example. Therefore DIRCM systems can also be used where pyrotechnic measures cannot. Combined with a suitable missile warning unit, they provide aircraft with adequate all-round cover and are capable of tackling a number of incoming missiles at the same time (multi-target capability).

The J-MUSIC Multi-Spectral Directed Infrared Counter Measure (DIRCM) systems were designed to protect large military



and commercial aircraft against attacks by ground-to-air heat seeking man-portable missile systems (MANPADS). The J-MUSIC systems is integrated with a multi-turret DIRCM system, ensuring 360° protection.

www.airbus.com www.diehl-defence.de www.elbitsystems.com

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TAI TF-X New Turkish Stealth Fighter

(df) At the Paris Air Show Turkish Aerospace Industries (TAI) unveiled their one-to-one mock-up of the new Turkish fighter aircraft. The TAI TF-X stealth fighter will be the future combat aircraft of the Turkish Air Force. "In order to meet Turkish Air Force requirements beyond 2030s, an indigenous design and development programme aims to replace the aging F-16 fleet," TAI announced. "Within the scope of TF-X Program, Turkey will become one of the few countries to possess the necessary technologies, engineering infrastructure and production capabilities, once the engineering activities on all the critical technologies are accomplished (e.g. increased situational awareness, sensor fusion, low observability, weapon bay, etc), which are needed by a 5th generation jet fighter aircraft."

The first of seven TF-X prototypes is scheduled to perform its maiden flight in 2026. The first of an envisioned 150 production TF-X aircraft is expected in 2029, entering service in 2031. Deliveries will continue until 2039. The TF-X aircraft is planned to be kept operational in the Turkish Air Force inventory until the 2070s and will be interoperable with other critical assets such as F-35As.

"We moved Turkey's most important project to the higher point," said the President and CEO of Turkish Aerospace, Prof. Temel Kotil. "We will do what few countries worldwide do. For the first time we are exhibiting a Turkish fighter in Paris in order to show our capabilities. Thus, Turkey will demonstrate that there is no difference from other countries from the point of view of technological infrastructure. As Turkish Aerospace we aspire to fulfil Turkey's first



achievements in disciplined and concentrated ways. In order to achieve these goals, we will continue to grow our company and to build our army of engineers. I am waiting for all our qualified engineers who say 'Let be my share as well for my country'. Turkish Aerospace has opened its doors for you. We look forward to your determination, patience and work."

www.tai.com.tr

Long-Term Development Of The Eurofighter

(gwh) Eurofighter Jagdflugzeug GmbH, EU-ROJET Turbo GmbH and NETMA, the NATO Eurofighter & Tornado Management Agency, have signed contracts worth €53.7 million to support the long-term development of the Eurofighter Typhoon fighter aircraft. This was announced at the Paris Airshow. The study contracts dealing with the Long-Term Evolution (LTE) of the aircraft and the EJ200 engine will cover a total of 19 months for the aircraft and nine months for the engine elements. The following technology areas will be investigated:

• Architecture of the mission system,

including mastering the growing amount of data on board and transferring it to the ground, as well as cyber-resistance;

- Self-protection system (Defensive Aids Sub System – DASS), to counter future (up to 2050) threats;
- Man-machine interface, as a revision of cockpit and avionics and improvement of interoperability;
- Operational flexibility including adaptive power and cooling technologies as well as



integration of new weapons and more flexible payload configurations;

• Drive: More thrust, range and reliability with increased part life, survivability, control system improvements.

www.eurofighter.com www.bae-systems.com

GMRLS Missiles From Diehl And Roxel

(gwh) Diehl Defence and Roxel France signed a cooperation agreement for artillery rockets at the Paris Airshow. Diehl can refer to experience in the development of guided and unguided artillery rockets and know-how in innovative warhead technology, while Roxel develops and manufactures modern rocket engines. The partners support efforts in Europe to re-establish



a production line for artillery rockets of US origin for the GMLRS (Guided Multiple Launch Rocket System), which is in use in many European countries, including Germany and France.

At the end of the 1980s, Diehl had already produced large quantities of the MLRS rockets developed in USA for the British, German, French and Italian armed forces under licence; later, the company implemented a GMLRS warhead solution with intelligent submunition for the Bundeswehr.

www.diehl-defence.com www.roxelgroup.com

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Falco Xplorer Unveiled At The Paris Air Show

(df) Leonardo unveiled its largest-ever drone, the Falco Xplorer, at the Paris Air Show. This latest addition to the Falco family of remotely-piloted air systems with a 1.3 ton maximum take-off weight has a payload capacity of over 350kg and an endurance of more than 24 hours. The company announced that the Falco Xplorer is readily exportable and also undergoing certification for flight in non-segregated airspace.

The baseline "Block 10" equipment fit for this new RPAS offers a comprehensive Intelligence, Surveillance and Reconnaissance (ISR) capability over land and sea. Falco Xplorer is equipped with a Gabbiano T-80 surveillance radar, LEOSS electro-optical turret, SAGE electronic intelligence (ELINT) system and an automatic identification system (AIS) for maritime use. The sensors will be integrated with Leonardo's mission management system that incor-



porates the experience in both the manned and unmanned domains plus protection from cyber-attacks as standard under the company's "Secure by Design" philosophy. According to the company Leonardo can also flexibly modify the sensor suite in-line with customer requirements, including integrating third-party sensors. The platform's Ground Control Station (GCS) allows operators to control the aircraft and its sensors and incorporates data exploitation tools, enabling the dissemination of useful information to wider C5I systems. It also provides mission data analysis, mission planning, training and simulation capabilities.

This new platform joins Leonardo's Falco family of tactical RPAS with the original Falco chosen by five nations, while its successor, the Falco EVO, has been chosen for the United Nations MONUSCO humanitarian mission and has been deployed for the European Union's Frontex surveillance research programme. Today more than 50 Falco family RPAS are on operations around the world, some operated by customers directly and some owned and operated by Leonardo as a managed service.

"Leonardo invests continuously in new capabilities to ensure we position the right products in the right markets", said Leonardo CEO Alessandro Profumo, who presented the Falco Xplorer at its unveiling. "The Falco Xplorer builds on our experience working with Falco family customers over a number of years. By understanding and being able to meet their needs, we expect to increase our share of the unmanned systems market."

www.leonardocompany.com

Combat Aircraft For Switzerland

(gwh) Armasuisse and the Swiss Air Force have completed the testing of the four contenders for the new Swiss fighter aircraft. In the scope of a one-week flight programme, the contenders had to accomplish seven



pre-defined missions and one self-selected mission. This was preceded by simulator hours with the manufacturers and audits with the operator air forces.

Following the withdrawal of the Gripen E (Saab), current contenders include Eurofighter (Airbus), F/A-18 Super Hornet (Boeing), Rafale (Dassault) and F-35 (Lockheed Martin).

The findings will be summarised in espert reports by armasuisse in cooperation with all departments involved. The fleet size required for each aircraft type will also be determined. At the end of 2019 armasuisse intends to submit a second RfP to the suppliers, responses to which will form the basis for the evaluation report to be produced from mid-2020, assessing the total benefit of the contenders for an operating period of 30 years. The procurement effort will be based on a referendum supporting the Federal Council's decision for the type and number of aircraft to be selected. The F/A 18 fighter aircraft in service with the Swiss Air Force will reach the end of their service life in 2030.

www.vbs.admin.ch

Cooperation for FCAS

(df) At the Paris Air Show Airbus announced plans to closely cooperate with innovative technology players like start-ups, SMEs and research institutes especially in the software domain, for dedicated support activities to the Franco-German Future Combat Air System (FCAS) programme. During the show Airbus hosted special pitching sessions for potential subcontractors.

"Artificial intelligence, data analytics and cyber security have become an integral part of defence and will be paramount for FCAS," said Bruno Fichefeux, Head of FCAS at Airbus. "By cooperating with innovative players like start-ups, research institutes and others, we can make sure that we are at the cutting edge of development and bring fresh ideas and approaches to the table."

Airbus is also scouting for suitable partners making use of its internal initiatives such as Airbus BizLab and Airbus Ventures.

www.airbus.com



Scramjet-Powered Hypersonic Missile

(df) At the Paris Air Show, Northrop Grumman and Raytheon have signed a teaming agreement to develop, produce and integrate Northrop Grumman's scramjet combustors to power Raytheon's airbreathing hypersonic weapons. Scramjet engines use high vehicle speed to forcibly compress incoming air before combustion to enable sustained flight at hypersonic speeds.

Such a scramjet technology for hypersonic missiles has not yet left research status, even though especially the USA are putting efforts into developing such a missile that could reach almost every spot on earth and would be very hard to fight, since most missile defence systems address ballistic flight modes, but not the low straight forward flight of a hypersonic scramjet missile. Northrop Grumman and Raytheon are

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currently working under a \$200 million Hypersonic Airbreathing Weapon Concept (HAWC) programme contract to deliver an affordable, effective and producible cruise missile for DARPA and the U.S. Air Force.

"The Raytheon/Northrop Grumman team is quickly developing air-breathing hypersonic weapons to keep our nation ahead of the threat," said Dr Thomas Bussing, Raytheon Advanced Missile Systems Vice President. "This agreement combines Raytheon's decades of tactical missile expertise with Northrop Grumman's extensive scramjet engine development experience to produce the best possible weapons."

Mike Kahn, Vice President and General Manager of Northrop Grumman's Defense Systems, added: "This teaming agree-

Cooperation For HUSSAR Ultra-Lightweight Missile

(df) At the Paris Air Show , Diehl Defence and Safran Electronics & Defence signed an agreement for the development of a tactical air-to-ground weapon system for manned and unmanned aircraft. HUSSAR is a very lightweight weapon system combining - compared to current air-to-ground weapons - the benefits of a larger weapon payload comprising more missiles with the capability to engage even time-sensitive targets. The scalable warhead is optimised for the engagement of stationary and moving targets while avoiding collateral damage in complex mission scenarios. An innovative navigation platform in conjunction with various seeker options, including a semi-active laser sensor, will enable highly precise target engagement.

HUSSAR will be carried by a smart multi-launcher which will considerably increa-



ment extends our strong partnership with Raytheon on this critical technology capability. Our deep heritage in propulsion, fuses and warheads will help accelerate readiness of tomorrow's missiles to meet range, survivability, safety and lethality requirements. Together with Raytheon, we intend to make great strides toward improving our nation's high-speed weapon systems, which are critical to enhancing our warfighters' capabilities for greater standoff and quicker time to target."

www.northropgrumman.com www.raytheon.com



Artwork: Diehl Defence)

se the typical aircraft payload with up to eight missiles. System design will focus on the requirements of current and future platforms, such as the planned Franco-German next-generation fighter aircraft or the European unmanned MALE (Medium Altitude Long Endurance) system. HUSSAR is basically designed for multi-platform use on fighter aircraft and unmanned aerial vehicles, featuring efficient and fast mission accomplishment, independently of the flight direction.

www.diehl-defence.de www.safran-electronics-defense.com

Close Combat Symposium 2019

ISSUE 114 / 2019

SPOTLIGHT

This year the aim of the symposium is to consider trends and developments in small arms, dismounted weapon systems, ammunition, sensors, optics, and protective clothing and equipment. The revised theme of 21st Century Infantry also seeks to examine additional opportunities for capability enhancements in the near-term, some of which will require new development.

July 9 - 11, Shrivenham, UK

MSPO

For 27 years, the September-held International Defence Industry Exhibition has been the presentation platform for companies from all corners of the world which proudly showcase their greatest achievements. Yet the expo is much more than a comprehensive presentation of military gear and equipment. The expo abounds with business meetings. This years MSPO is held under the banner of the United States as the expo Lead nation. **September 3 - 6, Kielce, Poland**

DSEI

This years DSEI will connect governments, national armed forces, industry thought leaders and the global defence & security supply chain. With a range of valuable opportunities for networking, a platform for business, access to relevant content & live-action demonstrations, the DSEI community can innovate, share knowledge, discover & experience the latest capabilities across the Aerospace, Land, Naval, Security & Joint domains. **September 10 - 13, London, UK**

The 13th CBRNe Protection Symposium

The 13^{th} CBRNe Protection symposium is under the motto science for safety & security. The scientific

programme consists of keynote lectures with distinguished speakers and three parallel oral sessions throughout the symposium as well as poster presentation. The CBRNe protection equipment exhibition will be arranged in connection with the symposium. **September 24 - 26, Malmö, Sweden**

FOI

Arms and Security

The XVI international specialised exhibition "Arms and Security – 2019" will be held in Kyiv, Ukraine

from October 8 - 11, 2019. The exhibition will have two main parts: weapons and equipment for army and law enforcement, and arms for civilians.

October 8 - 11, Kyiv, Ukraine

it-sa

it-sa is one of the leading international trade shows for IT security. With around 700 participating companies, it-sa 2018 was the world's biggest exhibitor event in this sector. It offers a comprehensive range of IT security products and solutions, including physical IT security, services, research and consulting. In the forum programme, experts provide information on current management and technical topics. it-sa is thus the point of contact for all those who deal professionally with the security of IT infrastructures and decision-makers who are responsible for it.

October 8 - 10, Nuremberg, Germany





MSPO







THE 13TH CBRNe PROTECTION SYMPOSIUM

SCIENCE FOR SAFETY & SECURITY

OCTOBER 8 - 12, 2019

XVI INTERNATIONAL

EXHIBITION

11 ISSUE 114 / 2019 SPOTLIGHT



Lotto Mons Expo, Belgium

Register now at www.nias19.com

15 - 17 October

NIAS19

"Digital Transformation: smart machines for smarter decisions"

Registration is now open for the 15th edition of NATO's largest cyber conference! Innovations in Artificial Intelligence, Machine Learning and Big Data can either threaten NATO missions, or support them. NATO must take advantage of smart machines to bring Allied leaders the data they need to make smarter decisions. Join us in Mons for an engaging discussion on this pertinent topic. Cyber security experts from across the Alliance, as well as NATO and National leaders, will gather to discuss best practices and exchange views. The event's expo is also an opportunity to explore innovative cyber security solutions.

October 15 - 17, Mons, Belgium

TechNet Europe 2019

"Information Dominance and Cyber Security at various Crossroads – Challenges and Solutions in the Cyber-Physical World" This two-day conference organised by AFCEA Europe will be held

under the patronage of the Minister of Defence, Slovak Republic. Discussion of highly topical issues at such "C5ISR" crossroads (supply chain security, smart perimeter, weapons system security) may result in new insights and unprecedented solutions, also involving non-traditional partners in industry, academia and government.

October 23 - 24, Bratislava, Slovakia

BIDEC

Following the hugely successful inaugural edition of BIDEC in 2017, BIDEC will return on October 28 - 30, 2019 at Bahrain International Exhibition & Convention Centre. BIDEC is fully supported by the Bahrain Defence Force, and presents a unique opportunity for exhibitors to showcase the latest technology, equipment and hardware across land, sea and air.

October 28 - 30, Sanabis, Bahrain

DEFENSE & SECURITY 2019

This biennial event will be held on November 18 - 21. The show is fully supported by the Thai Ministry of Defence. The theme for the show is "The Power of Partnership" and it will be aligned with ADMM Retreat as noted. The MOD plans to host ADMM Retreat in conjunction with D&S2019. Part of the Ministers schedule will be attending the opening ceremony and will also participate in the show. **November 18 - 21, Bangkok, Thailand**

DSEI Japan

DSEI Japan is set to be the first fully integrated defence event to be held in Japan, marking the first time a "DSEI"branded event has been held outside of London. DSEI Japan will bring the global defence and security sector together with the entire Japanese defence community to innovate, partner and share knowledge, bringing together companies from across the industry on an unrivalled scale.

November 18 - 20, Chiba, Japan

Expodefensa

Expodefensa is an international exhibition and the point of reference for Latin America where all the Security and Defense players, from public and private sectors, can find solutions for ensuring peace and security in the air, on land and at sea.

December 2 - 4, Bogota, Colombia









18-20 November 2019 Makuhari Messe