

Need To Manage Uncertainty

Dorothee Frank

Last week NATO Secretary General Jens Stoltenberg spoke in Berlin, Germany, about the current and future tasks of the Alliance. In his speech he put a special focus on the transatlantic partnership, the INF Treaty and future talks with Russia, most of which was interpreted quite differently to what people might read in European newspapers and magazines.

First Stoltenberg countered the popular impression that the United States and Europe are drifting apart in politic, trade and public opinion. Comparing today's worldwide situation with the past, he reminded the audience that Europe, together with the United States has already overcome two world wars and the Cold War. "And how the US security guarantees underpinned the integration of Europe. So that we entered the twenty first century with peace and freedom."

"But today, some doubt the strength of the transatlantic partnership. And we have to be honest and admit that we see differences and disagreements. Over issues such as trade, the Iran nuclear deal and other issues. But we should remember that we have had our differences before. The Suez Crisis in 1956. The French withdrawal from the NATO command structure a decade later. And of course the Iraq war in 2003. So difference of opinion is nothing new," Stoltenberg said. "We are 29 democracies. With different history, different geography and different culture. Disagreements are natural. But the lesson of history is that we have been able to overcome our differences. We unite around our common goal. We stand together. We protect each other. We must ensure that we continue to do so in the future. Because we have a shared strategic interest and shared values. And because we face a more uncertain security environment together. That is the reason why we are now making the security ties



(Photo: NATO)

between Europe and North America even stronger."

While the Obama administration has reduced troops in Europe and shifted its focus on the Pacific, the Trump administration has gone back to strong bonds with and presence in Europe. "The US is increasing its military presence in Europe for the first time since the end of the Cold War, with more troops, more equipment, and more exercises. Including here in Germany," Stoltenberg pointed out. "In recent years, the US has increased the funding for its military presence in Europe by 40 percent. And for the first time since the collapse of the Soviet Union, Canadian troops are back in Europe. Leading a battlegroup in Latvia."

These strong bonds also lead to the actual discussions about the INF Treaty. "For years, Russia has developed, produced,

tested and fielded a new missile system. The SSC-8. These missiles are mobile. They are hard to detect. They can be nuclear-armed. They reduce warning time to minutes. They lower the threshold for nuclear conflict. And they can reach European cities like Berlin. For years, Allies, including Germany, have raised their concerns. Time and again," Stoltenberg remembered. "The US has raised the matter formally at senior levels more than 30 times. Starting under the Obama administration." But sometimes action needs to be taken when talking does not succeed. "The United States is in full compliance with its obligations under the INF Treaty. So while there are no new US missiles in Europe, there are new Russian missiles. The new Russian missile system poses a serious risk to the strategic stability of the Euro-Atlantic area. NATO has no intention to deploy new nuclear mis-

siles in Europe. But as an Alliance we are committed to the safety and the security of all Allies. We must not allow arms control treaties to be violated with impunity. Because that undermines the trust in arms control in general.”

To outline the importance of NATO for co-operation with Russia, even when the Alliance is not directly involved, Stoltenberg referred to his past in Norway: “I remember when I became State Secretary in the Ministry of Environment in 1990; one of the first things I was responsible for was actually a joint environmental commission between Norway and Russia. And as Secretary of Energy, later Prime Minister for ten years, I worked with Russia for many years. That it has been possible for a small country like Norway to develop a practical cooperation with Russia up north on border issues, delimitation line in the Barents Sea, defence, search and rescue,

environment, energy, many other areas, was not possible despite NATO, but because of NATO. Because NATO provided the platform, the strength, the predictability that enabled the dialogue. And then, in some areas, we were able to make progress, in others we have not been able to make progress. But the reality is that we have to continue to work for a dialogue with Russia, because Russia is our neighbour, Russia is there to stay, Russia is not going to go away. So, partly we need political dialogue with Russia to try to improve the relationship, to reduce tensions, and to also make the conditions possible for a better relationship.”

Stoltenberg did also not share the opinion that NATO and Russia are shifting towards a new (cold) war, that the spirit of the fall of the Berlin Wall was just an illusion. “I meet some people telling me that we will never be able to improve the relationship

with Russia, well that’s some of the same people that were not able to predict the fall of the Berlin Wall,” Stoltenberg said. “I used to tell audiences like this, when I finished my exams at the University of Warsaw, I started to work in the Central Bureau of Statistics and I was responsible for collecting and analysing forecasts for oil prices. I can just tell you we were wrong all the time. We were not able to predict the level and not when it was turning up and down. And when I meet people in the security environment, you are not better than economists who predict the future. Because most people were not able to predict the fall of the Berlin Wall or 9/11 or the Arab Spring or the annexation of Crimea. So, the point is not to predict too much, but the point for NATO is to be able to handle the unforeseen. We as an Alliance need to manage uncertainty, together.”

www.nato.int



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10th Anniversary Of Think Tank For Maritime Operations

The NATO Centre of Excellence for Operations in Confined and Shallow Waters (COE CSW) celebrated its 10th anniversary on November 15, 2018 in Kiel, Germany. In the presence of high-ranking representatives from politics, science and NATO, the state of Schleswig-Holstein honoured the NATO think tank with a campaign streamer – one of the highest distinctions awarded by a state government.

A campaign streamer or commemorative band is a decorated ribbon, usually inscribed with lettering, which is attached to the headpiece of a flag. In Germany it is the most esteemed award that a government can bestow upon a military organisation. In modern times, this honour represents the close relationship between a federal state and the troops stationed within that state. At parades it is a special privilege to be able to publicly display such an honour.

The German Navy possesses unique abilities and significant experience when deployed in coastal waters. The Kiel-based Flotilla 1 (Einsatzflottille 1), under the leadership of Rear-Admiral Christian Bock, is at the centre of these capabilities. Because of these close ties, the Competence Centre for Operations in Confined and Shallow Waters shares a building on the Kiel base with the flotilla staff. RADM Bock is also the Director of COE CSW.

This Centre of Excellence operates as a think tank for NATO. Its mission is to develop new operational approaches, review existing concepts and adapt them to the changing littoral environment. The coastal sea experts work within a robust international network of armed forces, science, industry and research. Together they provide ideas and inputs for technologies and systems – to include unmanned mine warfare systems, ASW in shallow waters and for the protection of ships in port. The Competence Centre organises numerous interna-



tional conferences on maritime safety and has thus gained a high reputation within the community.

There are 25 such NATO competence centres across the Alliance, three of which deal with maritime issues. The COE CSW in Kiel employs 42 soldiers and employees from ten nations, including officers from Italy, Poland, the Netherlands, Denmark, Turkey, Greece, Finland, Lithuania and the USA. Other states (e.g. Estonia) are heading for early membership.

Commander Arne Björn Krüger

www.coecsw.org



Interview with Rear-Admiral Christian Bock, Director of COE CSW

Spotlight: What are the objectives of the COE CSW?

Bock: Simply put, the COE CSW is a part of

NATO's brain, a think and do tank with a very strong network.

Just like the brain, our organisation never switches to sleep mode. Some 40 experts from ten nations are the nerve cells. They are constantly developing new and innovative concepts for maritime operations in the littorals. We provide the drive for new technologies and systems, including unmanned mine warfare, anti-submarine warfare and the protection of ships while in port. Our coastal sea experts work within a robust international network of military

expertise, science, industry and research. The COE organises numerous international events with a focus on maritime safety. Our partners include the Munich Security Conference and the World Maritime University in Malmö, Sweden.

There are 25 such competence centers as part of NATO's subordinate structure, of which only three deal with maritime issues.

Spotlight: Why are the littorals so important for our security?

Bock: The littoral waters are important because the majority of the world's population lives near the coast and in coastal areas. For this reason, we expect future deployment scenarios and conflicts to focus on the so-called "focal point of coastal proximity". In this region, the threat from a fast growing population will continue to deteriorate rapidly. Consequently, security in the shallow water area is of exceptional importance for both Germany and NATO. This is the area with the most human and

economic activity. NATO must be able to respond to threats such as drones, small agile boats, electronic countermeasures and long-range missiles.

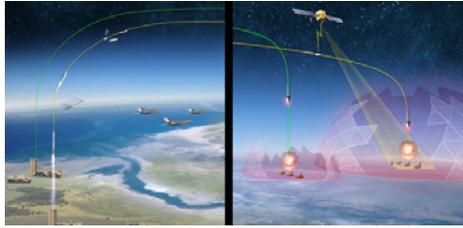
Spotlight: You will receive a campaign streamer from the State of Schleswig-Holstein, what does that mean for you?

Bock: To receive this award is truly a great honour. The campaign-steamer is the highest award a German federal state can bestow. It fills me with pride to have this ribbon attached to our troop flag. The award of the streamer symbolises the country's esteem for our soldiers. We are very happy to be an active part of the social environment and strive to continue to have a positive influence in Schleswig-Holstein. And of course we want to carry the good reputation of our federal state far out into the world. We are proud to carry the excellent reputation of our federal state throughout Germany and into the world.

Technology

Ground-Launched System For Hypersonic Weapons

(df) DARPA has chosen three companies for their joint DARPA/U.S. Army Operational Fires (OpFires) programme. “OpFires seeks to develop new propulsion solutions that will enable a mobile, ground-launched tactical weapons delivery system capable of carrying a variety of payloads to a variety of ranges. Phase 1 of the programme will be a 12-month effort focused on early development and demonstration of booster solutions that provide variable thrust propulsion across robust operational parameters in large tactical missiles,” DARPA said. Now the three performers Aerojet



(Graphic: DARPA)

Rocketdyne, Exquadrum, and Sierra Nevada Corporation will develop and demonstrate a novel ground-launched system enabling hypersonic boost glide weapons to penetrate modern enemy air defences and rapidly and precisely engage critical time sensitive targets.

“OpFires represents a critical capability development in support of the Army’s investments in long-range precision fires,”

says DARPA’s OpFires programme manager Major Amber Walker (U.S. Army). “These awards are the first step in the process to deliver this capability in support of U.S. overmatch.”

The OpFires programme will conduct a series of subsystem tests designed to evaluate component design and system compatibility for future tactical operating environments. Phase 2 will mature designs and demonstrate performance with hot/static fire tests targeted for late 2020. Phase 3, which will focus on weapon system integration, will culminate in integrated end-to-end flight tests in 2022.

www.darpa.mil

Plans For The Turkish ALTAY MBT

(df/Korhan Özkilinc) Last Friday the contractual agreement for the serial production of the ALTAY main battle tank (MBT) was signed. The further steps were defined as follows. The first phase is the so-called prototype phase with PV1-PV2, MTR, FTR, BHT. In the second phase, the AKKOR active protection system (from Aselsan) is added to the ALTAY T1 armour (from Roketsan) (40 pieces). The first delivery to the Turkish

armed forces will take place in 18 months. In Phase III, the ALTAY T2 (210 units) will follow with advanced armour, a mature weapon system, the firing of laser-capable ammunition, a mobile shielding system and crew training. In the final phase IV, the ALTAY T3 will be equipped with an unmanned turret system.

In addition, a Tank System Technology Centre is to be established and put into operation in the future.



(Photo: Korhan Özkilinc)

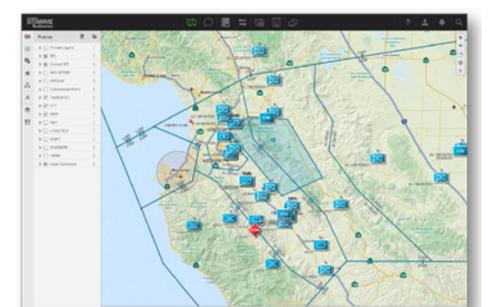
New Australian Development For SitaWare Headquarters

(df) Systematic announced it had developed a new Variable Message Format (VMF) Gateway for its command-and-control (C2) software SitaWare Headquarters. According to the company this solution builds on pioneering work with the Australian Army to provide interoperability between VMF and other communication standards.

“The VMF Gateway leverages work conducted by Systematic in conjunction with the Australian Army’s Land Network Integration Centre (LNIC). That project saw a VMF Capability Technology Demonstrator (CTD) established and which could move infor-

mation between SitaWare Headquarters and a number of the Australian Army’s exemplar systems. Initial testing of the VMF CTD supported 15,000 entities and subsequently grew to 25,000 – a scale that is representative of a coalition and multinational environment,” Systematic announced. A similar setup was in place for the Joint Warfighter Assessment 18 in Germany. There, a full common operational picture from across the event was provided.

Within the Australian Defence Force the VMF Gateway capability is enabling the service to better link with other ‘Five Eyes’ members and with NATO networks. As its alliance is fundamentally with the US, Aus-



tralia decided to follow the VMF protocol for near real-time SA. However, the Australian military regularly conducts missions alongside NATO members and therefore requires the ability to effectively interoperate.

www.systematic.com

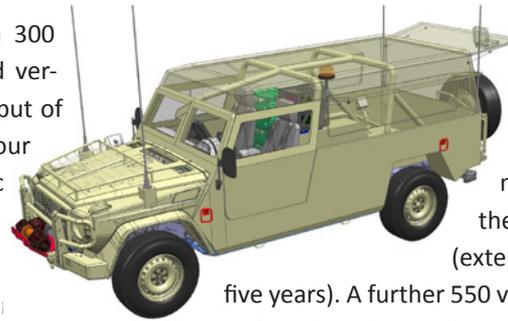
G-Klasse For Dutch Airborne Troops

(gwh) The Dutch Airborne Group will receive Mercedes-Benz G-Klasse series off-road vehicles for several tens of millions of euros. The working designation 12kN AASLT indicates the payload and main task of the vehicle. The vehicle, which is air-transportable with CH-47 as internal or external load, is designed to support operations from the air and has a payload of 12 kN (1.2 tons) to accommodate up to four soldiers, including personal and mission equipment.

The roll bar protects the crew and is used, among other things, for the installation of observation and operating equipment. The

vehicle is powered by a 300 CDI engine, the standard version of which has an output of 135 kW and drives all four wheels via an automatic transmission.

Mercedes-Benz Cars Netherlands will supply the basic vehicle as a rolling chassis ready to drive to the VDL Groep, which will integrate the roll cage and seats as well as military equipment such as radio and communication systems, stowage for equipment and modular packages to protect the crew according to the specifications of the Dutch Army. Between 2021 and 2023, 515 vehicles



are to be delivered. VDL will also be responsible for maintenance for the first ten years (extendable by twice

five years). A further 550 vehicles are planned as an option until 2030, including variants with logistics and ambulance superstructures.

The new vehicles are to replace the Wolf vehicles, which are over twenty years old and are of the same vehicle series and have reached the end of their service life.

www.daimler.com

www.vdlgroep.com

Vydra 8x8 For Slovakia

(gwh) The Slovak Ministry of Defence plans to procure up to 81 Vydra vehicles. The total price, including logistical support, ammunition and infrastructure, should not exceed €417 million.

The 8x8 armoured vehicle is to be given the name Vydra (Otter) because of its amphibious capabilities. For the production

of the Vydra, derived from the Finnish Armoured Modular Vehicle (AMV XP), Patria has entered into cooperation agreements with 16 Slovak companies. The infantry turret with 30 mm cannon, 7.62 mm coax machine gun and smoke projector will be supplied by the Slovak DMD group.

The original plan provided for delivery between 2018 and 2024.



(Photo: MoSR)

www.mosr.sk

Modernisation Of British SA80

(gwh) The SA80 assault rifle, introduced to the British armed forces from 1984, will be modernised to ensure its operational capability beyond 2025. The conversion has begun and first SA80 A3s have been

in service since February. The newspaper Welt has announced that the order is now to be extended to a total of 44,000 weapons with an order volume of €85 million. The modernisation will be carried out at the British Heckler&Koch subsidiary NSAF

in Nottingham. The revised weapon is lighter, more durable, easier to handle than its predecessor and camouflaged with a new colour scheme. New processing methods have reduced the weight by 100g.

www.gov.uk

Jaguar And Griffon For Belgium

(gwh) The Belgian Council of Ministers has approved the signing of a bilateral strategic partnership with France in the field of land mobility.

The first programmes include modernisation of motorised capabilities through the procurement of 382 Griffon multi-purpose armoured vehicles and 60 Jaguar armoured combat and reconnaissance vehicles, including communication equipment and spare parts. The vehicles are identical to those



supplied by Nexter to the French Army.

Nexter has concluded cooperation agreements with Belgian companies for production. Final assembly of the Griffon will take place at CMI Defense. FN Herstal produces

the tower and Nexter's Belgian subsidiary MECAR produces part of the ammunition.

The vehicles are scheduled to enter service between 2025 and 2030.

The €9.2 billion investment programme approved by the Belgian government also includes the procurement of two Skyguardian MALE UAS and 34 F-35 fighter aircraft and two flight simulator centres.

www.mil.be

www.nexter-group.fr

Armament And Protection Variants For JLTV

(gwh) At Modern Day Marine and AUSA Oshkosh presented the Joint Light Tactical Vehicle (JLTV) with armament and protection variants.

As armament options the Kongsberg Common Remotely Operated Weapon Station (CROWS) with Javelin Integration Kit (JIK) and .50 machine gun, the Boeing Compact Laser Weapon System (CLWS) and the Kongsberg PROTECTOR II RWS with XM914 Lightweight 30 mm cannon, JIK and



(Photo: Oshkosh)

coaxial 7.62 mm machine gun were presented.

In cooperation with IMI Systems, a JLTV was equipped with the Iron Fist Active Protection System (APS). The Iron Fist hardkill

system is employed against threats such as short-range RPGs and anti-tank missiles.

The system's sensor suit consists of two sensors to improve the vehicle's situational awareness and minimise false alarms, while enabling the vehicle to respond to and engage the attacker as quickly and accurately as possible.

The U.S. Army has started the launch phase for the nine-ton JLTV. The U.S. Marines will follow from 2019, with a total of 54,600 vehicles expected to be procured by 2040.

www.oshkoshdefense.com

Unimog For Lithuania

(gwh) On behalf of the Lithuanian Ministry of Defence, NSPA signed a contract with Daimler Benz for the delivery of 340 Unimog U 5000 logistics trucks in 2015. Now that 88 trucks have already been delivered, the second batch of 54 vehicles was handed over to the users.

Delivery of the third batch of 110 vehicles is planned for September 2019. The deli-

veries are scheduled to be completed by 2021.

The contract, with a total value of €70 million, includes logistical support throughout the first 15 years of operation as well as equipping with special tools and testing equipment.

With an engine power of 170 kW, the U 5000 series Unimog can overcome gradients of up to 100 percent and water de-



(Photo: Daimler)

pths of up to 1.20 m with a payload of up to five tons.

www.kam.lt

SMARt 155mm Production To Start Again

(gwh) The German Ministry of Defence has commissioned GIWS – a joint venture of Rheinmetall and Diehl Defence – to examine the conditions for resuming production of the

SMARt (search fuse ammunition for artillery) for the 155 mm self-propelled howitzer 2000. Production is expected to begin in 2024.

Between 2000 and 2003, the Bundeswehr procured a total of 9,000 SMARt 155 mm projectiles. Other user nations are Switzerland, Australia, Great Britain and Greece. Alliant TechSystems SMARt has supplied

the United Arab Emirates under licence. The total production volume is over 23,000 units. The SMARt contains two sub-munitions that are ejected above the target. Multi-mode sensors direct the respective sub-munition to the target and engage it from above with explosively formed penetrators (EFP).

www.giws.de



Bogdan Ambulances And Transport Vehicles

(gwh) The Ukrainian Bogdan Corporation has handed over 50 Bogdan 2251 ambulances and 50 Bogdan 6317 multipurpose trucks from its Cherkasy automobile plant to the troops. The Bogdan 2251 ambulance vehicles have been revised according to the findings of the last missions. Up to four severely wounded and eight slightly wounded can be transported under medical supervision.



(Photo: Bogdan)

The vehicle, which is based on the Chinese Wingle-5 pickup, is powered by a 105 kW turbo diesel. The vehicle is driven via the rear axle and can be switched to four-

wheel drive if required. The 6x6 Bogdan 6317 with a payload of eleven tons is powered by a 280 kW diesel engine and can travel well over 1,000 km with one tank. The truck series is to replace the Ural and Kamaz trucks from Russia in the medium term.

The new vehicles took part in the NATO exercise "Rapid Trident – 2018," which was carried out in the Ukraine with a focus on evacuating wounded people.

www.bogdan.ua

First Launch Of The Marte ER Missile

(df) MBDA announced their new Marte ER anti-ship missile had completed its first firing and therefore successfully passing a major phase in its development. The firing trial was carried out on November 9 in an Italian test range. At these tests the Marte ER missile flew for more than 100 km on a planned trajectory that included several waypoints and sea skimming flight, successfully testing all flying phases, the company



(Photo: MBDA)

said. Having completed the 18 months System Definition Phase, the full integration of Marte ER on the Eurofighter Typhoon platform is proceeding at pace in order to implement an anti-ship capability for the fighter.

Pasquale Di Bartolomeo, Executive Group Director Sales & Business Development and Managing Director MBDA Italia, commented: "Marte is a single product family that can cover several missions, offering our customers a high level of operational flexibility in the area of maritime superiority, a domain where MBDA in Italy has been able throughout its long history not only to maintain but also to grow as well as further develop competencies and know-how."

www.mbda-systems.com

Seven Patriot Air Defence Systems For Romania

(gwh) The Romanian Government has signed an agreement with the U.S. Army to purchase three more Patriot air defence systems. This means that the planned equipment level comprising seven Patriot systems is under contract. The budget is estimated at €3.3 billion. Romania has pro-

vided the funds for the first four and production has already started.

Patriot 3+ systems include radar and guidance units, antennas, launchers and power supplies, as well as 224 missiles (56 MIM-104E GEM-T, 168 PAC-3 MSE). Four systems will be operated by the Air Force and three by the Romanian Army. The first system is scheduled for delivery this year.



(Photo: Raytheon)

Romania plans to have Patriot air defence systems operational by 2020.

www.raytheon.com

Twinvis Passive Radar System Undergoing Practical Testing

(gwh) HENSOLDT wants to put the Twinvis passive radar system, which was presented for the first time at the ILA 2018, through a practical test in southern Germany. According to press reports, the Air Force is expected to support the measurement campaign with aircraft and personnel.

Twinvis uses the reflection of existing radiation, e.g. from radio and television stations on aircraft, to determine their flight parameters. Neither Twinvis nor the flying



object actively emits radiation. Thus the radar system remains invisible, especially for enemy radar reconnaissance. It can go into operation at any location without official approval and does not use any of the alrea-

dy scarce radio frequencies. The compact system can be made mobile with small off-road vehicles.

In the planned test, four Twinvis systems are to be set up in the Munich-Ulm area and follow air traffic in southern Germany (to Frankfurt/Main), Austria, northern Italy and the Czech Republic. The range of aircraft includes low-flying small aircraft (e.g. Cessna), high-flying commercial (commercial) aircraft and high-speed military aircraft at medium altitudes.

www.hensoldt.net

Supply For A400M

(gwh) The European Procurement Authority OCCAR and the NATO Support and Procurement Agency NSPA have extended the A400M Service Level Agreement (SLA) to the period 2019 to 2021 with the 4th Treaty Amendment.

Since 20014, NSPA has supported the A400M community with electronic, auto-



(Photo: Airbus)

mated and integrated logistics services. In addition to OCCAR, the community inclu-

des the contracting states Belgium, Germany, Great Britain, France, Spain and Turkey. To date, more than 36,000 requests have been served by NSPA. The contract extension enables users and industry to continue and expand the logistics basis on a secure basis.

www.nspa.nato.int

www.occar.int

Brazilian Corvette

(gwh) Brazil has selected the Águas Azuis consortium, comprising thyssenkrupp Marine Systems and Embraer Defence & Security, as one of the finalists for the CCT (Corvette Class Tamandaré) corvette programme.

The Águas Azuis consortium has submitted a proposal to the Brazilian Navy based on the proven MEKO design. Its modular de-



(Photo: tkvms)

sign facilitates local integration and technology transfer, thus reducing acquisition, maintenance and modernisation costs. The MEKO class is capable of operating in high seas around the world.

Since 1982, 82 MEKO corvettes and frigates have been delivered to navies in 14 different countries, 37 of them outside Germany. All these ships are still in operation - and some have a service life of more than 40 years. This class shows the advantages of five generations of ships thanks to their design iteration, whereby the best characteristics of each project are incorporated into the next project.

When the contract is awarded, the Embraer subsidiary Atech, in close cooperation with the thyssenkrupp Marine Systems subsidi-

ary Atlas Elektronik, would contribute the Combat Management System (CMS) of the ships. It is planned that Atlas Elektronik's engineering and software will support and further develop Atech's local engineering, equipment, system integration and project management.

"We are very pleased to have reached the final phase of the CCT programme," said Dr. Rolf Wirtz, CEO of thyssenkrupp Marine Systems. "The Brazilian Navy has extraordinary expertise and we appreciate the good relationships we have maintained since the delivery of the first TUPI-class submarine in the late 1980s."

www.atech.com.br

www.defense.embraer.com

www.thyssenkrupp-marinesystems.com

Bridge Simulators For The Royal Australian Navy

(df) Kongsberg Digital has been selected to deliver and support a suite of sophisticated K-Sim Navigation ready ship's bridge simulators for the Royal Australian Navy, the company announced. The simulators will be delivered for installation in a new



training facility at HMAS Stirling in Perth starting May 2019, with existing bridge simulators at HMAS Watson in Sydney being upgraded from December 2018. The new simulation centre in Perth and extensive upgrades in Sydney will ease pressure on the Navy's existing facilities and provide sophisticated bridge simulation training capabilities on both coasts of Australia.

"The Royal Australian Navy has trained crew on Kongsberg ship's bridge simulators since 1998, and our engine room simulators are also integral to its engineer training," said Lars Klemmetsby, VP Business Development Defence, Kongsberg Digital. "Their high level of satisfaction over these

past two decades has played a major role in this latest contract award, which confirms Kongsberg Digital's position as the supplier of choice for both bridge and engine room simulation to the Australian Navy."

The contract also includes a Long Term System Support Program (LTSSP), designed to ensure high operational availability and easy access to new KONGSBERG simulator developments. The Royal Australian Navy has already benefited from an existing LTSSP, which enabled fast track upgrading of its capabilities at HMAS Watson with new KONGSBERG ship's bridge simulators in 2016/17.

www.kongsberg.com

Sensors For Reconnaissance And Protection

(gwh) At Euronaval HENSOLDT presented a selection of the latest sensors for marine applications. The optronic double mast for submarines and the naval radar TRS-4D should be highlighted.

The combination of the periscopes OMS 150 and OMS 200 in one double mast combines the latest optronic sensor technologies. These include television cameras for day and night vision, thermal imaging



(Photo: HENSOLDT)

devices for medium and short wave infrared, and laser rangefinders. 360-degree panoramic vision with stabilised optics is the basis for a comprehensive situational

image. The TRS-4D naval radar is designed to support operations against air, sea and land targets and has a rotating antenna or four fixed antenna panels.

The radar's AESA technology provides increased sensitivity for detecting smaller and moving targets with greater accuracy. The radar is currently being integrated into the U.S. Navy's Littoral Combat Ship LCS and the German Navy's new F125 frigates.

www.hensoldt.net

SLWT Lightweight Torpedo In Development

(gwh) At Euronaval, Saab showed the lightweight torpedo 47 (Saab Light Weight Torpedo, SLWT), the second demonstrator of which with all the capabilities of the final version is about to be completed.

The particularly difficult conditions in the Baltic Sea have had a major impact on development. The SLWT is designed for use both in blue and in coastal waters, adaptable to various hydroacoustic conditions. The fully digital homing system offers a fire-and-forget mode and cable control. The SLWT can track a detected target, attack

and continue an aborted attack. After switching to training mode, the torpedo comes to the surface and can be recorded. The data can be used for evaluation.

The SLWT weighs only 340 kg and due to its small dimensions (length: 2.85 m, diameter: 40 cm) can be used by submarines, ships, helicopters and aeroplanes. An electric pump jet, powered by a rechargeable lithium battery, accelerates the torpedo to over 74 km/h. Deployment depth and duration are over 300 meters or one hour. The torpedo, which was ordered jointly by Sweden and Finland, is to be tested under operating conditions from 2019 and put



(Photo: Saab)

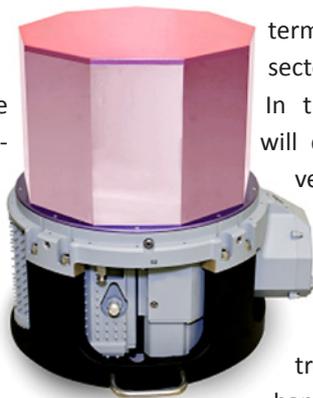
into production from 2020. The Swedish Navy wants to have operational systems for its corvettes and submarines by 2023.

www.fmv.se

www.saab.com

DIRCM Protection For Ships

(gwh) At Euronaval, the Elettronica Group unveiled the next generation of DIRCM (Direct Infra-Red Countermeasures), a fully European-manufactured self-protection solution for marine applications. Intrinsically asymmetrical operating conditions make protection against EO/IR-led threats an increasingly important prerequisite for active coun-



termeasures in the maritime sector.

In the future, the naval DIRCM will complement the recently developed Elettronica EW Suite for the Italian naval programme for detecting and combating threats across the entire electromagnetic spectrum. Elettronica intends to enhance the performance of Naval DIRCM by combating EO/IR guided missiles with the combined use of DIRCM and flares. The findings from successful mis-

sions in air scenarios will be used for this purpose.

The core is the multiband ELT laser system based on Quantum Cascade Laser (QCL) technology. The system can generate medium wavelength beams, in various infrared regions and in the new set of cold regions and thus works under the specific maritime weather conditions. Since QCL generates the energy directly in the wavelength range of interest, energy is saved on the one hand and the beam is optimised on the other.

www.elettronicagroup.com

New Lithium-Ion Batteries For Submarines

(gwh) thyssenkrupp Marine Systems (tkMS) and the Saft Group have developed a novel battery system for military submarines based on lithium-ion batteries. In adapted form, the system could also be used for other maritime applications in the future. A prototype of the new battery system was presented for the first time at Euronaval. The Federal Office for Equipment, Information Technology and In-Service Support of the German Armed Forces (BAAINBw) had commissioned tkMS to develop a lithium-ion battery system in a study both for new construction and for retrofitting existing Class 212 submarines. An adapted design

for further submarine classes, such as the HDW Class 214, is being planned. Since the basic concept of the system is modular, it can be adapted to any maritime application.

The batteries are adapted to the special requirements of the maritime field of application. The selection of the cell chemistry was made with a special focus on safety. Compared to the well-known lead-acid battery, the maintenance effort is negligibly low and the service life is many times longer. The new batteries are hardly dependent



on the discharge current for the energy that can be drawn from them, so that a submarine can run at top speed regardless of the state of charge of the battery.

Following successful series of tests to prove safety at battery cell and system level, further intensive series of tests

are planned up to sample testing. The tests required for approval are to be completed in 2019.

www.thyssenkrupp-marinesystems.com

www.saftbatteries.com

Industry & Trade

Smart Spending At The NATO Industry Forum in Berlin

(df) At the NATO Industry Forum in Berlin NATO Secretary General Jens Stoltenberg stressed the new readiness initiative, "which we call the Four Thirties: 30 mechanised battalions, 30 air squadrons, and 30 combat vessels. Ready to use within 30 days or less."

But this is only one part of the modernisation, NATO will also increase their defence spending and capabilities over the coming years.

"Allies have committed to invest 20% of all defence spending on major equipment. Including related Research and Development. In fact, this year NATO Allies are expected spend over US\$250 billion on major equipment," Stoltenberg said. Also

Research & Development will benefit with more than 60 billion investment by European Allies. "Which represents an increase of some 10 billion over the last year and even more expected in the coming years."

One major problem addressed by Stoltenberg is the fragmentation of European defence technology and the therefore cost-intensive need to combine these systems in joint operations and training.

"For instance, in Europe there are 17 different types of main battle tanks. In the United States there is only one. In Europe we have 13 different types of air-to-air missile. United States has three. And European nations 29 different types of naval frigate. United States has four. This is something I addressed. But I also appreciate or welcome the fact that European lea-



(Photo: NATO)

ders have addressed this again and again, the fragmentation of European defence industry. Difficult, political and sensitive but we need to address the challenge in one way or another," Stoltenberg explained before concluding: "By planning and spending together, we spend smarter."

www.nato.int

MASTHEAD

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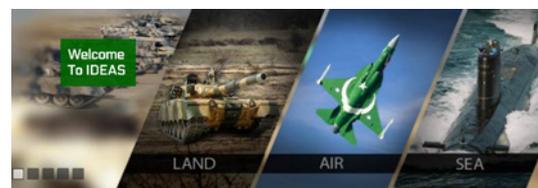
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10th International Defence Exhibition and Seminar (IDEAS)

The International Defence Exhibition and Seminar (IDEAS) is a mega event; biennially organised by Defence Export Promotion Organization (DEPO) under the auspices of Ministry of Defence Production, Pakistan. Since its inception in the year 2000, IDEAS has emerged as an international rendezvous of defence manufacturers, entrepreneurs, R&D specialist, financial experts, and top level policy makers to promote cooperation, knowledge sharing and support ventures in the field of defence collaboration. Its international recognition and participation truly reflect Pakistan's deeply embedded and mutually beneficial relations with the international fraternity. In fact, IDEAS is a shared platform for global peace, stability and prosperity. The IDEAS slogan, "Arms for Peace" truly reflects Pakistan's principled stance on peace within and peace without. On the other hand, IDEAS is an event that provides enhanced opportunities for commercial exchange between delegates, trade visitors, defence



officials and manufacturers from Pakistan and abroad.

The event will host a number of activities encompassing world's cutting edge defence technology demonstrations, International Seminar, Pakistan's Armed Forces Conferences, Counter Terrorism Demonstration at KEC, and business expansions through well-planned B2B and B2G engagements.

New features planned for IDEAS 2018 will certainly be of great interest for national and international exhibitors, foreign delegates and trade visitors from across the globe. Beside latest technological demonstration, the 4 days' impressive events will truly demonstrate Pakistan's best in its entire domain.

IDEAS 2018, 10th eventful edition is scheduled from November 27-30, 2018 at Karachi Expo Centre in Pakistan.

www.ideaspakistan.gov.pk

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 organised by the National Training and Simulation Association (NTSA).

November 26-30, Orlando, USA

**International Defence Exhibition and Seminar (IDEAS) 2018**

International Defence Exhibition and Seminar (IDEAS) is organized by Defence Export Promotion Organization (DEPO) under the auspicious of Ministry of Defence Production, Pakistan. Holding of exclusive Land, Maritime and Aviation conferences by Pakistan Army, Navy and Air Force, hosted by respective Service Chief where the stake holders on Buyer and Seller concept will get opportunity to share their interests and business collaboration.

November 27-30, Karachi, Pakistan

**International Security Expo**

This year's International Security Expo showcases over 1,000 of the latest innovative security products to help improve the security. Featured over the two-day expo are 13 free-to-attend, CPD certified conferences and workshops covering every major sector of the security industry. Visitors will see ground-breaking, innovative features including the 300 SQM Protecting Urban Spaces Demonstrator designed to help every security professional understand how best to protect crowded spaces.

November 28-29, London, UK

**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. The inaugural EDEX is fully supported by the Egyptian Armed Forces and presents a brand new opportunity for exhibitors to showcase the latest military technology, equipment and systems across land, sea & air.

December 3-5, New Cairo, Egypt

**IDEF'19 – 14th International Defence Industry Fair**

The show authorities allocates meeting offices to meet the delegations and participants from national/international defense industry institutions during the IDEF, establishing important commercial connections with them. Scheduled meetings and signature ceremonies are realized during the fair. Between the defence industry authorities and exhibitors from all around the world.

April 30 - May 3, 2019, Istanbul, Turkey

**ISDEF 2019**

ISDEF 2019 is Israel's largest Defence, HLS and Cyber Exhibition. Focusing on interoperability between defence and security, ISDEF brings together government and military officials, industry members, end users and decision makers from Israel and around the world. 85% of the attendees have buying power making ISDEF a highly effective platform for rapid business growth.

June 4-6, 2019, Tel-Aviv, Israel

