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The history of Arab democracy could probably be written on the back of the proverbial postage stamp. And one name would crop up repeatedly - that of Tunisian Beji Caid Essebsi. It was he who, in his capacity as Prime Minister of the transitional cabinet, handed over power to a legitimately elected government in late 2011, despite the fact that he did not like the extent to which the new government was permeated by Islamists. He would later become President of Tunisia and was sworn in on New Year's Eve 2014, ten days after he convincingly defeated his predecessor in the second round of voting. However, given Essebsi's grand age of 88, it does not seem wise to pin great hopes on him securing a democratic future for his country. He represents unusual continuity rather than a fresh start. His political career extends back to the era when Tunisia was fighting for independence from France. At that time, and in the first decades following the end of colonial rule, modernisation was viewed as a secular project, where the polarisation of the Cold War raised just one question - whether to align with the West or the East. Islam was considered part of the problem rather than the solution. Essebsi embodies the reverberations from that seculardominated era, which failed at least partly because the efforts at modernisation resulted in dictatorship and kleptocracy. His electoral success owes itself to the particular situation of the country, which has traditionally tended to be "moderate" and "bourgeois", and is therefore not representative of the region as a whole. The factions that have banded together behind him are united by a single goal - not to surrender Tunisia to Janus-faced Islamists, who pretend to adhere to the rules of democracy, although the radicals among them do not shy away from taking action against other manifestations of Islam, including indigenous forms, because they believe them to be apostasy.

The Arab Spring Has Failed

So there is a good reason why the Arab Spring started in Tunisia four years ago, and why it is the only country where the movement still has any prospects. In all the other countries that saw sparks flying, the uprisings ended in a new wave of repression or in the collapse of the state and civil war. In Egypt, the old elite is once again fully in charge, with the military forming the centre of power. It never really let go of the reins, not even during the short period in which the Muslim Brotherhood was preparing to make political decisions in its own favour. It is

a small detail, but one with symbolic value, that Hosni Mubarak, whose regime was swept away in the mass uprising, may yet go unpunished, despite initially facing execution. As onlookers, the Europeans could side with neither the revolution nor the counter-revolution. They had to watch democratic rules being used by forces that were anything but democratic in spirit. The Europeans felt that, in Egypt, the Muslim Brotherhood was taking steps to seize power, but it failed to prove that it had any objectives aside from Islamic totalitarianism. However, the new powers in the as-Sisi regime, in their turn, are using the traditional methods of suppression employed by their predecessors. In the aftermath of the revolutionary interlude, they feel more justified than ever in ignoring human rights and the majority will when it comes to preserving the order they identify with their own position of power.

The calm in Egypt is therefore somewhat deceptive. The latent civil war could erupt into open conflict again at any time. Nevertheless, even a sudden crisis involving a domestic dispute is unlikely to jeopardise the territorial integrity of the Egyptian state. Such lucks status – against unlucky background – does, however, not apply to Syria nd Libya, where the Arab Spring sparked a civil war; neither does it apply to Iraq. The borders of these countries were drawn in the 20th century by colonial powers, with no regard for ethnic, religious, historical or dynastic factors. Their existence ensured that power would stay with monarchs and dictators. The Arab Spring has led to a disintegration of these state structures into fragments, the defining characteristic of which is violence, used by the militia to keep the population in check. It is naive to think that appealing from afar for them to make peace and demonstrate a willingness to compromise will put it back together again. However, there are no obvious ruling powers in the region with whom the Europeans could cooperate in good conscience - with one exception: Over the past 20 years, the Kurds in northern Iraq have managed to bring political stability to their autonomous region and to promote economic development. They do not aim to restore the outdated system of states in the Middle East. They strive for a state of their own. And that is the price the Europeans will have to accept if they want to bet on the Kurds.

Peter Bossdorf

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Periscope

AMPV for the U.S. Army

(df) The U.S. Army has awarded BAE Systems a contract for the Armored Multi-Purpose Vehicle (AMPV), which will replace the conceptually over 70 years old M113. The new family of vehicles based on the M2/ M3 Bradley will be produced in five variants for use in the Armored Brigade Combat Team (ABCT): personnel and cargo transport (522 vehicles), medical evacuation



(790), mobile medical vehicle (216), mortar carrier (386) and command vehicle (993). In the first engineering, manufacturing and development (EMD) phase 29 AMPV of all variants will be produced in preparation for the series. The first 289 vehicles might then follow as an option. The €1 bn contract is to be fulfilled by 2019 including the option. The requirements for the U.S. Army total 2,907 AMPV.

Netherlands Take Amarok into Service

(df) The Netherlands Defence organisation took symbolic delivery of 1,667 new vehicles when the keys of the newly acquired Volkswagen Amaroks were handed over. They are set to replace several Mercedes Benz types, which are now reaching the end of their working life. One new aspect included in the procurement contract is



that maintenance of the vehicles will be carried out by the supplier. The Royal Netherlands Army will take 1,138 Amaroks into service. Among these, there will be a specialised type of Amarok for use by the Defence Explosive Ordnance Disposal Service. In all, 14 different types of the vehicle have been selected for use in the Netherlands armed forces.

Net-Based Armour System

(df) AmSafe Bridport announced that the Danish Defence Acquisition and Logistics Organisation (DALO) has selected its Tarian rocket-propelled grenade (RPG) armour system. AmSafe will work with its country representative Damasec to design and supply its lightweight Tarian system for several tracked and wheeled armoured vehicles as part of a seven-year DALO programme. The programme calls for a single RPG armour system across the full vehicle fleet for a high level of common components and system durability, resulting in enhanced reliability in all environments. The core element of the Tarian RPG defeat mechanism is an extremely strong textile net manufactured from high-tensile fibres. Tarian nets are attached to vehicles using a robust flex-



ible mounting system to withstand harsh vehicle operating conditions with low susceptibility to damage.

F-35 Engine Maintenance

(df) The U.S. Department of Defense confirmed that future European engine maintenance for the F-35 will be performed by three partner nations: Turkey, Norway and the Netherlands. This means that the Norwegian state owned enterprise, AIM Norway, has succeeded as one of three businesses that will be performing maintenance for the F-35, which is expected to remain in service until well after 2050. Maintenance of the F-35 will differ significantly from that of its predecessor, the F-16, with the aircraft itself rarely leaving its main operating base for maintenance. When a part of the F-35 requires maintenance, it will be taken out of the aircraft and sent to a

Drafts of the MKS 180

(df) The two proposed solutions by the German Procurement Agency (BAAINBw) for a "Future Modular Maritime Capability Platform" (MKS 180) for the German Navy have been presented to the Chief of Staff, Bundeswehr, for a decision. The analysis phase will end with the selection and approval of one of the proposals and the design and



construction of the ship may begin. The decision of the Chief of Staff, Bundeswehr, is expected in the first quarter of 2015. The design and procurement process with the evaluation of the designs and finally a contract will take about two years. The stated goal is to enter procurement contract discussions in 2017, with a first ship to be commissioned by the end of 2023.



central workshop, while the aircraft in the meantime receives a new part and is able to continue its regular operations. Required heavy maintenance of the aircraft itself will take place at a facility in Italy, supported as needed by British workshops. The overall purpose of this model is to allow the partnership to collectively operate the F-35 fleet in the most efficient way possible.

5th FREMM Frigate Delivered

(df) At the end of 2014 the fifth of ten Multimission European Frigates (FREMM), the ITS Alpino, was launched. This class of frigates is a cooperation-programme

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be-tween France and Italy, the ships were designed by DCNS/Armaris and Fincantieri. The first ship was commissioned by the French Navy in November 2012. It was the Aquitaine and therefore these frigates are



named the Aquitaine-class in France. The first Italian ship was the Bergamini, so it is called the Bergamini-class in the Italian Navy. In Italy these units will replace the former Lupo and Maestrale class frigates. The Chief of Italian Navy, Admiral Giuseppe De Giorgi, said that these versatile units will also be built at Riva Trigoso, and that a renovation programme of the Italian fleet is imperative. A further €5.4 billion investment provided for by the stability law, spread over the next 19 years, will allow the Italian Navy to become fully operative. The frigates measure: 144 metres length, 20 metres beam and 6,700 tons displacement. The new FREMM will be delivered to the Italian Navy in early 2016. Italy is buying two versions, a general purpose frigate and an anti-submarine variant with the last two Italian FREMMs having AAW-ATBM-Land Attack capabilities. France is heading for an additional air-defence variant.

ICCS6 Systems for Belgium, The Netherlands and Portugal

(df) The navies of Belgium, The Netherlands and Portugal will upgrade some of their surface ships with the latest version (the sixth) of the Integrated Communications Control System (ICCS) produced by Portuguese communications specialist EID. Un-



der the M-class frigates user group memorandum of understanding, a contract with a maximum value of ≤ 15 mn is to be awarded by the Portuguese Government for the supply of 10 ICCS6 systems. For this purpose, the three navies set up a joint working arrangement. Five systems will be

An-70 to Enter Series Production

(df) On 13 January the Ukraine Ministry of Defence signed a contract with Antonov State Company to start series production of the An-70. When and how many An-70 will enter the Ukraine Air Force was not announced, only that series production will start this year. The decision to buy the An-70 for the Ukraine Air Force follows successful flight tests in June 2014. The An-70 is able to carry 35 - 47 tons of freight in



the 22.4 x 4.8 x 4.4 (I x w x h) metre cargo hold. The range of the aircraft is about 6,600 km at 20 tons payload. The new propeller blade configuration gives the An-70 a sophisticated short take-off and landing (STOL) capability that allows the use of unpaved runways of only 600 - 800 metres length with 20 tons payload. With full load the aircraft needs only a 1,500 – 1,800 metre runway.

installed on board Portuguese ships: two M-class frigates (Bartolomeu Dias and Dom Francisco de Almeida) and three Vasco da Gama class frigates. Three systems will be fitted to the Royal Netherlands Navy's (RNIN) M frigates and the landing platform dock HNLMS Rotterdam. The two M-class frigates of the Belgian Navy (Leopold I and Louise-Marie) will also be upgraded. The first vessel to receive ICCS6 will be a RNIN frigate whereas the last one will be a Portuguese MEKO200 in 2020. The ICCS system is based on a distributed architecture, being composed of a number of switches, user terminals and workstations. ICCS6 features Internet Protocol technology and was designed specifically to provide an efficient ship's communications management tool.

■ IRIS-T SL Demonstrates Full Performance

(df) Following system validation one year ago, Diehl Defence's missile IRIS-T Surface Launched (IRIS-T SL) demonstrated its full performance. All of the jet target drones of different sizes, which performed a large variety of realistic evasive maneuvers, were directly hit. The first target was engaged at a distance of more than 30 km. The IRIS-T SL missile flight time was about one minute reaching an altitude above 12 km. Despite an evasive maneuver involving changing direction and altitude, a direct hit of the target was achieved. The second firing was at very close range to the launch point to prove the missile's short range engagement capabilities. During this firing, IRIS-T



SL jettisoned its aerodynamic cover shortly after launch immediately initiating a hard turn-over maneuver towards the low flying target. The entire engagement lasted less than 10 seconds also ending with a direct hit. The third firing was carried out against a very small, fast and agile target drone featuring high agility and extreme maneuvering capability. A direct hit was achieved at 12.5 km range and 1.5 km altitude even though the drone performed aggressive dive/pull-up evasive maneuvers. IRIS-T SL is the missile of the new air defence system IRIS-T SLM and is planned to be a component of the future German Air and Missile Defence System.

Periscope

MACSS Surveillance System

(gwh) MACSS is the new compact communication signal surveillance system for maritime business offered by Plath GmbH. It combines a highly sensitive lightweight antenna and a high-performance seven channel direction finding receiver with integrated map and analysis software



modules in a compact solution. MACSS supplies a fast, detailed and comprehensive picture of communication signals in the surrounding sea environment.

RBS15 Mk3 Missile for the Polish Navy

(df) The Polish Navy has conducted a successful commissioning and sea acceptance test of the RBS15 Mk3 missile onboard the Orkan-class fast attack craft, therefore fulfilling the contract with the Swedish company Saab for delivery and implementation of the missile. The tests with the first-ofclass Orkan validated all the ship's interfaces with the necessary power, combat management and navigation systems. Testing



included a simulated missile firing exercise and concluded with sea trials when the ship carried its full complement of eight missiles. The RBS15 Mk3 is a "fire and forget" antiship missile with all-weather, day and night operational capability. It combines operational and tactical versatility with a very flexible trajectory, including flight range of over 250 km, large numbers of waypoints and altitudes, extremely low sea-skimming with sea-state adaptation, sophisticated target discrimination and selection together with land attack capabilities. The missile also has a high defence penetration capability with soft- and hard-kill resistance.

Development Contract for Gripen E

(df) The Swedish defence and security company Saab has received a development order for Gripen E from the Swedish Defence Materiel Administration. The order is part of the Gripen E framework agreement from 2013 and is valued at €41 million.



"The work on Gripen E goes according to schedule and budget. The order is part of the high-tech development of the next generation Gripen system for Sweden", said Ulf Nilsson, Head of Business Unit Gripen within Saab's Aeronautics business area. Gripen E has significant performance improvements, including a more powerful engine, longer range, more weapons, new AESA radar and more advanced avionics.

Mastiff and Ridgeback Upgrade

(df) The UK Minister for Defence Philip Dunne announced a new €40 M contract with General Dynamics Land Systems -Force Protection Europe to upgrade 240 Mastiffs and Ridgebacks. The upgrade is especially meant to improve the protec-



Photo:

tion level of the fleet. Apart from the upgrade Dunne also said that additional €9 Bn will be spent on the acquisition of new armoured vehicles and on further upgrade programmes, even though Dunne did not clarify the timeframe of these new deals.

Germany Procures Enok

(gwh) The German procurement agency BAAINBw has ordered 84 Light Armoured Patrol Vehicles (LAPV), called Enok by the



Germans, from Mercedes-Benz. These vehicles are in addition to the 137 Enok already in the inventory of the German Bundeswehr. The new Enok at 6.1 t gross vehicle weight offers more payload (1.3 t) than its predecessor for a crew of four. The all-steel-monocogue with add-on armour and built-in mine-protection con-stitutes a basis for survivability of the crew and the vehicle. The new Enoks will be used for tasks of special forces. as patrol vehicles and for training. Deliveries are scheduled between 2015 and 2017.

Extended Capabilities of UAS

(df) Most current unmanned aircraft systems (UAS) require constant control by a dedicated pilot and sensor operator as well as a large number of analysts, all via telemetry. These requirements limit the scalability and cost-effectiveness of UAS operations, making them even more cost

intensive than most manned aircraft operations. The Defense Advanced Research Projects Agency (DARPA) has set up the



programme Collaborative Operations in Denied Environment (CODE), which aims to overcome these challenges by developing algorithms and software that would extend the mission capabilities of existing unmanned aircraft well beyond the current state-of-the-art, therefore improving U.S. forces' ability to conduct operations in denied or contested airspace. DARPA has released a Special Notice inviting interested parties to identify their interest in participation in select Phase 1 CODE meetings, which are scheduled for the first week of March 2015.

32-Ton VBCI

(df) The French defence procurement agency (DGA) qualified a 32-ton version of the armoured infantry combat vehicle (Véhicule Blindé de Combat d'Infanterie, VBCI). The French Army introduced the VBCI in 2008, development extending back to the



1990s. The additional three tons combat weight of the newly qualified version shall improve the protection against mines, IEDs (improvised explosive devices) and missiles through passive and active protection systems. They also create growth opportunities for future military requirements. After 18 months of tests, sometimes in extreme climatic conditions, series production is now approved. Nexter will deliver the first 32 VBCI in the 32-ton version within 2015. Overall, France has ordered 630 VBCI, of which 500 have been delivered. The rest will follow in 2015 and 2016. Since 2010 the VBCI has also been deployed on several missions such as Afghanistan and Mali.

French Scorpion Programme

(df) The French Minister of Defence, Jean-Yves Le Drian, signed the EBMR (Armoured Multi-Role Vehicle) contract with CEOs of the GME temporary consortium formed by the French companies Nexter Systems, Renault Trucks Défense and Thales. Prepared by the Armament Procurement Agency (DGA), this consortium will be responsible for the development, manufacturing and support of the EBMR of the Scorpion pro-



gramme. Under the EBMR contract, the Multi-Role Armoured Vehicle Griffon and Reconnaissance and Combat Armoured Vehicle Jaguar will replace on the one hand the VAB, and on the other hand, the AMX10RC, the ERC Sagaie and the VAB Hot, produced in the 70s and 80s. Almost 2,000 vehicles, and all associated logistical support equipment, will be delivered to forces from 2018.

Babcock under Contract for British Army Maintenance

(df) The U.K. Ministry of Defence (MoD) has awarded Babcock International a €1.17 billion 10-year contract for the maintenance of the Army's land vehicles. From April 2015 on, Babcock will deliver and transform the services currently provided to the Army by the Defence Support Group (DSG) land business. This will generate total savings to the Army of around €650 million over the life of the contract, the U.K. MoD stated. The contract also has the potential to grow to around $\in 2.6$ billion as a result of plans, subject to value for money, to optimise a broader scope of services. "This contract is excellent news and puts DSG on a sustainable long-term footing to support maintenance and availability of land platforms for the army, in a similar manner to existing



contracts for support of platforms for the other services", the Minister for Defence Equipment, Support and Technology, Philip Dunne, said. All DSG land business staff will transfer to Babcock with their terms and conditions protected, the MoD said. No MoD sites will close on sale.

ATACMS Upgrade

(df) Lockheed Martin received a €66 mn contract from the U.S. Army for upgrades to the Army Tactical Missile System (ATAC-MS). The programme will take hardware from early-production ATACMS Block 1



missiles and develop an enhanced and affordable weapon system capable of eliminating targets without the risk of unexploded ordnance, which meets the U.S. Army's longrange precision strike requirement. The programme's first phase will include flight tests, followed by production beginning in 2016. As the U.S. Army's only tactical longrange precision strike surface-to-surface weapon, ATACMS provides critical military capability. More than 560 ATACMS missiles have been fired in combat and the system has demonstrated extremely high rates of accuracy and reliability. Each ATACMS missile is packaged in a Guided Missile Launch Assembly pod and is fired from the Multiple Launch Rocket System (MLRS) family of launchers. Lockheed Martin has produced more than 3,700 ATACMS missiles in over 20 years of on-time deliveries.

SECURITY POLICY

The Helsinki Headline Goals Revisited

Thomas Bauer

In December 1999, the members of the European Union formulated ambitious targets in response to Europe's military deficits and the deficiencies in EU security and defence policy, which had become apparent during the Kosovo conflict. Fifteen years on, many of these plans – known as Helsinki Headline Goals – remain purely theoretical. The reasons for this include financial and budgetary restrictions as a consequence of the global economic and financial crisis, dramatic changes to security policy framework, and the unwillingness of most EU member states to transfer appropriate authority and capacity to the European level.

From Helsinki and Cologne to 2010

The Headline Goal process began with the creation of the European Security and Defence Policy (ESDP) at the 1999 Council summits in Cologne and Helsinki. It was meant as a response to the shortfalls in Europe's military capability in the field of crisis management. In addition to establishing new bodies and introducing institutional developments - such as the Political and Security Committee (PSC), the European Union Military Committee (EUMC) and the European Union Military Staff (EUMS) - the heads of state and government from the then 15 EU Member States agreed to establish European rapid response forces as key elements of the Helsinki Headline Goal (HHG). This established that, by 2003, the EU should be able to mobilise up to 60,000 troops to a theatre of operations within 60 days, and be able to keep them on deployment there for at least a year. These forces were to be given the name European Rapid Reaction Force (ERRF). By May 2003, major operational capabilities had been made available to the EU, but there were still significant deficiencies and gaps in some areas. The deficiencies were in both the quantity and quality of the forces provided by the Member States.

In December 2003, EU leaders agreed on a common European Security Strategy (ESS). Given the increased size of the EU following the incorporation of several Eastern European nations as of May 2004, the ESS was intended to illustrate that the EU is a player with global responsibility and to outline the roles and tasks of the EU in a dramatically changed security environment. However, agreement about a European Security Strategy highlighted the limits of the Headline Goal process of 1999; it had not looked far enough ahead and was therefore of only limited suitability as a tool for



Jorge Domecq took up his new assignment as EDA Chief Executive on 01 February 2015.

the practical implementation of the targets defined in the security strategy.

Consequently, in June 2004, the new Headline Goal 2010 put the emphasis on qualitative targets for enhancing interoperability, deployability and sustainability, thereby emphasising the need for more mobile and flexible forces for efficient deployment in multinational crisis management operations. If the Helsinki Headline Goal of 1999 was orientated, among other things, towards the war in Kosovo, in terms of the scope and framework for using military capabilities, it is also true that the Headline Goal 2010 reflected experiences gained through the EU's Operation Artemis in the Democratic Republic of the Congo. This was clearly evidenced by the new focus on smaller - but more flexible - forces that could be deployed more quickly, which was manifested in the EU Battlegroups concept. The idea was that, within 10 days from the relevant EU Council decision, this 1,500-strong task force would be in a position to commence operations in the theatre of operations, and remain there for up to a maximum of 120 days.

As the involvement of European forces in international missions increased, the capability gaps that had been identified became even less acceptable. However, in many cases, the funds needed to close these gaps in the short to medium term were lacking, because shrinking defence budgets in the Member States meant shrinking resources for investment. Therefore, a drastically improved approach to using resources was needed to maintain and expand military capabilities for action in Europe. The EU's security and defence policy is defined by the contributions and interests of the Member States, even and especially - at national level. However, real improvements in efficiency in providing military equipment were increasingly only achievable at European level.

Filling the Gap – with EDA

This logic led to the conclusion that the ambitious requirements could only be implemented by developing European armaments cooperation. So, parallel to the Helsinki Headline Goal process, efforts were made to transfer the duties and functions of existing Western European Union (WEU) authorities and bodies – namely the Western European Armaments Group (WEAG) and the Western European Armaments Organization (WEAO) – to newly created EU institutions.

The larger nations made significant efforts to develop more systematic links between military users and suppliers, in order to achieve maximum synergies where there were resource shortages. However, the interests of military users and suppliers initially remained disconnected at European level when it came to the Headline Goal process and thoughts about establishing a European armaments agency. The founding of the European Defence Agency (EDA) in June 2004 created a new stakeholder to support the Headline Goal process. The main tasks of the EDA include developing military capabilities for crisis management, promoting and developing European armaments cooperation, strengthening the European industrial and technological base in the arms industry, creating a globally competitive European defence market, and promoting research and development to ensure that Europe takes a leading role in the field of strategic technologies. The European Defence Agency was established in 2004 in an institutional environment where only certain elements of a capability process were mapped. Its role within the institutional structure of the EU remains, to this day, essentially one of filling in the missing gaps in a process and merging them with the existing elements to form a coherent whole.

Given that developing EU military capabilities is understood to be a process of comprehensively and systematically translating politico-military requirements into available military capabilities, the Helsinki Headline Goal and the Headline Goal 2010, with the intervening time period, can be viewed as a three-stage process. The first stage involved defining the role and responsibilities of the EU as an international player, whilst also defining the ways and means in which Europe would implement and protect the security interests defined in the security strategy. In the second stage, these specifications were used to define relevant military capabilities that were to be provided or developed. In 2008, the Capability Development Plan (CDP) was adopted for the first time and given to the Defence Agency. In the third stage, the EDA, in turn, used its specialist directorates to prioritize the actions to close the identified capability gaps, and also to manage the corresponding implementation of those actions within the scope of research and development projects, defence and procurement programmes, and also within the scope of its activities to strengthen the industrial and technological base in the European defence industry.

Industrial Stability through CDP

The transition from CDP to implementation within the scope of national and European programmes clearly demonstrates that the CDP must take a much longer-term view than either the Helsinki Headline Goal or the Headline Goal 2010 ever did. If one considers the lengthy development periods that are well-known to be commonplace in complex multi-national development



23 EU member states are contributing to the European Union Training Mission Mali (EUTM Mali) with military personnel.

and procurement projects, the need is even clearer. Future risks and technological developments may bring entirely new challenges, but they may also facilitate new answers. The CDP is to press ahead with the Headline Goal military capability requirements until 2025, highlighting trends in technology and capacity along the way, in order to serve as a basis for national decision-making. Through this process, the CDP is creating the conditions where collaboration in equipment programmes and R&D projects can be initiated at an early stage. Taking a long-term view should also strengthen the defence industry in Europe. Because the transparency of the military capability requirements will also help define which industrial capabilities need preserving or developing in the long-term. At best, the CDP will be able to give industry more planning stability for its own investment decisions, because the CDP draws upon an inventory of Member States' existing plans and programmes, and will therefore identify systematic opportunities for cooperation in national planning. In reality, this has not yet proven true. This is often because individual Member States go it alone to secure the remaining capacity of their national defence industries, which partly works against the intentions of the Headline Goal process.

Towards European Financial Flexibility

The Headline Goal process quickly identified the limitations of an approach that was limited to identifying military capabilities that were required in the short to medium-term, and the corresponding capability gaps. The lack of integration between military users and suppliers made this deficiency even more pronounced. It was therefore not a suitable tool for the systematic harmonization of national capability requirements or for broader cooperation in developing and deploying military capabilities at European level.

By extending the process and integrating it with the Capability Development Plan, and by creating the European Defence Agency, it was at least possible to lay the foundations for taking a longer-term perspective for planning. Purely theoretical links were therefore created between military users and suppliers at European level. As armaments have, until now, been excluded from the European single market – individual initiatives taken by the Commission and the EDA have done nothing to change this – the expected synergies and improvements in resource efficiency cannot be achieved within the desired time frame.

At a political level, the Member States now largely agree that there is a need for a stronger European alignment of capability and armaments planning. They hope that the Defence Agency's efforts to improve European coordination and cooperation in the provision of military capabilities will lead to greater financial flexibility. So far, such financial flexibility has only been achieved to a limited extent because, despite all the rhetoric, the efforts of Member States - who actually carry this process are lagging behind the willingness needed for Europeanization. The basic principle applies that new institutions are no substitute for – the thus far lacking – political willingness to implement mutually-agreed action plans.

Dying Hopes for Peace

Avi Primor

In March 2013, following his re-election, American President Barack Obama made his first official visit to Israel. During his first term he had not visited Israel and nearly every observer, including those in America, assumed that he would merely fly to Israel to fulfil an obligation and not because he had any special ambitions for the trip.

n his first term in office, Obama made a greater effort than any of his predecessors to secure Middle East peace. His failure to do so discouraged him in his pursuits in the

wanted to convince the Israeli population of his policies. Apparently, Obama came to the conclusion that he could not move the Israeli government in the direction of genu-



Israel's Prime Minister Benjamin Netanyahu meets with US President Barack Obama in Washington D.C. in September 2012.

Middle East, or so many thought. Nevertheless, Obama took on a great deal during his visit. First, he wanted to show how intent he was on the resumption of peace negotiations in the Middle East, and also he

<u>Author</u>

Avi Primor is a former Israeli ambassador and the Head of the Center for European Studies at the University of Tel Aviv. ine peace negotiations. He knew, however, that most of the Israeli population wanted to separate from the West Bank, even though fearing for their security they gave the right-leaning Netanyahu government a free reign in the matter.

Obama promised Israelis a strong American commitment to Israel's security within the framework of a potential peace agreement with the Palestinians. In fact, the US president succeeded in winning over most of the Israelis who had been sceptical of him. After his visit, he sent Secretary of State John Kerry, a long-standing firm friend and supporter of Israel, to the Middle East to urge Israeli and Palestinian adversaries to take up American-sponsored peace negotiations. He gave himself nine months to succeed.

Once this period expired, however, Kerry was forced to announce his failure, laying the blame squarely on the Israelis. Kerry's view, and he said this openly on television, was that Israel had failed to respect its commitment to negotiations, resulting in the failure of the peace effort. In public he waved his arms in the air and said that Israel had blown up the negotiations, and that everything had gone "poof." Afterward, the Americans took their time to rethink the negotiations.

After the Failure of Negotiations

Following intense Hamas rocket attacks on Israel, the Gaza War broke out. Israel returned fire, reluctantly at first, and enjoyed the support of most Western governments. During the war, the Palestinian president in Ramallah, Mahmoud Abbas, revealed himself as a moderate and therefore as a potential negotiation partner for Israel, despite his entering into a technocratic government with Hamas, which Israel angrily rejected. Even Netanyahu finally found words of praise for Abbas.

If the Americans had now created new hope, they were reluctant to involve themselves in the conflict again after Israel's repeated, provocative announcements of large-scale settlement construction in the Palestinian territories.

Diplomatic efforts are now deadlocked, which in September led the Palestinian president to deliver an aggressive speech at the United Nations General Assembly in New York. His remarks outraged Israelis because he accused Israel of genocide. The right-wing camp in Israel, which voiced particular outrage at the speech, was celebrating behind the scenes. Finally, they could assert that we had no potential Palestinian negotiation partners and, as a result, new negotiations would be impossible. The status quo would remain unchanged. That did not mean that everything would be put on ice, however. To the contrary, massive settlements would continue to be built on Palestinian soil.

Netanyahu, who spoke just a couple of days after Abbas in New York, used his speech not only to attack Mahmoud Abbas, but also to paint for the world — and especially for Israelis — a dismal picture of the Middle East, in which Israel could only follow one policy: defence. There was no talk of peace negotiations.

What does the Israeli **Government want?**

But what is the Israeli policy, and what does the Israeli government want? Behind the façade of dovish lip service, the fact is that powerful elements within the Israeli government are carrying out an energetic settlement policy in the Palestinian territories. Their goal is a gradual annexation of the West Bank, either openly or surreptitiously. The two-state solution that Netanyahu announced in 2009 is increasingly looking like hollow rhetoric articulated under American pressure. Of course, honest negotiations cannot take place under such circumstances. Obviously, a policy of annexation will satisfy neither the Palestinians nor the Arab world, nor the rest of the world. The question is whether such a policy is acceptable to Israelis. As has already been stated, most Israelis are convinced that they should sep-

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arate from the West Bank. Among other things, they hold this view because they understand that annexing the West Bank leaves them with no choice but to provide the annexed Palestinians with Israeli citizenship.

Today, some 8.5 million citizens live in Israel, of which some 1.5 million are Palestinians, most of them Muslims. They are referred to as Israeli Arabs. Annexation of the population of the West Bank would push the number of Palestinians in Israel to 4 million. Due to the rapid demographic development of the Palestinians, they would quickly become the majority of Israelis, which would put them in a position to democratically eliminate the Jewish state in the Knesset in Jerusalem. This is a reality not lost on the political right in Israel, which is already working out a range of "solutions." A minority of the right-wing camp proposes deporting the Palestinians or creating a kind of apartheid system, which of course would not carry that name. But even the majority of the right-wing and right-wing extremists understand that such solutions are impracticable. Some of the Orthodox try to convince themselves that God will solve the problem, but not everyone in the right-wing is convinced.

Therefore, the political right is working behind the scenes to find "bold and productive" solutions. For example, they are contemplating the Turkish model, in which citizens living abroad would have the right to vote in their home country. Worldwide, more than 2 million people outside Israel hold Israeli passports. Many of these people have these passports as a result of the Israeli right of return, without ever having been Israeli citizens. They came to Israel because, as Jews or people claiming to be Jews, they were able to attain Israeli citizenship almost automatically. However, as soon as they got hold of the desired passport, many of them left the country again. On the other hand, there are many native Israelis who have not lived in their homeland for years or even decades, and great many of them support the Israeli right as a show of patriotism. But if these expatriates are not enough to secure a Jewish — or ideally a right-wing Jewish — majority in parliamentary elections, these people with their overactive imaginations envisage offering every Jew in the world an Israeli passport so that they can vote in parliamentary elections in Jerusalem. The right wing camp in Israel believes that even Jews without Israeli passports are more likely to be aligned with the Israeli right-wing nationalist ideol-

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ogy. With such a policy in place, annexed Palestinians could never achieve a majority. Whether such ideas are in fact constructive is a question people have to answer for themselves.

What should come next?

The question is: what will actually come next? This much is clear: that the Israeli and Palestinian governments are not ready for a peace process. Nothing can be expected of them. Only American pressure can push the two sides in the right direction, since both sides are totally dependent on the USA. Nevertheless, one has to conclude that the Americans, even though they could, have almost never put pressure on the adversaries, but rather have always been content to play the role of mediator. the President and Commander-in-Chief of the Armed Forces, for another two years. In the Middle East, he can apply pressure to all of the parties and bring them to the table, even as a lame-duck president in America. Many American presidents have saved their most far-reaching initiatives until the end of their second term of office. Will Obama, who has always been so intent upon peace in the Middle East, also be such a president, who in the final two years of office will surprise us with bold initiatives? Indeed, following the November midterms, he will never again be confronted with elections and thus have more freedom of action.

I know of no America-watcher in Israel, nor of any observer of the Middle East in America who believes this will happen. The conventional wisdom is that Obama, weakened by November's severe losses



The Gaza War has put an end to talks between Israelis and Palestinians for the time being.

That is why Obama, who long before he was ever voted president believed that Middle East peace was in the American interest, saw it as his duty to foster peace. But he has always felt that his hands were bound by domestic politics. Despite the Democrats' devastating losses in the midterm elections in November, Obama still occupies America's highest office, that of and already looking worn out, will offer no new initiatives. I do not know if this is true, and I do not think anyone can really know. But what if all of the pundits are right and nothing happens for the next two years? Settlement construction, which is continuing at a breakneck pace in the West Bank, is creating a situation in which a two-state solution is gradually looking less and less practicable. That means that without an American initiative we are sliding ever closer to an official or unofficial annexation of the West Bank -- to put it another way, toward a single-state solution. For the Palestinians, this will be catastrophic in the short to medium term. With or without Israeli citizenship, Palestinians will in fact not enjoy equal rights with Israelis. In the long term, however, this will be a catastrophe for Israelis because a Palestinian majority will dash the 2000 year old dream of a Jewish state.

What can the Europeans do?

Does this mean that the world should give up hope of peace in the Middle East? This question is particularly fraught for the Europeans who, like the Americans, claim that peace in the Middle East is in Europe's interest. I believe that Europeans can do a great deal to give peace a chance in the Middle East. They could provide backing to their weakened and discouraged American partners. It is not impossible to encourage Obama. Europeans simply need to be prepared to make a contribution to the American effort. What is clear is that the Europeans are in no position to force a peace process in the Middle East. They simply do not have the leverage. However, they can support the Americans by promising to lend a hand in the peace efforts.

What's at stake? To win over the majority of Israelis, Obama would have to promise a significant American contribution to their security. The Ramallah Palestinians are ready to accept a demilitarised Palestinian state and tolerate international troops on their soil which would guarantee Israel's security following the withdrawal of Israeli troops from the West Bank. In view of their domestic problems, Americans cannot be expected to shoulder such an effort alone. Here, the Europeans could offer critical help to Americans, and not necessarily in the form of European soldiers. Some countries have expressed an interest in making their armed forces available for such international ambitions. The question is who would stand behind these troops, who would define their mission and who would offer them political cover and funding. The Americans alone are not ready to do this. However, they may view this task differently in the face of effective and energetic European support.

So, dear Europeans, it is not enough to sit on the tribunal and cheer on the Americans. If it is true that Middle East peace is in the European interest, then Europe, too, must step down into the arena and play together with the Americans.

Viewpoint from **Paris**





Thomas Withington

Radicalisation Continues to Grip French Society

"Je suis Juif, je suis Musulman, je suis Flic, je suis Charlie!" (I am Jewish, I am Muslim, I am a Police Officer, I am Charlie) was the phrase adorning placards and shouted from the mouths of over one million people in Paris, and countless others around the world, on Sunday 11 January. They had come together to commemorate the 17 people who lost their lives in a series of gun attacks in and around the French capital from 7th January which saw the offices of the French satirical cartoon weekly magazine Charlie Hebdo and a Kosher supermarket being targeted over a three-day period.

These latest attacks invariably place a sharp focus on France's domestic security and strategic interests. President François Hollande has increased the deployment of French troops in Muslim countries. In January 2012, French forces were deployed to the war-torn West African country of Mali to repulse territorial gains made by Islamist insurgents who had occupied northern parts of the country. In addition, the Armée de l'Air (French Air Force) has commenced air strikes, as of 2014, against Islamic State of Iraq and Syria targets in Iraq.

The Charlie Hebdo cartoons, plus the interventions in Iraq and Mali, have been cynically exploited by some militant Islamist activists in France to convince elements of the Muslim population that Paris is involved in a war against Islam. At the same time, as many as 1,000 French citizens may have arrived in Syria as volunteers to fight against the regime of President Bashir al-Assad. French foreign policy and the Syrian civil war are not the only triggers encouraging some militant Islamists to turn towards violence in France. Urban deprivation in so-called banlieue (suburb) areas which feature tower-block estates plus high levels of crime and unemployment, where many Muslim communities reside, does not help matters. Such areas provide fertile recruiting ground for disaffected young people looking for easy solutions to complex problems, as do prisons in France where radicalisation is also thought to occur.

Thus President Hollande faces two distinct, but related, political challenges: France remains a country at war. Its continuing military presence over Iraq and in West Africa will be exploited by cynical voices within France's Muslim community who use French military activity in this areas to convince young, impressionable minds that the country is engaged in a war against Islam. This has an added impact in France where the legacy of the country's involvement in the Algerian war of independence during the late 1950s continues to cast a shadow.

French foreign policy and conditions in the suburbs form a combustible mix which can be used for radicalisation. Paris has little choice but to 'stay the course' in the Middle East and West Africa. Nevertheless, by tackling the conditions in the banlieues, working to reduce unemployment and improving education and living standard, and clamping down on extremism in prisons, Hollande's government could make some important strides towards reducing some of the causes of radicalisation which continue to grip French society. That said, such policies are expensive, and at a time when the French economy remains in the doldrums could prove to be a hard sell with voters.

Looking for a "Transeurasian"

Mark Hauptmann

Since the Russian annexation of Crimea a discussion about a new Cold War has been on the rise again. Doubtless, recent events have given cause for concern, but it is very unlikely that Russia will return to its former strength. When looking for an upcoming superpower, China comes to mind first.



Mark Hauptmann MP (CDU)

n 2013, the People's Republic of China became the world's largest trade market and in 2014 it claimed the title as the world's largest economy. With the successful landing of the unmanned aerospace probe Chang E 3 and the maiden voyage of the first Chinese aircraft carrier to the South China Sea in late 2013, the Middle Kingdom has underlined its ambition of becoming a global leader.

Not only China but also its neighbours have undergone rapid social and economic de-

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Mark Hauptmann, MP (Deutscher Bundestag) is a member of the Committee on Economic an Energy Affairs, deputy member of the Committee on Foreign Affairs, deputy member of the Foreign Affairs Subcommittee on Civil Crisis Prevention and Networked Security and deputy member of the NATO Parliamentary Assembly. velopment, enhancing the importance of the Asia-Pacific region for the rest of the world. The forecasted prosperous future of these emerging countries is the result of steady growth and extraordinarily dynamic development over the past few years. Today, the 21 member states of APEC (Asia-Pacific Economic Cooperation) represent about 40 percent of the global population, 44 percent of global trade, and 57 percent of the world's gross domestic product. By including other Asian countries in this statistic (e.g. India), the wider Asia-Pacific region is home to around 4.1 billion people, representing about 58 percent of the global population. Today, the three largest economies in the world (China, USA, and Japan) are all located in the Pacific Area.

This development leads to a realignment of the geopolitical power structure within the international system. After President Obama took office, his administration reacted to the changes. The new "pivot" to the Asia-Pacific marks a reorientation of US foreign policy, announcing the beginning of a "Pacific century". In order to avoid the diminution of its own influence, the European Union is challenged more than ever to act in unity and to focus on its interests in the Asia-Pacific region.

This is a prerequisite to ensure the sustainability of a trilateral relationship between North America, Asia and Europe. Thus, a new type of politician is needed to promote European interests in this geopolitical system: the Transeurasian.

Strategic Change in the US

Setting a new strategic orientation necessarily requires an analysis of the international system as well as a re-evaluation of strategic priorities and goals. This applies especially to the United States, the only global superpower. With US forces retreating from Iraq and gradually leaving Afghanistan, the US is left with a broad range of options allowing for a reorientation of its foreign policy. For too long, US foreign policy was disproportionally orientated towards the Gulf region and Central Asia. With China increasingly challenging the Pax Americana in the Pacific region, the US was obliged to rethink its role as the supreme Pacific power.

Under the Nixon-Kissinger doctrine at the beginning of the 1970s, American troops in the Pacific were reduced, allocating a more independent and important role to America's Asian allies. Right after his inauguration in 2009, President Obama reinstated a strong US commitment to the Pacific region with a new US/Asia strategy. The pendulum of American foreign policy, after years of focusing on other regions (Middle East) and policy modification (Counter Terrorism Strategy), swung back to the Asia-Pacific. American foreign, defence and economic policies towards Asia are back to being a top priority for Washington in post-Iraq and post-Afghanistan times.

According to American think tanks, the Obama administration has succeeded in drafting and implementing a new Asia strategy which adequately addresses the challenges and dynamic developments of the Pacific region. In 2011, Barack Obama became the first American President to participate in an East Asia Summit (EAS). This diplomatic initiative paid off: during a visit in June 2013, the new Chinese President Xi Jingling showed a willingness to engage in closer dialogue and stronger bilateral cooperation with the United States.

The US and the Establishment of the Trans-Pacific Partnership (TPP)

In the light of the still-noticeable consequences of the financial and economic crises of 2008 in the EU and the US, Americans and Europeans look to the East for new markets. Asian countries, too, have a lot to gain from strong economic ties to the EU and the US. In order to promote the transpacific exchange of commodities, since 2009 the Obama government has aimed at achieving a free trade zone for the Pacific nations. After numerous rounds of negotiation in 2010, the US underlined its interest in joining the TPP (Trans-Pacific Partnership) during the 2011 APEC summit in Hawaii. Established in 2005, the TPP established a free trade zone between Chile, New Zealand, Singapore and Brunei and discussions are in hand with nine more potential partner nations.

As an interim result, four essential and substantial points have been defined so far. First, comprehensive market access with repealed tariffs and trade barriers would allow goods and services as well as general trade and investment to flow without restriction between the associated States. An agreement on industrial, agricultural and textile trade and the enactment of standard rules for the protection of intellectual property play a key role in securing a positive outcome. Second, TPP members aim for a stronger interregional integration of production and distribution chains. The underlying assumption of this measure is an expected increase in competitiveness on world markets for all participating states. Third, in addition to current APEC agreements, trading regulations should be harmonised further by taking the problems of small- and medium-sized companies into consideration. Subsequent market liberalisation will be required by all signees. Fourth, trade and investment in the fields of internet, economy and environmentally-friendly technology should be promoted to a greater extent. In conclusion, the States agreed on the flexible incorporation of new topics, issues and even new members.

After years of preparation, the Member States have shown a clear intergovernmental commitment to multilateral cooperation by signing up to a contract setting an institutional framework for TPP. The first important step to a trans-Pacific free trade zone has been made. The future will prove the competitiveness and efficiency of the agreements as they are reached.

Conflict Lines with China

The establishment of TPP is, however, also intended to establish an economic bloc without the involvement of the People's Republic of China. Having secured the position of largest economy in the world in 2014, China's rapid development over the last 30 years is a success story. This comes as a reminder to the US as well as to Japan that they will face growing competition and new economic rivals in the 21st century. From the viewpoint of the G-20 nations, China's rise is not always based on fair economic principles. The central government's refusal to re-evaluate the Chinese currency, the lack of legal compliance concerning the protection of intellectual property, and the general disappointment



Liaoning (16) is the first aircraft carrier commissioned by the People's Liberation Army Navy (PLAN).

about one-sided Chinese trading-policies led the United States to actively alter its economic strategies in the Pacific. Thus, the US establishing a free trade zone with Japan and other TPP states is not only intended as an economic measure but also a calculated demarcation of a Chinese economic supremacy in Asia.

From a security perspective, China faces a determined American containment policy.



The Obama administration has succeeded in drafting and implementing a new Asia strategy.

US decisions to increase its troop presence in Australia to 2,500 by 2016, to send F-16 fighter jets to Indonesia, and to extend military cooperation with its bilateral allies intensified China's concerns about strong American security involvement in the region. Furthermore, the US Congress continues to support the delivery of F-16 fighter jets to Taiwan, a policy measure that strains the diplomatic relationship between the two Great Powers even further. Half of the U.S. Navy is based on the Pacific Rim today. This American re-evaluation of security policies comes as a reaction to the ongoing military armament of China and increasing regional conflict lines. The complicated nature of US/Chinese relations on the international level, acting as allies on the one hand, and as brisk competitors on the other, has recently been highlighted by the dispute over the Senkaku Islands (in Chinese: Diaoyu) between Japan and China. US support for Japanese claims resulted in a recent show of strength between the China and the United States.

As a reaction to American and Japanese flights into the airspace above the Senkaku Islands, the Chinese government responded with the deployment of fighter jets and threatened the deployment of an aircraft carrier to the South China Sea. Through that demonstration of intent the People's Republic tried to repress Japanese and US influence in the region.

Less powerful Pacific states, in terms of military capabilities, like the Philippines and Vietnam prefer a multilateral strategy of conflict resolution with the involvement of the US. Here, the United States is still seen as a force for security and stability. By reempowering the existing strong bilateral American alliances with, for example, Japan, South Korea, and Australia, America's realistic goal of restraining Chinese power in the Pacific becomes more and more apparent.

Old Europe and New Asia

In the past, globalisation and regionalisation have often been viewed as opposing global tendencies. Yet, the current situation in the Pacific depicts these phenomena not as opposing developments but as two sides of the same coin.

On the one hand, the establishment of TPP stands for a new form of inter-regionalisation. Until now, the EU, NAFTA, and ASEAN dominated trade relations in the region. Expanding the boundaries beyond established regional cooperation for the first time, TPP acts as a bridge and creates a new economic area. With Japan becoming a member of the TPP, a new economic market emerges – a market surpassing the European domestic market by 40 percent.



The port of Shanghai: China is the second most important trading partner for the EU.

late 2014 marks a historical breakthrough for a reduction of trade barriers and agricultural subventions on a global scale. This agreement could be interpreted as a clear commitment to implementing at least parts of the DOHA-development agenda (originally enacted in 2001). A unified European response to the establishment of TPP, however, is still missing. For now the EU is merely engaged in cooperation with Pacific countries for example through the ASEAN conclude the ongoing negotiations about a bilateral free trade agreement in 2015. This could mark the next step towards stronger inter-regionalisation between the EU and the Asia-Pacific. Also, further liberalisation in regard to trade relations between the EU and Taiwan is frequently mentioned, although specific terms of implementation are nowhere to be seen. Simultaneously, voices arguing for a free trade agreement between the European Union and the Peo-



Coordinating the 28 Member States of the EU in matters of foreign affairs constitutes a challenge

On the other hand, TPP could function as a catalyst for a general increase of globalisation. The reduction of trade barriers across the Pacific region would benefit the economies of participating nations while enhancing their competitiveness on the global market. Without any doubt, these developments will have a massive impact on Europe, making it necessary for the EU to pay close attention to emerging opportunities and risks.

Despite the persistent challenges arising from the 2008 debt and financial crisis, the EU cannot afford to lose sight of the ongoing political and economic developments in the Asia-Pacific region. China remains the second most important trading partner for the EU. The agreed "Bali Package" of Regional Forum and the Council for Security Cooperation in Asia-Pacific. The idea of stronger and further-institutionalized economic ties between Europe and Asia is not new: in 1996 the first ASEM-Dialogue (Asia Europe Meeting) took place in Bangkok, Thailand. To emphasize the potential of this forum, it should be noted that the majority of the ASEM members belong to the G-20 nations. This forum could be the basis for a more deeply integrated, institutionalized partnership between the European Union and Asia, similar to the TPP. By now, bilateral agreements, just like the establishment of a free trade zone between the EU and South Korea in mid-2011, should pave the way in that direction. In addition, the EU and Japan have emphasized their will to

ple's Republic of China are growing ever louder. Many experts and political advisers argue that such a project is not practicable, at least not as long as an agreement has been reached over the Transatlantic Trade and Investment Partnership (TTIP) between the European Union and the United States. The general idea of intensified transatlantic economic cooperation and strong transatlantic ties still remains a key issue of German and EU foreign policy.

A significant challenge for any transeurasian relationship continues to be the legitimacy and the reputation of the EU. On an international scale, the European Union keeps struggling to be recognized as a unified actor in all issues concerning foreign affairs. This dilemma was vividly exemplified when the new Chinese Premier Li Kegiang went on his first official trip abroad. In May 2013, he visited Germany and met with Chancellor Merkel while Catherine Ashton, the High Representative of the EU at the time, had to fly to China herself in order to meet the new leadership. This highlights a wellknown weakness of the European Union: coordinating the 28 Member States in matters of foreign affairs is seldom an easy task. Nonetheless, without common ground. it will get harder and harder for the EU to exercise any great influence on a global scale - especially when demographics are not very favourable for the EU. Having a share of only 8 percent of the global population (for example, Germany alone has a mere 0.8% of the global population), European leverage is steadily shrinking. Reinforcing EU-Asia relations shaped by transeurasian politicians in order to counter the loss of EU

influence is essential and inevitable. Current adjustments to the global order do not lead to a weakening of the transatlantic relationship. In fact, the changing global situation rather comes as a challenge for implementing even greater cooperation between the European Union and the United States, since the strategic balance of power at the international level is at stake. Foreign affairs do not win elections at home. Taken to heart by Asian and European politicians in equal measure, negotiations for stronger economic cooperation have been lacklustre for the longest time. Ongoing globalisation processes and further global interdependencies make it harder for both sides to maintain this mutual lack of interest. The issues on the table are plenty, covering all geopolitical and economic tendencies of a multipolar world with interdependencies between Asia, Europe and the United States.

Conclusion

Under the Obama administration the United States redefined its political strategy in Asia, looking to strengthen relations with old friends as well as to make new allies in the Asia-Pacific. Reinforcing bilateral military alliances in the Pacific, US security strategy aims at containing the People's Republic of China. Contrary to acting bilaterally, the establishment of an inter-regional trans-pacific partnership (TTP) as an essentially multilateral dialogue forum is quite new for US foreign relations.

The race for hegemony in the Pacific region has just begun. With TPP, the US tries to shape the regional economic structure, strongly relying on already existing free trade agreements, for example with Japan and South Korea. This framework is designed to offer the Pacific states an alternative to a regional Chinese hegemony. However, the original aim to implement TPP by the end of 2012 has utterly failed and a final agreement is far from being ready for ratification let alone implementation. Since China has also intensified its efforts to exercise more power over its neighbours, the majority of the Pacific countries welcomed stronger U.S. involvement. As a result, the Pacific states intensified close cooperation, preparing the ground for a 'Pacific century'. These developments generate a multitude of challenges for the European Union. The significance of the historical transatlantic partnership between the United States and Europe plays a diminishing role in comparison with the ever-growing political and economic importance of Asia. In its actual form, this special relationship will not be a given that Europe can count on forever. Doubtlessly, the EU needs to establish closer ties with Asia while reinforcing its strong relations with the US. Europe has the economic resources, social cohesion and political alignment to achieve this. What is still lacking is a clear vision of Europe's position in the interdependent world of the future. Besides established and important Transatlanticists, there is also the demand for a new type of politician in the 21st century the Transeurasian.



Danish Dynamite

Thomas Bauer

Denmark is one of the founding members of NATO. In order to meet its obligations to the Alliance, the country has continued to modernise over the past ten years, despite tight budgetary constraints. However, achieving the right balance between national defence and global commitments presents a considerable challenge for Copenhagen.

rom a security policy perspective, Denmark is something of a special case, both in NATO and the European Union. This is due to the country's particular geographical features and also its specific political characteristics. The Danish heartland, consisting of a section of northern European mainland (Jutland) and over 400 surrounding islands, covers an area of about 43,000 square kilometres. Denmark is one of the smaller countries in Europe, comparable in size to the Netherlands (41,500 km2) and Estonia (45,000 km2). With 5.6 million inhabitants, it has a population density of 128 inhabitants per km2, which is similar to that of Poland or the Czech Republic. In addition to this core area, the territory of this parliamentary monarchy also includes the Faroe Islands and Greenland. Both the overseas territories have their own flag and their own official language. Although the Faroe Islands and Greenland also belong to NATO, they

are not members of the European Union (EU). However, Denmark joined the EU back in 1973.

At over \$330 billion, Denmark's gross domestic product (GDP) is quite remarkable, and it is one of the most competitive countries in the world. Denmark's GDP per capita places it - alongside Sweden and Norway - in the top 10, compared with other countries worldwide. At the same time, the country has an extremely low public debt. However, Denmark has also felt the effects of the global economic crisis, which has impacted its defence budget. With its stagnating budget, the country - like many others in the West - is finding it hard to meet the increasing demands on its armed forces in terms of operational readiness and interoperability. Since 2010, the defence budget has stood at around \$4.2 billion, which equates to roughly 1.4% of GDP. By way of comparison, German defence spending also equates to 1.4% of GDP.



Christianborg Palace, the location of the Danish Parliament, the Folketing

A Difficult Fresh Start

Strategic security policy in Denmark was based on rebuilding the Danish armed forces following the country's liberation from German occupation at the end of the Second World War, and on the policy of neutrality that it has pursued since the Napoleonic wars. Denmark used a USbacked programme to support its military reconstruction, to help the country quickly meet the requirements of the North Atlantic Alliance desired by Washington. It helped Denmark to become one of the twelve founding members of NATO.on 4 April 1949. One peculiarity of Denmark's relations with the European Union is that, although the country has been a member of the EU since 1973, it has opted out of the Common Security and Defence Policy (CSDP). So the Danish armed forces are not part of the Battlegroup Concept. EU Battlegroups are multinational rapid response forces that can be deployed on operations related to European security and defence policy issues. However, Denmark is part of the Nordic Defence Cooperation (NOR-DEFCO), alongside Finland, Iceland, Norway and Sweden. The Cooperation was officially founded on 4 November 2009, uniting a number of predecessor previous parallel cooperative arrangements in one treaty. Participation in NORDEFCO is voluntary without binding commitments. The various countries decide the nature and scope of their involvement themselves. Within the NORDEFCO structure, several committees work on designing and implementing joint actions for developing and promoting military capabilities, training, and education and on joint strategy development. However, an internal report from 2013 did not reflect well on the participating countries. Most of the (over) ambitious goals have not yet been achieved. Military service is compulsory in Denmark.

Military service is compulsory in Denmark. All able men must serve for a period of four months. The country needs 6,000 men to perform military service each year, and there are enough volunteers that no Dane has to be involuntarily conscripted. The strategic basis for the current security-related policy of building and deploying Danish armed forces is the 1993 Defence Act. It established the basis for Danish troops to participate in multinational operations. It regulates the transfer of authority from the Chief of Defence to the commanders of equivalent multinational units under UN or NATO command. A final amendment to the Defence Act followed in 2001, which further specified scenarios where the Danish armed forces could be deployed. Another key element in building up and equipping the military are Defence Agreements, extending over several years, which are adopted by the incumbent government. They govern budgetary issues and procurearmoured infantry fighting vehicles. Denmark also has an impressive number – in excess of 400 – of M113 armoured vehicles, in a range of variants, for transport and support functions on deployment. In addition to a handful of type M109A1 artillery systems, the land forces also have Fennec AS550 and EH 101 Merlin helicopters. The standard issue firearm for soldiers is the Colt Canada C7 in different variants. Produced in Canada, it is a variant of the US Armalite AR-15. When it comes to machine



The Leopard 2A5DK is the main weapon system of the Danish land forces.

ment projects. The most recent Defence Agreement covers the period from 2013 to 2017 and envisages substantial cuts to the country's defence budget. Nearly 400 million US dollars must be saved in each of the years 2015 to 2017.

Military Structure

The Danish land forces - numbering around 10,500 soldiers - form the bulk of the armed forces. The next largest elements of the military are the naval and air forces, each comprising around 3,400 servicemen. In addition to the three armed elements of the forces, there are approximately 8,200 support staff. The total strength of the Danish armed forces is therefore about 25,500 men. At the turn of the millennium, the total strength was around 30,000. Denmark also has Home Guard units, which comprise around 56,000 volunteers. In addition to protecting the Danish territory, this last group is also increasingly deployed on Danish foreign missions, such as in Kosovo or Afghanistan.

The Leopard 2A5DK is the main weapon used by Danish land forces, and is largely identical to the Leopard 2A6. They also use type CV9035 Mk III and Piranha III guns, the Danish armed forces rely on the Colt Automatic Rifle, the M2 Browning and the MG3. The FN Herstal Minimi is set to replace the Colt Automatic Rifle in future. Denmark's coastline is over 7,300 kilometres long and the country is strategically located between the North Sea and the Baltic. During the Cold War, Danish naval forces therefore focussed predominantly on protecting the coastal waters from an invasion by Warsaw Pact troops. Their operations chiefly relied upon minelayers, torpedo boats and Søløven class patrol boats. Today, around 125,000 ships pass through the three Danish straits (Great Belt, Little Belt and Øresund) each year, en route between the North Sea and the Baltic Sea. With the end of the Cold War, the naval forces focused on protecting homeland territory became a navy operating at a global level. This meant fewer, but larger, ships. The Danish Navy is now organised into two squadrons, in which eleven large ships operate. In addition to Iver Huitfeldt class anti-aircraft frigates; there are also Absalon and Thetis class ships. The ships were all produced in Denmark by the Svendborg Shipyard and Odense Steel Shipyard. Both shipyards have now been closed due to lack of orders and inefficiency.

The Danish Air Force is an independent branch of the armed services, which was formed by merging the airborne units of the Army and Navy after World War II. The first aircraft Denmark received were Supermarine Spitfires from England. As part of US military aid, the Danish Air Force took delivery of type F-84E and F-84G Thunderjets in the 1950s and 1960s. In the 1970s, type F-104 Starfighter and F-100 Super Sabre aircraft were also funded by the United States. In January 1980, along with Belgium, the Netherlands, and Norway, Denmark announced that it was going to introduce F-16 aircraft from General Dynamics, and they continue to form the backbone of the Danish Air Force today. Some of the aircraft were built by SABCA in Belgium and the rest were produced by Fokker in the Netherlands; others came from U.S. Air Force stock.

Over the last ten years, despite relatively limited capacity, Copenhagen has repeatedly participated in international missions under the auspices of NATO - in the Balkans, Afghanistan, and securing the no-fly zone over Libya in the fight against the Gaddafi regime. Since September 2014, Danish F-16 aircraft have also been used in strikes on Islamic State (IS) militant posts in Iraq, although not in Syria. For air transportation, Denmark operates C-130 Hercules and CL-604 Challenger aircraft. Denmark had committed to participating in the joint procurement of C-17 Globemaster III aircraft to create a shared NATO air transportation capacity. It later withdrew from the arrangement.

Fighter Replacement Programme (FRP)

From an early stage, Denmark considered procuring aircraft from the US Joint Strike Fighter Programme (JSF) to use as sixthgeneration fighter jets for its air force. In 2002, the Danish government signed an agreement with Washington, making Denmark a Level 3 partner, like Australia, Canada, Norway and Turkey. To date, Copenhagen has contributed 200 million US dollars to development costs for the F-35 Lightning II. The original plan was to procure up to 48 type F-35A aircraft to replace the Fighting Falcon.

The well-known delays and technological difficulties with the JSF programme, combined with the impact of the global financial and economic crisis meant that, in 2010, the programme to modernise the air force, which had been renamed the Fighter Replacement Programme (FRP) was suspended. In the meantime, two alternative candidates entered the running for the lucrative contract, but Dassault soon withdrew its Rafale from the process. The French were convinced that Denmark had long since made a decision about the procurement of the Joint Strike Fighter, and saw little sense in continuing with the bidding process. This assumption was underpinned by the fact that the ailing Danish defence industry had invested high hopes in the JSF programme, counting on it to secure elements of the work and additional orders for Denmark. Frank Bill, the Secretary General of the Danish Defence & Security Industries Association (DDSIA), has repeatedly stated his position in this regard, which is that any decision must be coupled with a high economic return for the Danish defence and aviation industry.

In the spring of 2013, the FRP was resumed and, consequently, so was the work of the Danish Industry Fighter Aircraft Teams (founded in 2008), which will assess possible partnerships and commissions in the contract awards process. In the spring of 2014, the remaining candidates - namely Saab with the Gripen JAS 39E/F, Boeing with the F/A-18E/F Super Hornet, and Eurofighter and Lockheed Martin with the F-35A – were asked to submit their final offers. Shortly thereafter, Saab withdrew from the competition with similar concerns to Dassault. Copenhagen is expected to make a decision in mid-2015. The Fighter Replacement Programme aims to supply and put the first of the new aircraft into service from the year 2020. Overall, the programme is expected to deliver between 24 and 30 aircraft at a total cost of between \$3.8 and \$5.5 billion. The possibility that Danish companies might be awarded contracts is one key consideration in the



Denmark's original plan suggested the procurement of up to 48 type F-35A aircraft to replace the Fighting Falcon (shown here).

decision-making process. Political factors are another. The USA is a key partner for Denmark in securing its own interests in the Arctic Circle.

Focus on the Arctic Circle

Denmark's special efforts to continue modernising its air force are occurring at a time when the Western world is watching with growing concern as Russia flexes its military muscle in Ukraine and the Arctic. As Denmark is also responsible for the defence of Greenland, and the receding ice is making the region more easily accessible, Copenhagen is seeking to expand its presence on the ground. Every month, Danish F-16 combat aircraft make patrol flights over Greenland and the adjacent sea areas to protect local fisheries. The Danish transport aircraft also supply the Sirius sledge patrols in the Northern and North-Eastern parts of the island. In August 2014, for the first time, three F-16 aircraft were redeployed for several days to an airfield in the West of the island, in Kangerlussuag. Exercises lasting several weeks are planned for the future, involving up to eight combat aircraft being deployed to Greenland. These exercises and further reflections on strengthening the Danish Air Force presence in Greenland are intended to send a clear political signal that the country wishes to face up to its responsibilities in the Arctic. To that end, the existing C-130 transport aircraft are being refurbished and upgraded in order to cope with the extreme weather conditions, and the particular operational requirements, involved in supplying remote areas and monitoring extensive sea areas in the Denmark Strait between Greenland and Iceland

mawibo)

(Photo:

Conclusion

Like many other European countries, Denmark finds itself facing a growing number of assignments to achieve its security goals, in a difficult budgetary climate. The restructuring and procurement programmes for new equipment and weapons systems, which have already started, and which were established in previous Defence Agreements, have already yielded some positive early results, and have transformed the Danish military from an organisation focused purely on homeland defence into an armed force operating at a global level. However, limited capacities and the rising costs associated with modernisation represent a significant problem for maintaining operational readiness and promoting robust military capabilities. One solution would be to take the approach of merging national forces to build multinational capabilities, as has been done with NATO's Smart Defence concept and the pooling and sharing in the EU. However, by choosing to opt out of the CSDP, Denmark is preventing itself from achieving its full potential. In particular, the EU Battlegroup Concept would be able to promote the further integration of national forces and offer Denmark a docking station for the effective implementation of its own limited opportunities within the framework of serious multinational structures.



Sirius sledge patrol in Greenland

Danish Defence in a Time of Change

General Peter Bartram



Let me begin by expressing my gratitude for the opportunity to submit this article to the journal "European Security & Defence". I am pleased to share with your readers the status of the latest and historically substantial reorganisation of the Danish Defence command structure. Next, I shall outline the current international commitments in which the Danish Defence is involved. Finally, I will touch on the security development in the Arctic.

Reshaping the Danish Defence Command Structure

Since the end of the Cold War, the Danish Defence has been transforming from a traditional mobilisation force to modern forces ready to deploy at short notice. The transformation is a consequence of a changed security environment and proactive Danish foreign and security policies. Two political agreements from 2012 and 2014 continue the transformation process. In 2012, a broad majority of parties in the Danish Parliament adopted a new defence agreement which introduced a substantial streamlining of the armed forces. Gradually, the defence budget will be reduced by approximately 13 %, resulting in a 2.7 billion kroner cut by 2017. We implement the reduction while maintaining our operational capabilities for national and international operations. Despite the budget reductions, we also continue to invest in development and equipment. The level of investment is unchanged.

In order to meet the requirements of the new situation, major changes in our armed forces have been introduced. A number of units have merged in joint centres, organisational structures have been changed and garrisoning has been optimised. In addition to this, fundamental changes have been introduced in our Human Resource system, and in the way we educate our officers and non-commissioned officers. All personnel in the armed forces now apply for a position rather than receiving orders from a centralized HR agency as they were

<u>Author</u>

General Peter Bartram has been the Chief of Defence, Denmark, since 2012

used to. Recently the first officers have registered for the new staff-course accredited as a Master's degree alongside their regular jobs. The transformation of the armed forces will ensure our capacity to deploy multiple small or large contributions for short periods – as well as the capability to deploy at short notice. military command structure and in October 2014, Defence Command Denmark was abolished, and a new strategic military command was established under the name Joint Defence Command. With the introduction of the Joint Defence Command, we have removed one military command level. The previous subordinate operational



EH-101 helicopter in Afghanistan

In April 2014, the Government and almost all opposition parties in the Parliament put another political agreement into effect and introduced significant changes to organisation of the management and control of the Danish Armed Forces, where strategic planning, resource allocation, financial control and strategic HR management have been integrated and centralised in the Ministry of Defence. The organisational changes also included significant changes to the national commands – Army, Navy and Air Force services – are now integrated in the new Joint Defence Command together with Operations and Planning staffs, the Arctic Command and the new Special Operations Command.

In the new organisation, the Army, Navy and Air Force staffs, within the services, are responsible for the day to day development, preparation and generation of forces to national and international opera-

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Leopard 2 tank arriving in Camp Bastion in May 2014 as the last Danish combat unit deployed to Afghanistan.

tions. Subsequently, the Army, Navy and Air Force provide forces to the Joint Operations staff, responsible for the planning and execution of international and national operations. The Vice Chief of Defence and I along with staff elements - are responsible for providing military advice and strategic military defence planning, policy, prioritizing of resources and overall execution of military operations. We are based in Copenhagen and will be co-located with the Ministry of Defence reflecting the security environment and the need for close cooperation between the military and civilian leadership. The Army, Navy and Air Force staffs along with the Joint Operations Centre are located in Karup in the western part of Denmark, the Special Operations Command is based in Aalborg in the northern part of Denmark, and the Arctic Command is placed even further north – in Nuuk, Greenland.

Previously, Defence Command Denmark was the single point of contact for all defence related issues. The functional support agencies such as the Danish Logistic Organization, the Real Estate Organisation, and the Personnel Management Organisation were under my command. These supporting agencies are now placed under the Ministry of Defence. Maintenance of material and equipment, the Military Health Service and the Joint Military Academy continue to be under my command.

Summing up, it is important to stress that the operational needs of the Danish Defence will continue to shape defence support activities, and that I am responsible for advice on prioritising military necessities. These significant changes are implemented at the same time as our forces are deployed in missions around the globe and execute national operations in Danish territory.

Danish Defence in International Activities Now and in the Future

The Danish Defence has a long tradition of contributing to international operations, and Danish forces are represented widely in hot spots around the world.

Afghanistan

From 2015, Denmark's military contribution in Afghanistan operates within the NATO framework Resolute Support Mission. The development of the Danish military efforts follows the tracks laid in the recent years' integrated plans for the Danish forts in the northern part of Afghanistan and in Kabul. In the northern part of the country, Denmark assists with a helicopter unit which conducts medical evacuation, among executing other tasks. In Kabul, Denmark contributes by deploying advisers, instructors, a security unit, military police, nurses and staff officers. The Danish military efforts will be adjusted in the years to come in line with further developments of NATO plans.

The Significance of the Involvement in Afghanistan for the Danish Defence

In Afghanistan, Danish troops participated in the British-led Task Force Helmand, and here the units gained experience in working in multinational units. The significance of interoperability cannot be underestimated. Language skills, adaption of doctrines and the will to cooperate are essentials in multinational activities. Adaptation and the use of joint logistics, resupply chains and means of communication are likewise decisive when a small nation such as Denmark wants to partake in a greater framework in international activities. The involvement in Afghanistan has professionalised the Danish Defence from an organisation based on compulsory military service, centring on heavy armour defence of our territory, to an organization able to operate both outof-area and territorially. We still have compulsory military service for men, but the overwhelming majority of new personnel are now volunteers. The Danish Defence



F-16 takes part in the fight against ISIL.

commitment in Afghanistan. The Danish deployment of battle troops in Helmand has come to an end, and the Danish military contribution has been significantly reduced and focused, now aimed at training and counselling. Denmark concentrates its efhas also gained experience in participating in stability operations comprising significant civil-military cooperation, and we have gained experience from being involved in advisory and training activities. We now use this experience in Iraq.

Iraq

Like other nations, Denmark contributes in the fight against ISIL in Irag. To begin with, it was decided to deploy a C-130 transport aircraft to support the US-led operations in Irag. The aircraft operates alongside British units from a base in Cyprus. It carries equipment, weapons and personnel to support the Iragi, Kurdish and allied troops. In October, it was decided to deploy additional contributions to the fight against ISIL. One of these contributions is an F-16 detachment. The aircrafts function as both fighters and reconnaissance planes. In addition to this, Denmark has chosen to deploy two units to of the training personnel. One of these was deployed in November 2014 to train the Kurdish security forces in the northern part of Iraq in teamwork with British troops. The intention is that this unit will be deployed

between the German missile battery and Air Component Command in Ramstein.

Kosovo

Danish soldiers are still present in Kosovo. Currently, some of them work as guards in one of the large camps, while others work in the NATO headquarters. It looks as if our contribution will continue, but the constitution of it will change in line with the development of the operation and the situation.

Participation in Assurance Measures

Along with other situations, the crisis in the Ukraine shows that NATO is still strong and relevant, and that we must continue to strengthen our relations, and clearly signal that we are a strong alliance. Denmark actively participates in the efforts to support NATO membership nations, and the

UN

Denmark has a long tradition of supporting UN operations. At present, we contribute to UNTSO, UNMAC, UNMISS, MINUSMA and UNMIL. Our activities in UNMIL, Liberia, continue despite the current Ebola epidemic. At the time of writing, there are discussions concerning the Danish UN involvement in 2015-2016.

West Africa

The Danish government has decided to contribute to the fight against Ebola in West Africa. The Danish Defence has set up a Hercules C-130J aircraft with special containers for the transport of patients infected with Ebola. The aircraft is ready to evacuate Danish citizens and deployed personnel from West Africa. From mid-December 2014, Denmark has deployed a



Danish and British soldiers during the training of Kurdish security forces as part of Operation Shader

until the end of January 2015. The other unit was deployed mid-January 2015 to train Iraqi security forces in the western part of Iraq in cooperation with American troops. The mandate is in force for two years. Finally, we deploy up to twenty staff officers to the coalition headquarters in Iraq, Kuwait and Qatar. This mandate is in effect for one year.

Turkey

In Turkey, Danish forces contribute to the NATO operation ACTIVE FENCE, which is a standing NATO operation. As part of a standing agreement with NATO, Denmark deploys parts of a deployable communication and information system module in support of a German Patriot missile battery. We establish and maintain communication crisis in the Ukraine has led to an increased number of Danish troop deployments and Danish training activities, especially in the Baltic region. Accordingly, in 2014, Danish troops participated in ten different exercises as part of Assurance Measures. The training activities took place in Latvia, Lithuania and Poland, among other places. Denmark also conducted surveillance flights in the Baltic Sea region and performed Baltic Air Policing. In 2015, within the frames of Assurance Measures, Denmark will partake in sixteen different exercises with troops from all three services, we shall participate in Iceland Peacetime Preparedness Mission, and we will continue to conduct surveillance flights in the Baltic Sea region on a regular basis.

health team consisting of approximately 25 people. The intention is to have the team deployed until mid-2015. The health team is part of the staff at an Ebola treatment centre in the Port Loko disctrict in Sierra Leone. The Danish team works together with a similar Irish health team and with locals. An Irish NGO runs the treatment centre. The Danish Defence also supports US in strategic sea transport to West Africa. The sea transport is designated primarily for transportation of materiel for the UN mission UNMEER.

Counter-Piracy Operations

Denmark is one of the world's leading seafaring nations. That is why Denmark has a tradition of supporting and participating in the NATO counter-piracy operation, Operation Ocean Shield. In addition to this, Denmark also supports the US-led Coalition Maritime Forces under Combined Task Force 151 in the Indian Ocean. In the spring

The Arctic in the Future

Greenland and the Faroe Islands are part of the Danish Kingdom, thus the Kingdom of Denmark has weighty interests and responsibilities in the Arctic region.



HDMS Esbern Snare used as flagship by the commanding officer of the NATO Maritime Group 1

of 2014, NATO decided that Operation Ocean Shield was going to be adapted to the present situation by the Horn of Africa. As a consequence of the low level of piracy activities, the intent is to change the character of the operation so that it will focus not only on counter-piracy, but also cover more wide-ranging maritime security tasks in the region. However, the counter-piracy mandate will still be in force. To use the resources the best, force contributions will be deployed as needed. Denmark will still concentrate on counter-piracy activities, and the Danish government is soon going to launch an adjusted strategy. The first draft shows a level of ambition which will require the Danish Defence to deploy ships, aircrafts and staff officers to headquarters and to staffs in the joint counter-piracy efforts. What is new is that the strategy will cover not only East Africa, but also West Africa.

In 2014, the Danish Defence deployed a maritime contribution consisting of a force commander and a flagship in Operation Ocean Shield for half a year, and we had a surveillance aircraft deployed for a period of two months. We expect to deploy a contribution of ships and aircrafts also in 2015 to counter piracy. The present low level of piracy activity means that we have been able to carry out operations aimed at finding solutions to the maritime security problems on land in Somalia.

Climatic change in the Arctic has already led to increased geographic accessibility and resulted in increasing awareness of the right to extract natural resources, along with a generally increased commercial and scientific activity in the region. Accordingly, the capability of the Danish Defence to perform its tasks in the Arctic needs to be adjusted in order to meet this development. This includes both tasks associated with the assertion of sovereignty and the more civilian-related tasks, which the Danish Defence is either responsible for or supports other authorities in carrying out.

The strengthening of the efforts in the Arctic is an important part of the current Danish Defence Agreement. As such the Danish Defence is already in the process of building a new Arctic Patrol Vessel of the KNUD RASMUSSEN class and introducing the SEA HAWK helicopter as the new maritime helicopter to be operating from the Danish Navy's Arctic Patrol Ships of the THETIS class. To that end a comprehensive analysis of the Danish Ministry of Defence's future engagement in the Arctic is under preparation, and is expected to be concluded this year. The recommendations of the analysis will serve to inform national considerations on future enhancement of the Danish Armed Forces activities in the Arctic

In the Arctic, new geopolitics are developing. A main characteristic of the situation in the Arctic is that the institutional and practical frames for international cooperation are still under construction. At the same time, the number of nations and organisations interested in the Arctic region continue to grow.

Developments in Security Policy in the Arctic

The fact that the Kingdom of Denmark is situated in the very centre of the Arctic region brings about new opportunities but also challenges with regard to foreign affairs. We carry a great responsibility to participate in efforts to handle and secure a continued peaceful development in the region.

Traditionally, the Arctic has played a mili-



HDMS Ejnar Mikkelsen enforces Danish sovereignty in the Arctic.

tary-strategic role as an arena for mutual US – Russian nuclear deterrence. This is still the case, but it has limited direct influence on the geopolitical development caused by the current change in climate. The Arctic continues to be an area characterised by low tension in terms of security policy, and we focus on solving the emerging challenges by establishing and developing the best framework within which a productive international cooperation and a sustainable development can thrive.

However, there is still a regional political risk attached to the ongoing process of submitting demands to the UN Commission on the Limits of the Continental Shelf - and the subsequent recommendations by the commission. The process can potentially lead to bilateral tension between nations with overlapping claims as well as the legitimacy and competence of the commission can be questioned by states if the commission's decisions do not meet the interests of the respective nation. Consequently, a future political negotiation about the Arctic territory is at risk of being complemented by increased military presence in the Arctic. Additionally, the enforcement of civil economic activities in the Arctic risks leading to political disagreement. The terms of the expected widespread sailing in the Arctic region, as well as the adherence to

agreed offshore standards in the fragile Arctic environment, also represent areas that could lead to political disagreement. As all Arctic nations hold international law in high esteem, I expect that the geopolitical situation in the Arctic will continue to be characterised by cooperation instead of conflict. I also believe that the future frames for the Danish Defence in the Arctic will be characterised by our ability to conduct surveillance, be present and react in relation to a wide range of tasks. Primarily, this will happen in exercising national sovereignty and supporting the Arctic security, but also in conducting emergency tasks, thereby assisting social, economic and political developments in the region, along with managing our national interests in security policy.

Danish Defence in the Future

In the future, NATO will continue to be the cornerstone of Danish security and defence policies. Denmark will continue to maintain and develop relevant military capacities, able to solve a wide variety of tasks. As a pioneering country, Denmark will work for a continuous transformation of the Alliance and the military strengths of the membership nations, e.g. through the NATO Smart Defence initiative. Especially in the two latest decades, Denmark has deployed capacities in demanding international operations. This has brought about credible operational capacities on a high professional level, capable of deployment in a NATO framework and in coalitions. In the continuous development of the Danish Defence, it will still be crucial to focus on interoperability and the ability to "plug and play" with our partners.

To ensure that the Defence is ready to meet the new security challenges, several new initiatives are in progress. As an example Denmark will establish a Computer Network Operations capacity, obtaining the ability to carry out both defensive and offensive military operations in cyberspace. It has also been decided to strengthen our ability to deploy special forces, and the new Special Operations Command is expected to be fully established by 2017. Denmark will also contribute to NATO ballistic missile defence. In the years ahead, Denmark will have to make a number of decisions concerning procurement of new materiel and weapons: Fighter aircrafts, armoured personnel vehicles, artillery, communication and information systems, engineering and logistical materiel etc. These procurements are going to ensure that Denmark will remain able to contribute to multinational deployments and execute national tasks.

Protected Mobility



Defense Solutions for the Future

GENERAL DYNAMICS European Land Systems



The Danish Defence Industrial Base

Barbara Maria Herzog

Defence budget cuts on traditional markets and disruptive technologies are changing the international defence and security industry these days. However, the Danish defence and security industry is taking advantage from highly specialised production, competitiveness and lucrative national military materiel programmes.

Defence industries are multi-faceted; an extensive portfolio of products, long-term investments, strict legalisation and close interlinks with a constantly changing foreign and security policy. The Danish defence industry is not an exception, as it mainly consists of export-oriented subcontractors with a high level of specialisation and building on commercial and competitive premises.

Subcontracting and Niche Production

The Danish defence industry relies heavily on international cooperation with big prime contractors, and it is difficult to predict when a substantial order is materialising. Consequently, the annual turnover varies significantly and ranges from 350 to 500 million dollars per year in average which, compared to its Scandinavian neighbours, makes the Danish defence industry the smallest of the four. Denmark has approximately 450 companies with dual-use civilian products and services that are also suitable for applications in defence. One larger company, Terma, constitutes a national factor of influence with its sales of roughly 160 million dollars per year, for which reason Terma affects the sales figures of the whole industry in particular.

The Danish defence companies are highly specialised in their technology segments and the competition amid is therefore less adjoining. Their areas of production are typically focused on defence electronics,



Terma A/S is a major strategic supplier to the F-35 Lightning II (top).

Contact Information

FAD – Danish Defence and Security Industries Association, Part of Confederation of Danish Industry 1787 Copenhagen, Denmark Phone: +45 3377 3066 Email: fad@di.dk including software, command and control systems, surveillance and radar technology. Moreover, the Danish defence industry also produces hardware for different applications, including ammunition, ballistic protection, minesweeping equipment, systems and equipment for vehicles and maritime solutions.

Export is Vital

Approximately 80 percent of the sales of the Danish defence industry account for export. This is shared by 40-45 percent within the EU and the USA respectively. Accordingly, export to Western allies is essential to the industry.

In contrast to the larger part of the European defence industry, the Danish defence companies are fully privately owned and operated. This rather liberal context has resulted in positive outcomes on many accounts, but similarly poses a challenge, as many countries tend to protect their national, often state-owned defence industries.

In the big European countries, approximately 75 percent of the defence budgets are spent domestically. Regardless the pleading for a single market in the European Union many countries have not amended this to their defence industry due to national security concerns. This is possible because of Article 346 in the EU Treaty exempting the defence industry from normal procurement rules if national security interests are at stake. This is an impediment for the Danish defence companies' access to the major European markets.

The same problem arises when looking at the situation in the US. Although the American defence industry is by far the world's largest, only 4 percent of their sales is in export. Even though Danish defence companies are exempt from the US "Buy American" act due to an agreement between the Danish and the US Government the US market is extremely difficult to penetrate.

A third impediment on international growth is constituted by the requirement that Danish defence production and exports be strictly certified by the Danish Government through the "Act on War Material". This act, among other criteria, preclude business which oppose the national foreign and security policy, meaning that some non-EU/NATO markets are off limit for potential business opportunities.

A New Government Line

The late 1980's shift in Danish foreign policy into more active participation in international missions, especially in Afghanistan and Iraq, has triggered growth in the Danish defence industry. The involvement has directly fostered national ammunition



Hydrema is a leading supplier of mine clearing equipment and has delivered mine clearing vehicles all over the world.

production and MRO services through contracts with the Danish Armed Forces and additionally helps branding Danish defence products with the "combat proven" label. Danish politicians recently acknowledged the importance of maintaining and developing the national defence industrial base for reasons of national security. As a result, a more proactive relation between the Danish Government, Danish Armed Forces and the national defence industry was established. The latest initiative in this line is the Government's National Defence Industrial Strategy from 2014, which outlines focal points in the Danish defence industry and marks six strategic areas, the maintenance and development of which has been identified to be of national relevance, namely:

- A competitive international defence market
- Good framework conditions for defence industry
- Co-operation between the Ministry of Defence and Danish industry
- International cooperation concerning acquisitions and development
- Security of supply
- Industrial cooperation

What is Ahead?

On the domestic market, the Danish defence industry is set to reap prominently from the present modernisation programme in the Danish military. Although Danish companies will not be the prime contractors in any of

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these procurement efforts, industrial cooperation rules secure Danish companies a share, for which reason the coming years, without any doubt, will be lucrative for the Danish defence companies involved in the winning bids. The current modernisation programme, which is to be implemented by 2025, includes new fighters, naval helicopters, armoured personnel carriers and artillery systems valued at a total amount of around 7 billion dollars. At the international level, defence industries are challenged by two factors in the long-run. First of all, many years of budget cuts in Western defence budgets make the demand smaller and the competition even harder. Secondly, new players erupt in line with disruptive technologies, such as the 3D-printer, and make some areas of production less appealing. The international market, in other words, is getting more specialised, but from a Danish point of view, this is certainly not restraining. The Danish industry stands strong against future challenges with its highly specialised production and ability to adapt new conditions. It is not facing drastic structural changes, as the Danish companies are already small and agile, offer highly educated personnel with an international mind-set, high tech solutions, on-time delivery and are accustomed to strong, international competition.



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Defence Procurement in Denmark

Christian Brøndum

Procurement of new equipment for the Danish Army, Air Force and Navy has been subject to a major overhaul since 2014. The implementation of a new organisation has just begun, and will, when completed during 2015, leave Denmark with a defence acquisition and logistics organisation with civilian leadership, under direct control of the Ministry of Defence.

Responsibilities for the maintenance of military equipment have been separated, and are now controlled by the military leadership, while responsibility for acquisition and logistics is placed under the new civilian leadership. The Danish name for the organisation has been changed in order to reflect the changes but remains the same in English, namely Danish Defence Acquisition and Logistics Organisation (DALO).

DALO – Danish Defence Acquisition and Logistics Organisation

The total staff of DALO comprises about 2,500 employees, of which 1,900 are civilian and 600 military personnel. The staff now includes 300 employees in the defence organisation for information technology, supporting 21,000 PCs used by 17,000 employees across the Danish defence organisation, both in and outside Denmark.

The changes are the result of a political decision taken in April 2014. After a long and sometimes heated discussion between the present centre-left government and the opposition, the parties agreed to increase the share of civilian management staff in defence. Not only DALO is now under the command from the Ministry of Defence. The human resource organisation and other support organisations have a new management, too. The Chief of Defence, presently Army General Peter Bartram, is now only responsible for operations and for the

<u>Author</u>

Christian Brøndum is the Defence Correspondent of the Danish daily newspaper "Berlingske", published in Copenhagen. maintenance of equipment used by the Army, Air Force and Navy. Simultaneously, Danish defence spending is being reduced by 15 percent (€363 million)

New Hands at the Helm of DALO

Effective 01 March 2015 the Danish Defence Acquisition and Logistics Organisation (DALO) is headed by MajGen Niels Bundsgaard. Bundsgaard was born in Copenhagen, Denmark on 18 June 1957 and – as part of his military career - studied at the U.S. Army War College in Carlisle, Pennsylvania, following which he served as the Chief Materiel Acquisition Branch in the Danish Defence Command. After his promotion to Colonel in 2003 he served as the first Danish Commander in Irag. From 2004 he was involved in the realignment of Denmark's defence logistics system with the establishment of DALO.

Ongoing Procurement Efforts

Presently, DALO is involved in two major acquisition programmes. After a thorough process, including test campaigns in Denmark, DALO is studying the final offers from 5 bidders for armoured personnel carriers (APC). DALO will procure between 206 and 450 APCs, the number depending on the costs, and is considering both tracked and wheeled vehicles. The bids from BAE System Hägglunds, Nexter, General Dynamics European Land Systems (GDELS) and Flensburger Fahrzeugbau (FFG) have been shortlisted. The new APCs will replace the



He was promoted Major General in 2008, and his latest assignment was the position as Chief of the Danish Defence Personnel Organisation.

MajGen Bundsgaard is married to Bente and has two sons.

by 2017 to approximately €2.4 billion. DALO's budget is now approximately €950 million.

The task of DALO is, in short, to ensure, that the right equipment is available to the services in the right amount and condition at any time. DALO is presently supporting the Danish Air Forces' participation in Operation Inherent Resolve against ISIL in Iraq, participation in anti-piracy operations in the Indian Ocean, and the Army participation in training programmes in Iraq and Afghanistan. 40+ years old M113 and older Piranhas. The voluime of this programme is between €400 and 670 million.

After years of operating with virtually no artillery support, the Army will receive between 9 and 21 artillery systems. Offers have been received from Elbit, Israel, Samsung, Korea, and Nexter, France.

But these projects do not mark the end of the shopping list. DALO issued Requests for Information (RFIs) for military trucks on 13 February 2015. DALO is expected to acquire 400-500 all-terrain trucks, including

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armour protection, and 300-400 regular trucks. The total volume of the project is expected to amount to app. \in 270 million. DALO is expected to pre-qualify bidders in March.

DALO is also looking for a replacement of the Eagle 4 armoured patrol vehicle, used by the Army Light Reconnaissance Battalion. Producers have been asked for information. Between 36 and 113 vehicles are on the shopping list. suggests that the final selection will be a political and not a military one, involving much more than military and operational considerations.

The contenders comprise the Eurofighter Typhoon, Boeing's F-18 Super Hornet, and Lockheed Martin's F35 Lightning II, the latter being considered by Danish media as the favourite solution. Saab withdrew from the competition last summer, and Dassault never bothered to enter the competition.



Denmark is considering cooperation with Germany and The Netherlands on the development of a ship-based Ballistic Missile Defence (BMD) capability utilising the SMART-L radars of the Iver Huitfeldt Class frigates.

The timeline for the conclusion of these projects are presently not quite clear. A general election will take place in Denmark no later than on 15 September this year, but might be announced at any time prior to September. According to rumours, no major acquisition will be completed before the election which, according to all polls carried out since 2011, will lead to a change of government from a centre-left to a centre-right alignment. It should be stressed, that this rumour has not been confirmed.

F-16 Replacement

By far the most important armament programme for the Danish Defence is the acquisition of new fighter jets. The selection process has been ongoing since the very beginning of the century, but after delays a decision on the type of aircraft is expected this summer. But, again, the general election may delay the decision. An interim organisation in the Ministry of Defence is responsible for the collection of information on military, industrial and strategic aspects plus, not least, life cycle costs. The creation of a special and dedicated project office Denmark has operated F16s for the last 35 years in close cooperation with – naturally – the US Air Force, Norway and The Netherlands. Norway and The Netherlands have already chosen the F35 as the replacement for the F16 fleets.

Offset and Compensation

Industrial cooperation with foreign suppliers is an important part of Denmark's procurement guidelines for military equipment. For decades, the Danish government imposed obligations on foreign suppliers for cooperation with Danish companies on virtually all types of procurement by the Danish Defence. But pressure from the EU commission has forced a change in the policy, compelling Danish authorities to review in each case, whether or not defence procurement is of essential importance for Danish security interests, and hence should lead to obligations on suppliers to enter into industrial cooperation agreements with Danish defence companies. The Defense & Aerospace Industries Association in Denmark, FAD, has stated, that a reduction of obligations must be foreseen. But major changes remain to be seen. The procurement of artillery and APCs are both considered to be of vital interest for Danish security, and suppliers are asked to enter into industrial cooperation agreements equivalent to the value of the defence contracts. In the National Defence Industrial Strategy from July 2014 the Ministry of Business and Growth explains the Danish policy: "It is necessary for Denmark to have at our disposal certain competitive industrial competencies and capabilities in the field of defence in Denmark, which are strategically important for the protection of Denmark's essential security interests." The policy is supported by a vast majority in the Danish Parliament, and will most probably not change even after a change of the majority parties in the Government.

International Cooperation

Cooperation across borders has been an integral part of the Danish defence policy for years, and is expected to expand. For example, Denmark is a partner in NATOs Alliance Ground Surveillance project, AGS, and has recently agreed with five nations to cooperate on the procurement of precision-guided munitions for air-to-ground applications. Presently Denmark is considering cooperation with Germany and The Netherlands on the development of a shipbased Ballistic Missile Defence capability utilising the SMART-L radars of the IVER HUITFELDT Class frigates.

A wide variety of shared projects has been identified in the NORDEFCO Nordic Defence Cooperation.

Agreement, comprising Sweden, Finland, Norway, Iceland and Denmark. Projects range from the procurement of field rations to batteries, small arms ammunition, maintenance of main battle tanks and C130 aircraft, pooling of C130 flight hours, and much more. Obviously, the Danish Defence supports the idea of "Smart Defense," that the former NATO Secretary General Anders Fogh Rasmussen introduced a few years ago.

Perspectives

Due to financial constraints DALO's budget for Research & Development (R&D) is insignificant. In the fiscal year 2015 defence budget, R&D amounts to \in 2.5 million. Thus, politicians and military leaders stress the need to buy "off the shelf" equipment. 2015 will undoubtedly present DALO with many challenges. With a new leadership at the helm and a declining number of employees, important and – from a Danish perspective – complex projects must be completed.

Quo vadis NATO? – "NATO 3.0" as a Global Player Admiral Luigi Binelli Mantelli

Since its creation in 1949 and for more than 40 years NATO has operated as the major "security provider" for the European and North American regions by adopting a collegial and integrated strategic instrument of a mostly defensive nature. The collapse of the pro-Soviet bloc in 1991 and the end of the bipolar system provided the conditions for the Alliance to take on new responsibilities that were addressed with promptness and pragmatism.

rom a military standpoint, we have been confronted with a new global scenario characterised by a dangerous combination of traditional conventional and symmetric conflicts and modern threats that are not as clearly defined as they were in the past. These are more complex and have an asymmetric, criminogenic and terrorist nature, often developing in a non-conventional manner. This has caused an increased level of uncertainty, also in view of the crosscutting interconnections amongst the various actors.

The so called Islamic Caliphate, dramatically and bloodily hitting the headlines, is the best evidence of the increasing transnationalisation affecting terrorism, an alarming phenomenon that is also establishing rising and fruitful connections with criminal organisations. The recent attack to Charlie Hebdo in Paris is emblematic of this new trend. Indeed, the event marked a change in terrorist strategies, especially in terms of modus operandi and target selection

Another threat affecting the international community is represented by the pandemic danger posed by the highly contagious Ebola virus, in already devastated regions of Africa. A menace that requires us not to underestimate a wide range of other global variables that are less evident but nonetheless dangerous, including the serious climate change problem, competition for energy, raw materials and water as well as for controlling primary trade routes, and the danger posed by different kinds of ille-

Author

Admiral Luigi Binelli Mantelli has been the Chief of Defence, Italy, since 2013.

gal activities and trafficking (from weapons to waste, from drugs to human beings). In such an unpredictable scenario, the first consideration to make is that advanced sowell as traditional combat capabilities that contribute to deterrence.

Last but not least, it is necessary to encourage and pursue the broadest awareness and participation of institutions and public opinions on topics related to security and defence in an international dimension to promote and protect stability, prosperity and peaceful coexistence. This should be combined with the destruction of a cultural barrier existing in many societies that is founded on the simple equivalence of "far away and therefore inconsequential", despite the obvious fact that events occurring in "distant countries and regions" have direct repercussions on our domestic stability.



Admiral Luigi Binelli Mantelli (left), Chief of Staff, Italian Armed Forces, talking to LtGen Arvydas Pocius, the former Lithuanian Chief of Defence

cieties can no longer manage their own prosperity and wealth in an isolated and egotist manner. Indeed, it is imperative to consider scenarios as comprehensively and thoroughly as possible, investigate the potential consequences and interdependent effects between phenomena of various nature, and cope with situations in a systematic manner and with an open mind. In order to develop a prompter and more effective military instrument, nothing should be ruled out, including enhancing innovative capabilities (such as the battle of narratives or the so-called soft power) as It is exactly in this difficult and complex international scenario that a new NATO which could be designated "NATO 3.0" - is emerging and will be a feature of the "preparedness era", thus providing an answer to the question - "Quo Vadis?" - posed in the title.

After "NATO 1.0" of the "Cold War Era" in the years between 1949 and 1991, and "NATO 2.0" of the "operations / deployment era" of the 1991-2014 period, "NATO 3.0" will result from the response to the new and different challenges to transatlantic security, taking into account a difficult economic situation that requires any decision-making to be based on a "do more with less" principle.

This approach has reportedly almost reached its maximum extent, yet it proves its usefulness in creating a genuine culture pivoting around a constant cost-benefit balance and the necessary complementarity with the efforts of other international players.

The Features of "NATO 3.0"

The extreme dynamism of NATO's evolution has enabled the Alliance to maintain a position that is unequalled across the whole international security architecture. Going through the conclusion of the Cold War – which implied the end of its main raison d'être – and then responding for the first time to the cases provided for in Article 5 following 9/11, NATO has constantly proved itself to be a remarkably adaptable institution. This positive quality has been once again demonstrated by the fast strengthening of the underlying principles of collective defence following the Ukrainian-Russian crisis, after twenty years of NA-TO opening up through the enlargement and partnership policies. The evolution of the Alliance has always been the result of interaction between several external and internal factors, but in the next years the significance of NATO's role will be strictly related to the level of determination with which the Allies are going to interact concretely with some of the most important players within the international community (UN, EU, OSCE and partner countries).

How NATO will fulfil its core task - outlined in the new Strategic Concept adopted at the November 2010 Lisbon Summit - on "cooperative security" concerning cooperation with partner countries is one of the aspects through which NATO will prove its credibility. Although pioneered and developed within "NATO 2.0", it may well be deemed a part of the architecture of future "NATO 3.0", in that it is strengthened through and translated into many concrete activities, such as defence reforms, defence capacity building, defence education enhancement programme, counter-terrorism, counter-proliferation of weapons of mass destruction. This new dimension will enable allies and partners to achieve shared benefits in every field and above all it will make it possible to share and spread the founding values of the Alliance, that is peace, security and democratic stability. After twenty years of "openness" partnership is now considered as one "facet" of NATO's identity and it will, therefore, become increasingly essential for the global relevance



Fast roping from an EH101 helicopter. The review of the maritime strategy was discussed at the NATO Summit held in Wales (UK) in September 2014.

of this organisation, despite being aware of a sudden change in the climate of trust characterising the relationships with Russia, one of its major strategic partners.

Partners cooperate with NATO in an increasing number of areas, and the beginning of the Resolute Support Mission (RSM) in Afghanistan is a clear sign of the resolve to increasingly involve them also in the decision-making processes of the Alliance. The last annual NATO Summit held last

Wider Mediterranean Region

The term is used as part of a geopolitical concept established in the '90s, after the end of the bipolar confrontation. It is widely dealt with in geopolitical literature (the Università Cattolica in Milan hosts the CRiSSMA, Research Centre on Southern System and the Wider Mediterranean) and today it can be considered as: "the maritime and continental space defined by two arcs of instability with the presence of a large number of activities that are potentially critical in terms of security and for their humanitarian implications, and have a strong and direct impact on Euro-Atlantic and global interests; one arc encompasses the Mashrek Countries, the Horn of Africa, the Middle and the Far East; the other one connects the Gulf of Guinea, the SAHEL, Central Africa and the Maghreb countries. In this wider space, the Mediterranean is the "meeting place" for different cultures, languages, religions, traditions, climates and biodiversities where important economic and commercial interests are developed (more than 20% of global trade) thus becoming a real choke point among distant regions: the Red Sea, the Indian and Pacific Oceans to the East; the Atlantic Ocean and the Gulf of Guinea to the West".

September in Wales, has helped strengthening this type of relationship thanks to the approval by the heads of state and government of many initiatives, among which the Defence Capacity Building and the launch of the Interoperability Platform are deemed as very important.

The first initiative takes on concrete form in the assistance, support and advice provided by NATO in the fields of security and defence sector reform to those countries requiring them; moreover, it contributes, together and in coordination with other international organisations such as the UN, the EU and the OSCE, to the prevention of conflicts and at the same time it projects security and stability without deploying combat forces. Since interoperability between allied and partner forces is a prerequisite for the continued availability of assets to be used in exercises and operations, the end of the ISAF operation, which was the main training field and instrument for such interoperability, has made it necessary to identify alternative solutions to safeguard and maintain this fundamental dimension. In this sense, any initiative aimed at developing cooperation and dialogue with partner and non-partner countries that show their intention to move closer to the Alliance has a two-fold value because, on the one hand it makes it possible to develop various forms of forces interoperability and, on the other, it paves the way for the possible provision of assets and capabilities for future NATO-led operations.

Another change – outlined in the new strategic concept, which "NATO 3.0" cannot ignore – is the comprehensive approach, which clearly defines the need for coordination of civil/military efforts in crisis prevention, during both planning and the conduct of operations. The complementarity provided by organisations such as the UN, OCSE and the EU, together with the instruments of some governmental (GO) and non-governmental organisations (NGOs), would add a capital of competences, consensus and capabilities in contexts where the institutional footprint is often weak, if not totally absent. In particular, sharing the Euro-Atlantic space with the European Union makes NATO-EU cooperation a common felt requirement for both organisations. The importance, topicality and uniqueness of the NATO-EU strategic partnership was recognised also during the last Wales Summit - and recalled more than once in the final communiqué - where it was highlighted that the present geostrategic scenario demands common efforts given the nature of the new threats. NATO 3.0 will therefore have to consider the EU as a strategic partner with which to operate in terms of complementarity, a concept that focuses on the assumption that it is neither possible nor useful to split tasks between the two organisations from a geographical or functional viewpoint. An overall strategic understanding between NATO and the EU would be the best option, the existing political difficulties - transatlantic and inter-European divisions, lack of a European Union's well established strategic culture, problems associated with membership differences - could, however, be an obstacle on the path towards its implementation also in the future. Strengthening the level

of synergy between the two organisations would, in fact, be extremely beneficial for the international community (not only for European countries) in terms of saving resources, enhancing mutual capabilities and pursuing complementarity of efforts. The objective advantage of enhancing NATO-EU relationships must, however, necessarily take into account some constraints; acknowledging them would make it possible to avoid jeopardising any initiative already undertaken in that field. The first of these constraints is the awareness that any effort made in that field should not be limited exclusively to the present 22 countries which are members of both international organisations, but should be extended to include other countries and - more in general -the whole international community. A second important constraint is the need not to change or re-address the roles of the two organisations when developing these initiatives. On the contrary, it will be necessarv to enhance the differences between them in terms of functions and structures. The increased number of crises along the borders of the Alliance represents a considerable threat to the credibility of the future "NATO 3.0". The risk is to focus the attention on one geographic context only, thus overlooking the threats from other directions and those which do not take on concrete geographical form, such as cyber warfare. "NATO 3.0" must be ready to respond wherever needed and this was highlighted during the last annual Summit where not only was the Readiness Action Plan (RAP) approved in order to reassure Allies along the eastern border but the need also arose to develop a global strategic approach for the southern flank.

In the so-called "Wider Mediterranean Region", in fact, there is presently a complex and dangerous mix of instabilities and crises, which characterises most of the risks and threats in the global geopolitical scenario. Further problems added to the long-standing endogenous conflicts in the MENA area. These include, for example: the so-called "Arab Springs", which have brought about a long wave of destabilising thrusts in a wide area that already rests on delicate and crucial balances, the "Jihadist" phenomenon, that has turned into a serious and dangerous threat, and the collapse of the security situation in Libya, which is fuelling the hideous trafficking of human beings and any types of criminal activities connected thereto (against which Italy has been unilaterally operating for over a year through the Mare Nostrum operation in the Mediterranean Sea).

NATO will not be able to address this challenge exclusively within its borders, espe-



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ARMED FORCES

cially because stability in the Mediterranean is a goal pursued also by International Organisations, which share interests in the Mediterranean area, and by the countries therein, some of which are already partners of the Alliance. The attainment of concrete and feasible goals will be necessary to address this challenge, which will probably be the most complex of the future ten years, given the many threats in the area and, above all, the number and diversity of the actors involved. Such goals should include first of all the development of an integrated environment which is necessary to coordinate the instruments for crisis prevention. In this scenario and in this period of significant financial difficulties, the Alliance is mainly focused on pursuing a new balance in defence expenditures. The "Lancaster House" Treaty between France and the United Kingdom, just like the many agreements concerning regional cooperation - such as the Visegrad Groups in Central Europe, the Defence Cooperation Initiative



The LMV Freccia, shown here during employment in Afghanistan, is a new generation 8x8 APC designed to be "network enabled" within the army digitisation process. It works as a hub to connect soldiers, command and control systems and operational air/ground robot platforms.

countries attach different importance to some challenges to security: this is true for the USA with "pivot to Asia", the North-European countries with the problems concerning the High North, the Baltic countries facing the renewed Russian assertiveness and the countries on the Southern Flank with the dynamics in the Middle East –





The Eurofighter Typhoon stemming from the collaborative efforts of Germany, Great Britain, Italy and Spain is the most advanced combat aircraft ever developed in Europe. It is a fighter aircraft of the latest generation employed in air defence activities, air policing and operations such as "Unified Protector" in 2011.

(DECI) in South-Eastern Europe – and the many capability initiatives developed within the Alliance – like Smart Defense, the Connected Forces Initiative and the Framework Nations Concept – are all direct or indirect steps along the never-ending evolutionary process undertaken in the name of cost-effectiveness. In the light of present financial scenarios, international cooperation will be the only possible instrument capable of ensuring the availability of full, effective and high-readiness force packages.

Finally, relationships among member countries are an important endogenous factor. Everybody is fully aware that member North Africa. "NATO 3.0" will not be able to ignore such positions but, based on the lessons learned from the Ukrainian-Russian crisis, it will have to make any effort to maintain an appropriate balance in fulfilling the three core tasks defined in the 2010 Strategic Concept.

Conclusions

It is clear that in the future it will be necessary to make difficult and awkward decisions, such as those concerning relations with Moscow, but NATO shall continue to have a real and concrete approach always keeping in mind that it is the only military organisation to stand as a reference point in the Euro-Atlantic area, especially if we consider that the European armed forces are presently unable to play this role.

Even if NATO remains an irreplaceable resource in terms of security against any threat, the effectiveness of its response will necessarily require an appropriate, aware and fully prepared mix of different instruments (political-diplomatic and economic measures and measures concerning public information and the support to the democratic development of institutions, etc..) that will not be able to work appropriately unless the environment is integrated.

"NATO 3.0" will no longer be an ON-OFF Alliance that is exclusively activated when an operation is needed. The model we should pursue shall be more gradual and, above all, steadier in terms of output production; it shall improve its operational awareness and capability by relying on all available instruments, with "intervention" as a last resort. In this light, dialogue is key to avoid unwanted escalations of the current situation. To prevent impulsive reactions that might lead to civilisation clashes, we should yet not be tempted to replace the old-fashioned ideological distinctions with new barriers of cultural differences. As a matter of fact, dialogue has the power to turn differences into resources whilst NATO, from its very foundation, has proved to be a tremendous instrument for amalgamation.

In making all this possible, NATO shall continue to enhance its most precious and distinctive resources – what makes it unique – that is both cohesion and solidarity among the allies and continuous research for new partnerships. The future choices of the Alliance shall pivot around these values, not only in order to ensure security of the allies (protect), but also to perform an effective deterrence (deter) and to be ready to take action when and where necessary (intervene).
Viewpoint from Washington





Sidney E. Dean

Europe Needs to Take Defence Spending Seriously

urden sharing. Active engagement. Political will. These are the Dmain factors Washington is looking for from its NATO allies to ensure effective implementation of the Readiness Action Plan (RAP) agreed to at the 2014 Summit in Wales. Victoria Nuland, Assistant Secretary of State for European Affairs summarised the U.S. position during her 27 January 2015 speech before the Brookings Institution: "First, we have to keep our security commitments to each other. All NATO Allies must continue to contribute to the land, sea, and air reassurance mission all along NATO's eastern front line. All must contribute to NATO's new Spearhead Force which will allow us to speed forces to trouble spots, and we must install command and control centers in all six frontline states as soon as possible. (...) The United States has committed more than \$1 billion to this effort, and to security support for our eastern partners. All Allies must contribute as much as they can, and all must keep their Wales defense spending pledge – some governments are already slinking backward."

Burden sharing remains a highly sensitive issue in Washington, across the political spectrum. NATO documents record that in 2013 the United States spent 4.4 percent of GDP on defence, compared to an average of 1.6 percent for NATO Europe; only three European allies met NATO's budget target of allocating two percent of GDP to defence; Washington paid 73 percent of the Alliance's defence expenditures. These statistics are widely cited in the U.S. press and before Congressional committees. Defence spending alone is of course not automatically an indicator of combat power or power projection capability. And the United States is the only NATO member with permanent global security commitments, so a direct comparison of U.S. and European percentages would be misleading. Nonetheless, many in Washington agree with former Defense Secretary Robert Gates' assessment of a "two-tier alliance" with the U.S. and U.K. carrying a disproportionate burden. This is directly relevant to RAP inasmuch as NATO has not yet determined how the costs of this new initiative will be distributed. RAP will require not only allied troop rotations to Eastern European allies, but also the staging of larger and more frequent exercises, the construction or enhancement of infrastructure in the receiving nations, and the stockpiling of equipment and consumables. The total cost could be significant, and many in Washington worry that they will be expected to finance the greater portion.

Closely related with this issue is the question of military resources. While European allies have forty percent more manpower than the U.S., they suffer from significant deficits in such force multipliers as strategic airlift, aerial refueling, and ISR. NATO's 2011 campaign to oust Muammar Gaddafi also revealed shortages of supplies and munitions. A concerted effort to address these deficits in a timely manner, through national or multinational "smart defence" procurement, will be necessary to avoid the appearance of European lack of commitment. As former Defense Secretary Chuck Hagel stated before his colleagues in Brussels last year, "If the American people do not see European nations stepping forward to invest in their own defense when their own security is threatened, we risk eroding U.S. support for the alliance."

Of course having resources is one thing. Using them is another. The timely formation of the initial Spearhead Reaction Force led by Germany, Norway and the Netherlands, is considered very promising. It will be essential for a large number of allies to step up in the future, contributing to the reaction force, to prepositioning efforts and to exercise participation.

The final concern is political will. The Alliance acts on consensus of its 28 members. Some analysts in Washington worry that individual states may block deployment of the Spearhead force or delay other aspects or RAP implementation – perhaps out of fear of angering Russia, perhaps for economic or domestic political considerations. Even without deliberate obstruction, consensus building can be slow. All allied governments – including in the United States – need to convince their populace that the financial and political investments in the Alliance and in the RAP are essential.

Ultimately, the position iterated by National Security Advisor Susan Rice in June 2014 regarding NATO as a whole reflects U.S. expectations regarding RAP today: "The United States' commitment to the security of our allies is sacrosanct and always backed by the full weight of our military might. At the same time, we expect our partners to shoulder their share of the burden of our collective security. we expect every ally to pull its full weight through increased investment in defense and upgrading our Alliance for the future. Europe needs to take defense spending seriously and meet NATO's benchmark – at least two percent of GDP – to keep our alliance strong and dynamic."

RPV Reconnaissance in Ukraine

Georg Mader

In the southernmost corner of the conflict lines in Eastern Ukraine, since October 2014, Austrian-built UAVs have been providing a significant enhancement of observation and verification for the most demanding observer mission so far for the Vienna-based Organisation for Security and Co-operation in Europe (OSCE). Several times since deployment near the recently freshly bombarded and embattled Mariupol, the four CAMCOPTER[®] rotary-wing UAVs by Schiebel GmbH "made" it into the international media – either when they painfully reminded us of the unbroken unfairness and indiscriminate nature of armed conflict, or because they were repeatedly targeted themselves. In either case, they remained successful.

On Thursday 14 August 2014, Adam Kobierackias, Director of the OSCE's Conflict Prevention Centre (CPC), informed the Permanent Council in Vienna that the world's largest security organisation would soon deploy unmanned – and of

real-time information, even in or above an unsecured environment. They were intended to support, but of course not to replace OSCE monitors on the ground.

The contract with Schiebel Aircraft – selected by the OSCE in a competitive bidding



OSCE observer inspecting a damaged building

course unarmed – aerial vehicles (UAVs) to the OSCE's Special Monitoring Mission to Ukraine (SMM). The UAVs were to complement the efforts by SMM monitors on the ground, who are tasked to gather information, report on the security situation and establish and reports facts to specific incidents. The now common technology should finally also allow the OSCE to monitor larger areas and to gather and distribute

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process between rotary-based platforms was signed on Wednesday 13th August 2014. The first two of the civilian VTOL S-100s arrived in Kiev on Sunday 5th September. The CAMCOPTER® S-100 is built at the birthplace of Austrian aviation, Wiener Neustadt, and was designed specifically as a platform for reconnaissance and monitoring only. Based in Vienna and firmly established, Schiebel initially provided two UAVs, together with one ground control station with six operators and three maintainers. Following administrative procedures and flight testing, on October 23rd the SMM successfully completed the maiden flight before members of the media near Mariupol, in south-eastern Ukraine. The white, teardrop-shaped UAVs are being flown and maintained by Schiebel, under a month-by-month contract to the OSCE, but they are operated under the authority and direction of the SMM, with the Mission's monitors in close attendance. All data is transferred instantly and collected for the OSCE, for the Organisation's use only - which is a significant reporting obstacle regarding their operations and true value. OSCE's SMM-speaker in Kiev, Michael Bociurkiw, was only able to confirm to the author on January 30th 2015 that the UAVs have given them enhancement in verification, but have their limitations mostly due to low cloud ceilings and limited visibility during winter.

Launch of operations ...

With four UAVs present in order to provide a single UAV in the air at any one time for up to 12 hours - subject to factors such as weather and local area security - this is the basic operational plan. This number includes back-up airframes to take into account maintenance of one or more UAVs. Initially and until further notice, the SMM UAVs are operating over the area from south of Donetsk down to the Sea of Azov, eastwards as far as the Ukrainian-Russian border and westwards as far as 120 kilometres west of the - fluid-"line of contact". Daily missions by the UAVs aim to support the fulfilment of the OSCE mandate through complementary aerial information-gathering focused on monitoring the general security situation in Ukraine.

"The UAVs enhance existing monitoring capabilities in fulfilment of our mandate in Ukraine, they complement what our monitors observe on the ground, which will still be our primary source of information-gathering", SMM's Chief Monitor Ambassador Ertugrul Apakan explains. The Schiebels are also used for other tasks that are in line with the SMM's mandate, such as monitoring and reporting on the implementation of the – tragically weak and too often ignored – Minsk-Protocol of 5th September and the Minsk-Memorandum of 19th September 2014.

Every day the remotely piloted but also autonomously stationary capable rotarydrones with their high-resolution day/ night video-camera and ground-radarequipment – with the type of sensor suite withheld by Schiebel on demand of the OSCE – lift from their container-style base and monitor concentrations of weapons, military or militia-movements, checkpoints or civil- and energy-installations or infrastructure-damage. Flights take place mostly along the contact line and within the 15 km "cessation of use of weapons zone" on both sides of the contact line where heavy weapons and equipment are prohibited, according to the Minsk-Memorandum. This agreement was signed by all parties of the conflict and specifically allows aerial observation to be conducted exclusively by the UAVs of the OSCE-observation and -interpretation teams.

... and their repeatedly "forced" interruption

It is in the nature of things that in daily frontline-reality either one or both sides of a conflict are not comfortable being watched over their shoulders while they conduct their armed operations or violations of what was agreed around the green table, by a neutral or international "eye in the sky" – in real time. In this case their dislike of the observers was initially posted in their tweets and then several times led to attacking them with arms and electronic means.

On 2 November 2014, a UAV was fired at by a vehicle-mounted anti-aircraft gun, which OSCE says was likely a Russian-made ZU-23 (23 mm twin barrelled anti-aircraft gun) at a location 2.5 km north east of Shyrokyne in Ukraine and 17 km east of Mariupol. The latter is DPR-territory. The CAMCOPTER® was flying at about 5,000 ft when it observed a tracked APC and two Ural trucks at a checkpoint. A camouflaged man standing next to a civilian truck by the military vehicles then aimed a MAN-PAD shoulder-launched missile-system at the UAV - a weapon that has been prevalent in the region throughout the conflict. Then he decided to store it on the vehicle – obviously not getting any IR-signature/lock-on - and aimed the twin-barrelled gun at the UAV instead.



A CAMCOPTER® S-100 rotary wing UAV on the company premises of Schiebel

No rounds hit the UAV and it landed about 45 minutes after leaving the area. Post-flight analysis of the video footage was completed later that day. During the flight the unique identifier of the UAV's transponder – call-sign UAV 308 – was visible to airspace management radars.

- On 3 November 2014, OSCE-SMM director Ertugrul Apakan had to confirm that about 3 km west of Sartana one of their UAVs had been subject to what the manufacturer calls sophisticated and even "paint-peeling" strength militarygrade EW jamming. While the OSCE emphasised that the UAV left safely, all flying skills were in fact necessary to re-take control below the jammingsignal at the very last moment. Flights were subsequently interrupted for some weeks, until undisclosed "modifications" against directed jamming were undertaken by the manufacturer, which responds to hostile EW by changing the UAV's area of operations in anticipation of a more "robust" response to follow.
- On 2nd December 2014 and again on 5th January 2015, SMM UAVs were engaged by what appeared to be the truck/technical-mounted ZU-23. These incidents occurred in the same area of Oktyabr village, 18 km north-east of Mariupol, in DPR-controlled territory. UAV video analysis showed unknown persons firing at the UAV.
- On 25 December 2014, in this time Ukraine-government-controlled Pryazovske (8 km West of Mariupol) an SMM UAV was twice exposed to GPS jamming and temporarily lost its primary GPS connection. The flight was aborted and the UAV autolanded safely at its base

For the US-ambassador to the OSCE, Daniel Baer, it is "clear that those incidents were undertaken by Russian-backed separatists." He called on "the Russian Federation to use its influence over the separatists to let the SMM's instruments fulfil their mission, as agreed in Vienna."

The bus-shelling ...

A prominent tragic incident to which a CAMCOPTER[®] was deployed – and from which the only still image from the undisclosed gimbal was ever officially published by the SMM - was the shelling which occurred on 13th January 2015 in government-controlled Volnovakha (35 km south-west of Donetsk), resulting in 12 killed and 17 injured passengers in a bus. The UAV soon conducted a flight over the Ukrainian checkpoint in Volnovakha and gathered imagery and video data of shell/ rocket-impact craters at the incident site where the bus was hit. In an initial report on the OSCE-SMM website, it was said that the roadblock has been shot at byan MRLS rocket launcher from the North or North-East, with the SMM's comprehensive survey focusing on funnels and craters, analysing two specific craters – among them one located 10 metres from the shattered passenger bus.

Interpretation of what the UAVs have seen and delivered is not always 100 % correct -much of what the OSCE publishes is often disputed. In that Volnovaha "bus massacre" for example, the direction of impact was in fact not NNE, as stated by OSCE in their initial report, rather more ENE, almost aligned with the road the bus was taking. While even the Russian delegate in the SMM named this first statement as incorrect, subsequently both sides immediately accused the other, as is common after dozens of such human tragedies.

Critical diplomats and colleagues in Vienna have vociferously claimed that, several months into the Ukraine conflict, the handiwork of OSCE, delivering only written reports, is not enough. Their reasoning is that nobody can check how the OSCE came to their conclusions and whether they were right or not. Their suggestion to OSCE is



The conflict zone in Eastern Ukraine

to let their teams and UAVs make photos and videos and release those to the public, with their reports. The author will not discuss here whether the initial ,NNE-report' after the bus shelling was a deliberate falsification or just a unfortunate human misinterpretation, but it is true that it is almost impossible to get videos or still images from the terabytes of data meanwhile collected by the organisation. In what also is a fierce media war, some say the OSCE does need to understand – while their teams and UAVs are providing invaluable material - that its credibility especially with many officials and journalists in Ukraine is not very high at the moment, with many question-marks raised over their neutrality. On many websites and blogs it was for example criticised, how an active Russian Army liaison-general to the DPR-separatists (called "Representative of the Armed Forces of the Russian Federation to the JCCC and the DPR") could investigate the busincident deep in Ukrainian territory. This however happened on basis of a drafted jointprotocol that mandated the JCCC to conduct a special investigation concerning this slaughter. Kiev and the Donetsk Prosecutor's Office have launched separate investigations into the shelling, which is being labelled a terrorist act.

Although 500 international OSCE observers were initially targeted for the SMM, by the end of 2014 there were 374 only – with 217 travelling through the contested wartorn and separatist-held areas of Donetsk (the self-proclaimed "Donetsk Peoples Republic" – DPR) and Lugansk (LPR). And with the recent further deteriorating security situation in the Donbass, some nations withdrew or reduced their observers from the two crisis districts in early January 2015. Before the (totally destroyed) airport of Donetsk fell to DPR fighters in early January 2015 after a 242-day siege, SMM's vice-director Alexander Hug could not get to the site because both sides continued to fire their heavy weapons, despite his inspection being announced through the agreed channels. According to OSCE's SMM speaker Michael Bociurkiw – who gave no details about the countries or numbers that have withdrawn – the fragile truce is broken daily and the overall situation in the region has become significantly worse. The Schiebel team nevertheless says it so far has no plans to withdraw or relocate from the Mariupol-area and again points out that – against several claims on the Web – none of their UAVs has been lost.

No CAMCOPTERs[®] in the Kremlin...

After the remains of the symbolic Donetsk airport were seized by "Novorussian" fighters and after they fired their GRAD rockets into the market in Mariupol and killed dozens of civilians on 24th January, EU foreignrelations chief Federica Mogherini warned against "further escalation by offensives of Russian-backed separatists that would inevitably lead to a further grave deterioration of relations. I call therefore openly upon Russia to use its considerable influence over separatist leaders and to stop any form of military, political, or financial support". NATO secretary-general Jens Stoltenberg – also after Mariupol – much more clearly said: "Russian troops in eastern Ukraine are supporting these offensive operations with C2-systems, air defence systems with advanced SAMs, UAV-systems, advanced MRLS-systems and EWsystems..." The most direct however was Aleksandr Zakharchenko (self-proclaimed leader of the DPR) who was on the same day videotaped speaking at a memorial service where he stated: "Today the offensive against Mariupol begins!" A crowd responded, "Glory to holy Russia...!"

Pushing all that aside as "fabricated", in Western mass-media and on many social networks, journalists and posters are claiming the "fascist coup" in Kiev and the presence of 500 US soldiers-of-fortune, expressing doubt over "Western" media or are indiscriminately supporting a "strong man" – Vladimir Putin. The author is happy for them having the freedom to do so – quite to the contrary if they would try the same in Russia. No UAV can change these preoccupations and conspiracy-theories, nor its images and the following reports, which are subsequently often denounced as "falsified" – by both sides!

JCCC

The Joint Centre for Control and Co-ordination (JCCC) was set up by Ukraine, Russia and the former OSCE Chairman Didier Burkhalter in October 2014, to coordinate the execution of the ceasefire agreement in the country. OSCE reported that the Russian and Ukrainian heads of the JCCC signed a draft schedule that proposed the disengagement of forces in three phases: a ceasefire for two days; the withdrawal of heavy weapons for five days; and disengagement of forces to the line of contact referred to in the Minsk Memorandum for 21 days. Almost nothing of that ever happened or if realised was overturned by the following events of conflict and violence.

But for the involved, military-trained individual, UAVs can prove whether true movements happen and what vehicles are observed, as every military-trained image interpreter would quickly recognize. For example, in relation to the Russian position in Crimea, a territory often described as already "lost" for Kiev. But militarily or logistically the Russian position in Crimea is untenable, the peninsula easily isolated should Ukrainian forces strengthen or - not likely so far – Western forces get involved. Russia holds Crimea either only to the extent that the West chooses not to intervene, or to extend a relatively wide and robustly defended 200 km land-bridge from Russia to the Crimea. This would be Mme. Mogherini's "further escalation" as it would mean massive fresh fighting. But at the same time the Kremlin does not want a massive further confrontation with the West, at a time of economic dysfunction. This is an ongoing conversation in Moscow which is not clear that or if it is over - but we have no CAMCOPTERs® in the Kremlin!

Viewpoint from Moscow





Yury Laskin

Russian Minister of Defence Visits India and Iran

On²⁰⁻²¹ January the Russian Minister of Defence General Sergei Shoigu visited Tehran and New Delhi to strengthen military ties between the Russian Federation and the two Asian nations. At his first stop in Iran's capital he signed a military cooperation agreement. Both sides described the document as a major step in the partnership of the two nations' armed forces.

His Iranian counterpart Brigadier General Hossein Dehqan claimed that "We agreed to accelerate our cooperation in defence and military technologies". According to Shoigu the parties discussed security in the region, the Middle East and Afghanistan as well as exchanging views on the importance of coordination in fighting international terrorism and drug trafficking. They underscored the importance of mutual cooperation, considering the regional conditions.

According to the Russian Vedomosti Daily, Dehqan and Shoigu also signed an agreement to resolve the problem with the delivery of Russia's S300 missile air defence system to Iran. In 2010 Russia cancelled the US\$800 million deal to deliver 6 S300 PMU 2 batteries of to the Islamic Republic and returned US\$270 million of advanced payment. The cancellation led to the Iranian appeal in the Paris court claiming US\$ 4 billion. The new agreement puts an end to the dispute with the cancellation of the claim as Russia is going to offer Iran another air defence system, probably the type S300 VM. Air defence systems are not covered by the UN arms trade embargo on Iran. In 2010 Russia signed and completed a relatively small deal with Iran on ECM/ECCM systems and other related weapons, but the new agreement is to open a wide corridor for bilateral defence cooperation.

General Shoigu's visit to New Delhi resulted in several agreements with his Indian counterpart Manohar Parrikar. One was about information sharing on the flight accidents of similar type of the aircraft, another revitalised the Indian military specialists education and training in Russia. Both ministers praised bilateral relationship as a strategic partnership naming several mutual military exercises as well as jointly developed existing and future weapon systems. Needless to say that the future 5th generation combat aircraft for the Indian Air Force is based on the Sukhoi PAK FA T50 jet to start test operation within the Russian Air Force next year. The MTA Medium transport aircraft is planned to become another joint development programme.

In Delhi Sergei Shoigu paid a visit to the BrahMos Aerospace Headquarters. The Russian-Indian joint venture made a strong progress to equip the Indian Army and Navy with hundreds of supersonic missiles. The airborne version is subject to introduction with the Indian Air Force's Su-30 MKI (Russian designed multipurpose 4+ generation fighter built under licence by HAL in India). Accordingly to BrahMos CEO & MD Sudhir Mishra the first airborne missile launch is expected in March 2015.



Sudhir Mishra, CEO & MD of BrahMos Aerospace, presents a memento to the Russian Minister of Defence General Sergei Shoigu during his visit.

Russian MoD visit become another sign of the Russia's "Turn to the East" as a result of the confrontation with the West. US President Barak Obama was "entertained" by displays of Russian made aircraft and armour during a military parade to honour him in Delhi just in a couple of days after Sergei Shoigu. The weaponry was a visible proof that Russia is not just a European but also an Asian power to reckon with.

NATO's Main IT Projects in 2015

Dorothee Frank

The main challenges for military information systems are still the harmonisation of existing command and control systems, the integration of embedded systems, sensors and weapons into these networks and the transfer of data from and to the troops in forward positions – and all of this under most the secure conditions. The main NATO IT programmes of this year are all affected by these challenges.

ATO IT has grown over the years. Only a service-oriented architecture might cope with all the individual solutions, and of course special national solutions introduced throughout NATO. The IT used at the moment does work; that is not the difficulty. But without modernisation and harmonisation the people who know about all the special software could one day simply vanish, with



Flexible software architecture is a major requirement for future networks.

no one left behind who is able to adapt the in-service solutions to modern day technology, networks and requirements. Therefore the NATO Communication and Information Agency (NCI Agency) has to build up common standards, provide basic solutions and implement these even within the smaller NATO countries in a modern environment with reliable industrial partners.

Information Technology Modernisation

The most challenging project aims to provide Information Technology Modernisation (ITM) for the NATO Enterprise. Procurement was broken down into four Waves. The intention was to place a single contract for the four Waves, with Wave I as firm/fixed price, and priced options for Waves II to IV. With this NATO aimed to get a single contractor as point of contact. The NCI Agency is currently in the process of moving from an asset-based organisational paradigm towards a service based organisation.

At the end of this transformation the NCI Agency will be providing standardised and custom services, according to a priced service catalogue, to the majority of NATO. It is anticipated that the Agency should have an initial priced service catalogue in the 2016 timeframe, but it will continue to mature, along with the organisation and its processes, until at least 2018.

The project aims to achieve the overall goals of a more responsive, resilient, and cost-effective infrastructure on which to host the various CIS services in an incremental fashion, denoted as waves. The overall work is subdivided into five work packages (WPs), each of which will be the subject of a separate contract.

NATO Commanders require resilient ICT solutions at all Command locations which can provide continuity of service through an IT infrastructure which is responsive to all of their operational requirements as outlined in Capability Package 9C0150. The requirement is to support all of NATO's business needs through a modernised IT infrastructure which is more effective and less costly than that which is in place today. Reading the requirements, NATO intends to get a most secure and reliable system for €178.5 mn. "The estimated cost for the services and deliverables included within the basic scope of the intended contract (Wave I to IV) is €115.9 mn Investment, and €62.6 mn Operations and Support over a life of five years", NATO broke the calculation down. "The investment cost of Wave I is €46.883 mn."

Packet Transport Component for NCI

Another changing programme is to provide a packet transport component for the NATO communications infrastructure (NCI). The scope of this project is to transform the largely circuit-based NATO General Communications System (NGCS) into a fully Internet Protocol (IP) converged network. The current unclassified voice system, based on Private Automatic Branch Exchanges (PABXs) will be replaced with a Voice over IP system.

The modernized NGCS will support provision of IP communications services to NATO static and deployed users with significantly increased capacity, improved performance and advanced Quality of Service.

Contract award is expected in April 2015. Implementation is intended to be achieved within 24 months of contract award, followed by five years of Contractor on Logistic Support (CLS). The estimated cost for the delivery of this capability is Not To Exceed (NTE) €63.4 mn for the investment part and NTE €26.3 mn for the five years CLS.

Smaller Programmes

The framework contract for the provision of commercial training solutions has a €9 mn budget: not that high in real terms, but very interesting for future projects. With this contract the NCI Agency aims to strengthen its position as a provider of a full-life-cycle approach. Therefore the NCI agency has a requirement to procure commercial training solutions for its internal and external customers. The programme is a centralised initiative based on the continued requirements of NCI Agency for on-site training, Interactive E-Learning and a centralised base to run individual training and custom built NATO courses. The contract award is expected in March 2015.

The programme on the implementation of functional services (FS) for the command and control system of the Chemical, Biological, Radiological Nuclear (CBRN) Defence tends not to change much but due to the critical data provided it is very vital. The scope will include implementation of CBRN-FS software and its installation, integration and validation on authorised NATO sites. Bid closing date

Airbus Defence & Space)

Photo:

is March 2015 with contract award expected in the fourth quarter 2015. The estimated costs are $\in 6.2$ mn.

Maritime Programmes

There are two very interesting programmes in the maritime IT domain. The smaller one, with estimated €8.6 mn, is to prove the so called BRASS (Broadcast Maritime Rear Link and Ship-Shore) services for Romania. It will also provide ship-to-shore interfaces as well as communication equipment to the country.

The bigger and more interesting programme is for the implementation of functional services for command and control of maritime operations named Project TRITON. In the end TRITON shall be a set of software application services to provide commanders with the required maritime information to enable them to make operational decisions. The requirements say that least 350 users at static and deployed operational sites are to be included. The programme also includes the implementation, installation, integration and validation of the TRITON software as deployable kits. "The TRITON software is to be based on existing COTS solutions to be provided by the contractor, and further developed for NATO-specific functionality and interfaces", the NCI Agency's requirements state. Bid closing date for TRITON is June 2015 with contract award in Q1 2016.

Perspectives

Even though these programmes are just some examples of what the NCI Agency plans, they show the direction and the main challenges: to bring a very broad and



Most NATO nations rely on their own national solutions for communication and information exchange.

unharmonised bunch of proprietary software and applications into a future lasting network. For this NATO is focusing more and more on Commercial Off-The-Shelf (COTS) products due to the fact that the consumer market has moved into the lead position and military IT can only follow – provided that military software is able to react to technology changes in the consumer products. Surely the NCI Agency has chosen the right path, but there still is much work to be done, since information exchange for single point or national/ industrial solutions is not that easy, and often security classifications get in the way. Programmers with knowledge of the proprietary software may have retired, moved to other units, disappeared into industry, or even simply forgotten what exactly they did 30 years ago. Only new programmes and projects allowing NATO to move on from the old solutions are the way to cope with these problems – just as the NCI Agency is doing with the programmes mentioned above, especially IT modernization, right at the moment. The outcome and especially the reaction and will-to-implement of the NATO nations will be interesting to see.

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IT security partner of the Federal Republic of Germany

Life Cycle Management and Standardisation in NATO

The Long Road to Greater Interoperability and Cost Efficiency

Peter Janatschek

The development, production and operation – including logistic support – of complex international projects has always placed great demands on all involved. The required operational capabilities have to be achieved on budget and within specified time frames. This is as true today as it has ever been.

Concepts such as Life Cycle Management (LCM), Integrated Logistics Support (ILS), Life Cycle Integration (LCI) and Continuous Acquisition and Life Cycle Suptried and tested functional standards for processes, on data standards for information and on technical standards for the underlying information technology.



NATO SLCM framework

port (CALS) have, for many years, defined an integrated approach to logistics processes, including related information, over the entire life cycle of a system or product. In particular, CALS, the prominent global strategy of the 1980s, is based on reliable,

<u>Author</u>

LtCol (ret) Peter Janatschek is the Managing Director of the CALS Forum Deutschland Association and Chairman of NIAG Industry Interface Group. CALS was originally a NATO initiative, building on the experiences of the US Defense Department. It is an integrated data environment, characterised by its use of the best commercial technologies, processes and standards for production and management, and for the exchange and use of business and technical information in industry and management. Since 2000, NATO and its member nations have been guiding their activities towards Life Cycle Management and Life Cycle Integration, without questioning their original objectives. In industry, and in public administration, LCM is the basic strategy for the optimisation of logistics processes, and it allows effective and integrated logistic support to be provided to complex systems in the existing fields of e-commerce, supply chain management and electronic technical documentation.

Objectives and Tasks

In 2000, the Conference of National Armaments Directors (CNAD) discussed the concept of LCM for the first time. It was decided to implement this approach in future NATO armaments projects. In 2003, restructuring of CNAD resulted in the creation of Alliance Committee 327 (the Life Cycle Management Group, LCMG). This group is responsible to the restructured CNAD and is tasked with implementing the life cycle approach. The group's first action was to develop the concept of the Life Cycle Management system and pass it on to the NATO nations. The draft concept was presented to the North Atlantic Council with a proposal to approve it as NATO's political guidelines for LCM systems. The document was published in 2006, with the title NATO Systems Life Cycle Policy. It said that the NATO life cycle approach based on ISO/IEC 15288 ("Systems and Software Engineering -System Life Cycle Processes") should be developed and form the basis for NATO's future capability development.

Today, over 20 NATO nations actively assist the activities of AC/327 and its working groups. When Secretary General Jaap de Hoop Scheffer put his signature to it in January 2006, and the North Atlantic Council thereby practically declared LCM to be a key focus, it only fuelled further interest in it. In addition to the far-reaching organisational changes, there are also a number of other decisions and measures that will contribute to restructuring logistics in NATO, and which will increase its effectiveness. These include an integrated approach to the logistic processes of a product throughout its entire life cycle in terms of a systematic NATO LCM process for the defence sec-

Design, **Development** and

of ILS Specifications"

Implementation of "S-Series

Over the past 25 years, considerable ef-

fort has been invested – particularly in the

aerospace and defence industries - in de-

veloping, harmonising and agreeing data

standards and specifications in the field of

ILS. Work in the field of 'technical docu-

mentation' and 'materials management'

began as far back as 1988. The founda-

tions for data standards and specifications

were laid in 1993, during an international

NATO workshop in Paris. Participants

tor. Furthermore, the Phased Armaments Programming System directive, written in the 1980s, is being updated with a view to providing guidance for the management of armaments programmes in the NATO life cycle. There is special emphasis on the areas of Integrated Logistic Support (ILS) and Life Cycle Costs (LCC). In addition to a variety of NATO publications, a number of important new guidelines and procedural instructions have been updated and published, which build on ISO/IEC 15288. They include:

NATO Guidance on Integrated Logistics Support for Multinational Armament Programmes (Allied Logistics Publication10, ALP-10), NATO Guidance on Life Cycle Costs (Allied Life Cycle Costs Publication 1, ALCCP-1), NATO Risk Assessment Management Guide (Allied Risk Assessment Management Publication 1, ARAMP-1).

The aim is to provide everyone involved in the life cycle of a project, system or product - from the developer to project managers, users and logistics experts - with recommendations and guidelines so that they can develop, implement and use it on time and within budget.

Integrated Logistic Support

In the ILS process, all logistic considerations and measures relating to the product are brought together in an integrated approach. ILS supports the aim of minimising the life cycle costs of new and existing products/systems and modifications. The idea is that all the information needed to ensure the timely delivery of logistic support be made available simultaneously to all agencies involved, promptly and with the right level of detail.

The overriding objective of ILS is therefore the cost-efficient delivery of defined logistic and operational requirements for a product throughout its life cycle. In terms of establishing and maintaining operational readiness for all elements of logistic support, it is therefore important to take costefficiency into account at an early stage, when planning, procuring, and/or providing ILS elements.

The application of internationally recognised standards, which support a process-oriented approach and procedures, is crucial, in particular with regard to the introduction and use of standard application software.

ILS Objectives: Case Study Bundeswehr

In complex projects, such as defence projects, it is important to manage project elements in the form of different tasks. CPM (Customer Product Management) dictates that the entire life cycle of weapon systems be taken into consideration in this process - from initial analyses to implementation, to the utilisation phase (which can be very long) to its ultimate reclamation. Logistics is one of the most challenging elements of a project.

For weapon systems in particular - which are becoming increasingly complex and have ever-longer service lives - costs during the in-service phase (e.g. operation, maintenance) are becoming increasingly important. The logistic support required for



SLCM work structure

such systems is developed in parallel with implementation of the weapons system. Increasing multinational collaboration and greater cooperation between industry and the military is helping leverage synergies. The timely delivery and smooth exchange of data and information between project partners is essential.

The development and upgrading of data standards and specifications and their implementation and application is a basic reguirement, in order to ensure the delivery of efficient IT support and the interoperability of the project partners' various IT systems throughout the entire life cycle of military equipment. These data standards and specifications lay common foundations for providing clear information, with defined and comprehensible syntax and semantics. They are intended to facilitate the automated exchange of logistic data between manufacturers and users. They therefore contribute significantly to the quality of the master data in the Bundeswehr's logistics system.

developed functional content and ideas about the interplay with ILS specifications. Over the years, various Memoranda of Understanding established cooperation between the industrial associations of the ASD (Aerospace and Defence Industries Association of Europe), AIA (Aerospace Industries Association of America) and ATA (Air Transport Association of America). A number of ILS specifications are now freely available online (e.g. www.sx000i.org) although some are still partly in development.

Organisation and Operations of the AIA/ASD/ A4A Community

Specifications are developed by international working groups, comprising manufacturers, operators, and users. Once a specification is published, a steering committee assumes responsibility for maintaining and updating it. The ILS Council oversees the coordination and coopera-

tion of the working groups and steering committee; this work is a cooperative effort between industry, operators and users. Participants are representatives from industry and national ministries, including agencies from Europe and the USA.

Germany is represented in these bodies by industry and, as a user, by the Bundeswehr. Germany is an active participant and also chairs some of these committees. The international ILS specifications are used as the basis for creating detailed rules for implementation and guidelines for their application. This task is carried out by national working groups with members drawn from the Bundeswehr and German industry.

The "Specifications and Standards" department within the Bundeswehr's logistics detachment leads these working groups and is responsible for implementing the ILS specifications in national guidelines and regulations. At an international level, the department represents the Bundeswehr's interests in the formulation/ development of ILS specifications. At the same time, real, practical experience – gained through providing advice and technical assistance in the application of ILS-specifications – can be directly fed into the bodies at national and international level.

"Technical Documentation" is one of these elements of ILS. It includes the formulation, cultivation and provision of all the technical and logistic information needed to prepare the basic equipment for a product that is to be introduced.

Recent Developments

In August 2013, the IIG decided to introduce the ASD/AIA specification S1000D, "International Specification for Technical Publication Using a Common Source Database", to NATO and propose it as a standardisation recommendation (STAN-REC). The aim of this move was to take a specification – from the field of ILS and, more specifically, the ILS element of technical documentation – that was internationally established, recognised equally by the military and civilian industry, and that had been in use for some time, and to introduce it to NATO as a recommendation.

After this recommendation was presented to – and approved by – the nations in NIAG and the AC/327 in January 2014, and was then also checked in detail by the relevant AC/327 working group, it received final approval from AC/327 and all NATO nations involved. Following approval from the ASD Specification Council in April 2014, the document was approved by the NATO Standardisation Office in June 2014 as STANREC 4752 TECHNICAL PUBLICATIONS USING A COMMON SOURCE DATABASE (S1000D) and published on 2 October 2014.

Products of th	e "S-Series of ILS Specifications"	
SX000i	International guide for the use of the S-Series Integrated Logistics Support (ILS) specifications	Draft 0.1
SX001D	Dictionary for the S-Series ILS specifications	in process
SX002D	Common data model for the S-Series ILS Specifications	in process
S1000D®	International specification for technical publications using a common source database	Issue 4
S2000M	International specification for materiel management- Integrated data processing	Issue 5
S3000L	International specification for Logistics Support Analysis – LSA	Issue 1
S4000P	International specification for developing and continuously improving preventive maintenance	Issue 1
S5000F	International specification for operational and maintenance data feedback	Draft 0.2
S6000T	International specification for "training"	in process
ASD-STE100®	ASD Simplified Technical English (STE)	Issue 6

The increasing complexity of systems and projects, rising costs and time pressure for implementation, combined with the significantly longer service life of equipment led to increasingly insistent demands for an efficient and universal LCM system, based on recognised civilian standards, data standards, and functional standards.

In this context – and with the realisation that complex systems and projects are increasingly only implemented at a multinational level – the 2006 decision by NATO nations to introduce systems life cycle management on the basis of ISO 15288 was only logical. The emphasis on integrated logistics support and life cycle cost management has highlighted other important, related, priorities.

Consequently, NATO's internal organisation has also been adjusted. NATO's Life Cycle Management Group – Allied Committee (AC) 327 – and the working groups (which currently number six) have created an organisation that implements ISO 15288 in NATO guidelines and recommendations, and that only formulates NATO-specific regulations where it is absolutely necessary.

With this detailed work, it is of paramount importance that the aim – wherever possible – be to implement robust, recognised civilian standards: data standards in IT support and functional standards in the field of logistic support.

In the field of ILS, there is a comprehensive package of specifications available, in the form of the "S-Series of ILS Specifications", which was developed by civilian and military specialists over several years, in close collaboration with users. These specifications are in various stages of development. S1000D and S2000M are both worth particular mention. They have proven robust for some years and and have been implemented in a range of multinational projects and programmes and applied in practical schemes.

By recommending the use of ASD/AIA/A4A S 1000 D in the NATO ILS element "Technical Documentation", NATO has taken the first step on the long road to an effective life cycle management system and greater standardisation. In turn, this will lead to greater interoperability and cost efficiency. It is to be hoped that this is the first step of many. Now, the experts at ASD and AIA/A4A need to complete the specifications that are currently a work in progress. However, software developers must also take ownership of this issue and develop tools that, on the one hand, meet the specifications and, on the other hand, fulfil user requirements so that operational requirements can be delivered on time and cost-effectively, thereby supporting software over its entire life cycle.

Elements for Enhanced Infantry Firepower

Photo: MOD Norwa

Jan-Phillipp Weisswange

Pedites pugnas decernent – Infantrymen determine the battle! This philosophy underlines the current armament and equipment concepts intended to enhance infantry firepower.

he old saying "Who shoots faster and hits better will win the firefight" is, in principle, still up-to-date. Yet it could be extended like this: "Whoever brings to bear threat-adequate effect upon a clearly identified target with more speed and higher accuracy will prevail in conflicts of any intensity". Accordingly, armament concepts have become more complex: they focus on modularity. "Infantry toolboxes" therefore contain a wide variety of components ranging from combat knives through pistols and assault rifles to multi-purpose grenade weapons. Moreover, individual clothing and equipment, optical and optronic systems, C4I and other command and control functionalities need to be considered in today's armament concepts.

The individual tools in such a toolbox are equally characterized by modularity. Scopes, laser light modules and other ancillary devices can be mounted, different barrel lengths or suppressors be used or even the calibre be changed. It is deemed to be particularly user-friendly when the operator is able to configure himself and his weapons "in the field" for different operational purposes.

Assault Rifles

The assault rifle continues to be the primary weapon of the infantryman for the foreseeable future. Apart from their functional principles – direct impingement, longstroke gas piston, short-stroke gas piston – the existing designs can be categorised first of all according to their architectures which comprise the classical, buffer-tube and bullpup configuration.

Classical Design

In the "classical" design the recoil spring is located in the receiver. This architecture allows attaching either a fixed or a foldable



Weapons, optics, night vision devices, body armour, load carrying equipment, combat uniforms, C4I, training – elements of today's infantry toolboxes

shoulderstock. Recent examples of this "classical" design include the FN SCAR, the B&T Advanced Police Carbine, the Remington/Bushmaster ACR, the Beretta ARX-160 and the new Czech CZ805 assault rifles. The Bundeswehr, too, still adheres to this configuration with the G36 in its reviewed versions of "G36 long basis weapon" (project name G36A4) and "G36 short basis weapon" (G36KA4). Even the famous Kalashnikov assault rifles follow the classical design, but they use a long stroke gas piston system instead of a short stroke gas piston which is common in most Western counterparts. Recently, the Russian armed forces decided to procure the AK-12 rifle chambered for the 5.45 x 39 mm as part of the RATNIK soldier system. Furthermore, the AK-103 in 7.62 x 39 mm will also be procured. Both rifles represent the latest editions of the AK-74 and the AK-47.

Buffer Tube Design

Here the recoil spring is accommodated in a separate tube attached to the rear of the receiver. The decisive advantage of the buffer-tube architecture is its more convenient recoil behaviour as the recoil energy is transferred straight to the shoulder and for the most part absorbed by the buffer system. However, buffer-tube designs must do without foldable shoulderstocks and are therefore less compact. A lengthadjustable shoulder stock can nevertheless easily be mounted on the buffer tube. The most prominent representative of this principle is the AR-15 architecture underlying the M16/M4 assault rifles that still range among the most widespread assault rifles in the world. In the USA, the US Marine Corps issues the M16A4, featuring a 20" barrel providing an effective range of up to 600 metres. The US Army still sticks to the M4 carbine with 14.5" barrel as their standard weapon despite some criticism of its range and reliability. In June 2013, the US Army cancelled its Individual Carbine Competition (ICC) with a terse comment that none of the contenders had satisfied the minimum requirements which would have justified the next phase of the ICC. Instead of choosing a new standard rifle, the M4 carbine is to be product-improved to the M4A1. It does not seem very likely either that the direct impingement system will be replaced by a gas piston system.

In the meantime numerous other manufacturers offer AR architecture based weapons. Among the companies from Asia and Europe are, to mention just a few, Oberland

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Assault Rifles I							
	Beretta ARX-160 CZ CZ-805		FN SCAR L	Heckler & Koch HK 416/G38	Heckler & Koch G36		
	the state	P The	TA	- 17	-		
Calibre	5.56 x 45 mm 6.8 Remington Special (6.8 x 43 mm)	5.56 x 45 mm	5.56 x 45 mm	5.56 x 45 mm	5.56 x 45 mm		
Action	gas piston, rotating bolt	gas operated, rotating bolt	Short stroke gas piston, rotating bolt	Short stroke gas piston, rotating bolt	Short stroke gas piston, rotating bolt		
Magazine capacity	30	30	30	10, 20, 30	30		
Rate of fire (rounds per minute/rpm)	650	700 - 800	550 – 650	850	750		
Barrel length	267 mm, 368 mm (Standard), 419 mm, 508 mm	360 mm (A1) 277 mm (A2)	351 (Standard) 253 (Close Quarter Combat/CQC; siehe Bild oben)	11": 264 mm 14,5": 268 mm 16,5": 419 mm 20": 505 mm	480 mm		
Length (mm; Shoulder stock extended/folded, collapsed)	901mm/ 654 mm (Standard)	910 mm/ 670 mm	900/653 (Standard) 788/540 (CQC)	11": 797/701mm 14,5": 900/804mm 16,5": 951/855mm 20": 1,037/941mm	998/758 mm		
weight (empty)	3,175g (Standard)	3,600 g 3,340 (CQC)	3,545 (Standard)	11": 3,020 g 14,5": 3,490 g 16,5": 3,560 g 20": 3,855 g	3,600 g		



Belgian SOF equipped with the FN SCAR L assault rifle

Defence, C. G. Haenel/Caracal, Sarsilmaz, Schmeisser, SIG Sauer, Steyr-Mannlicher and Yugoimport. The most wide-spread variant of M16/M4 derivatives in the military is undoubtedly the HK416/417 family of Heckler&Koch. This model series of the company located in Oberndorf, Germany, not only combines AR-15 architecture with the reliable G36 gas piston system but also allows arming the weapon while the safety is activated and permits completely ambidextrous operation. The HK416 is the standard rifle in Norway and some other countries and entered the gun rooms of the US Marine Corps as the M27 Infantry Automatic Rifle. Moreover, several Special Forces worldwide belong to the HK416/417 community. The most recent representative of AR clones is the new Turkish MPT-76 infantry rifle with 7.62x51mm calibre, manufactured by MKEK.

Bullpup

The bullpup design places bolt and magazine behind the trigger group in the shoulderstock. Bullpup-designed rifles therefore have, despite unchanged barrel lengths, significantly more compact dimensions compared with classical or buffer-tube designs. Yet they show some disadvantages as they are back heavy and require more complex reloading procedures. Another problem is the location of the ejection port close to the shooter's face – in particular when the rifle has to be fired from the weak side. Technical solutions have already been found, for example for the FN F2000 where the cases leave the weapon farther forward on the barrel through a duct, but a classical ejection port clearly away from the shooter's face would prove much more convenient.

Nonetheless, the armed forces of, for example, Australia, France, the United Kingdom, Israel, Austria, Croatia, New Zealand and Singapore issue bullpup assault rifles as standard armament. One of the numerically largest users might well be the Chinese People's Liberation Army with their 5.8x42 mm QBZ-95. Since Heckler&Koch started to refit hundreds of thousands of British SA80 with the inner workings of the G36 in the middle of the 2000s and because these rifles, now under the designation L85A2, work properly, the United Kingdom expects their service life to last into the 2020s. Early this millennium, Israel started to replace its Galil and M16/M4 stocks with the Tavor TAR-21. In the portfolio of FN is still the F2000 which serves as service weapon in some NATO countries, such as Slovenia.

(Photo: IDF)



IDF infantry equipped with Tavor TAR-21

And most recently Desertech presented its modular Micro Dynamic Rifle (MDR) which can not only be operated ambidextrously but also be quickly refitted for most calibres.

With its STM556 the traditional Austrian manufacturer Steyr-Mannlicher has developed an universal army rifle (Armee-Universal-Gewehr– AUG) in AR-15 architecture, but the company, headquartered in Kleinraming, Upper Austria, nevertheless continues to point to the advantages of its

Assault Rifles II

AUG alias assault rifle (Sturmgewehr) 77. The AUGA3 SF variant has recently been designed for the battle-seasoned Austrian Army Special Forces Command. At Eurosatory 2012 Thales Australia presented its F90 rifle which was developed on the basis of the Australian Austeyr 88 AUG version. Lithgow Arms started the manufacture of the initial series in September 2014.

The French army is going to replace not only the aged FAMAS assault rifle, but also the Bullpup-Design. According to accounts received, the next assault rifle will come either from Beretta, FN Herstal or Heckler&Koch. Waverers might be attracted by the Polish MSBS currently under development because this rifle may be configured both as classical and bullpup variant.

Modular Weapon Systems

Since 2007, the Defence University and the Radom company in Poland have been working on the 5.56 x 45 mm MSBS (Modułowy System Broni Strzeleckiej– modular small arms system). The "classical" variant of this weapon reminds one somewhat of the U.S.-designed Magpul Masada alias Remington/Bushmaster ACR which has been under development since 2006. The MSBS uses a short-stroke piston system and is convertible into a sniper, carbine or light machine gun version. A new 7.62 x 51 mm variant has been taken into consideration which is planned to be supplied from 2015 onwards.

The Special Operations Command Combat Assault Rifle (SCAR) of FN Herstal harks back to a procurement project commissioned in 2004 by the U.S. Special Operations Command (SOCOM). They demanded a highlyreliable modular weapon system that could be configured for different operational purposes, barrel lengths and calibres, should provide maximum possible commonality of parts and could be operated largely like the AR-15 system (U.S. M16/M4 standard rifle). Right from the beginning, the FN direct im-

	IWI TAR-21	Mehmetik MPT-76	Radom MSBS	SIG Sauer MCX	Steyr AUG A3 SF
	-	-		-	-
Calibre	5.56 x 45 mm	7.62 x 51 mm	5.56 x 45 mm	5.56 x 45 mm .300 BLK 7.62 x 39 mm	5.56 x 45 mm
Action	long stroke gas piston, rotating bolt	Short stroke gas piston, rotating bolt	Short stroke gas piston, rotating bolt	Short stroke gas piston, rotating bolt	Short stroke gas piston, rotating bolt
Magazine capacity	30	20	30	20/30	30
Rate of fire (rounds per minute/rpm)	750 – 900	650	700 – 750	ca. 900	680 – 750
Barrel length	460 mm	410 mm	406 mm	171, 228, 317 mm for .300 BLK 190, 292, 406 mm for 5.56 x 45 mm 292, 406 for 7.62 x 39 mm	365 mm 407 mm 508 mm
Length (Shoulder stock ex- tended/collapsed)	720 mm	920 mm	980 mm (Standard) 720 mm (Bullpup)	Depends on version	715 mm
weight (empty)	3,270 g	4,100 g	3,700 g (Standard) 3,400 g (Bullpup)	3,700 g	3,983 g

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Transition from primary to back-up weapon

pingement design with gas piston system and rotating bolt took the lead, and some four years later the 5.56 x 45 mm SCAR-Light and the 7.62 x 51 mm SCAR-Heavy filled the gun rooms as MK 16 and MK 17, respectively. Owing to budget restrictions and experience from the Afghanistan mission that larger calibres provide better ballistic reserves, SOCOM later cancelled the purchase of the MK 16 and instead contracted FN for an increased number of MK 17s. These should be convertible to the 5.56 x 45 mm calibre by means of a 5.56 conversion kit.

The SIG MCX rifle system developed by Robert Hirt and presented for the first time in 2013 can be mission-adapted with respect to calibre, barrel length and shoulder stock. Presently, the user can choose between the calibres of 5.56 x 45 mm, .300 BLK (7.62 x 35 mm) and 7.62x 39 mm. SIG Sauer offers its hammer-forged barrels in diverse lengths. Although similar to an AR-15 system in appearance and operation, the SIG MCX system does without a buffer tube due to its bolt design, a fact that makes diverse options available for plug-in and laterally attachable shoulder stocks. And the MCX remains ready to fire even without mounted shoulder stock. The

barrel guard is made of carbon fibre and, accordingly, further reduces the weight of every weapon variant to about 3.7kg. Bolt catch and magazine release buttons are ambidextrously operable. SIG offers suppressors as well as integral suppressor tubes for this rifle system.

Pistols as Secondary Weapons

The importance of pistols has significantly increased. They have become the secondary service weapon in a number of armed forces. Should the primary weapon fail during a firefight a trained shooter can continue to suppress the enemy for a short period of time. In addition, a pistol is employed more quickly in cramped surroundings and out of vehicles than a shoulder arm.

The foreseeably largest procurement project has once again been envisaged in the USA. After Joint Combat Pistol and Combat Pistol programmes being barren of results, the US Army is now going to determine a successor for the Beretta 92F – alias M9 – in the Modular Handgun System (MHS) project starting in January 2015. The traditional Italian company keeps on offering the US Army a modernized M9A3 via an Engineering Change Proposal/ECP. Should this project once and for all fail, and a tender follow, the award of a lucrative contract will be in sight. The US Army alone plans the procurement of about 280,000 standard pistols and 7.000 compact/sub-compact variants, starting in 2017. The other services might follow by ordering another 212,000 items



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Pistols							
Modell	Beretta PX4	FN Five-seveNP	Glock 17 Gen 4 (P9A1)	HK SFP9	SIG Sauer P320	Walther PPQ	
	-91	Pio-		122		T	
Calibre	9 x 19 mm (.40 S&W and .45 ACP optional)	5,7 mm x 28	9 x 19 mm	9 x 19 mm	9 x 19 mm (.40 S&W, .357 SIG and .45 ACP optional)	9 x 19 mm (.40 S&W optional)	
Length	192 mm	208 mm	186 mm	186 mm	203 mm	180 mm	
Barrel Length	102 mm	122 mm	114 mm	104 mm	119 mm	102 mm	
Weight (empty)	785 g	610 g	625 g	617 g	833 g	615 mm	
Magazine capacity	17	20	17	15	17	15 or 17	
Manual safety	optional	yes	no	no	optional	optional	
Action/Trigger	Rotating barrel action/Optional SA/DA, DAO, Constant	Striker fired, delayed blowback/ SA, DAO	Striker fired/ Safe action	Striker fired, modified Browning, Single Action only	DAO, safety trigger optional	Short recoil operated/Quick Defence	

SA = Single Action, DA = Double Action, DAO = Double Action only

Beretta, CZ, FNH USA, Glock, Heckler & Koch, IWI, Ruger, SIG Sauer, Smith & Wesson (in team with General Dynamics) and Walther might well be among current 20-odd candidates.

Yet it is not only the U.S. market that has come to life. The Belgian armed forces are currently replacing their nine-para pistols and submachine guns with the FN FiveseveN weapon system (pistol, personal defence weapon, ammunition) with 5.7 x 28mm calibre. FN also offers the "classical" FNP pistol family in different variants and calibres and, of course, also with the 9 x 19 mm calibre. Not to forget the striker-fired FNS pistol family.

Gaston Glock's pistol family ranks as before amongst the most wide-spread duty handguns. Only recently the Bundeswehr joined this user community. The German Naval Special Forces Command is presently purchasing a special variant of the Glock 17, the Generation 4 Nine-Para pistol. This pistol has been catalogued as P9A1 in the Bundeswehr. The main reason behind this purchase is the striker-fired action proving advantageous in maritime environments. The P9A1 can thus be employed underwater for close quarters combat. However, the P9A1 will not replace the P11 underwater pistol of Heckler & Koch which had been designed especially for underwater combat. Its interchangeable back straps are the most distinctive criterion compared with the Glock17 Generation 3 which has already been catalogued as P9M (M = maritime) and been introduced, among others, into the GSG9 of the German Federal Po-

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Designated Marksmen with M110 SASS (front) and EBR-14 Enhanced Battle Rifle

lice. Moreover, the P9A1 features luminous sights with a U-shaped rear sight as well as enlarged slide stop and magazine release buttons. The Bundeswehr is purchasing the P8 variants P8A1 and P8A1 Combat with reinforced slides. Moreover, the Military Police and other specialists will receive the V1-BW variant of the new P30 of Heckler & Koch as well.

The weapon manufacturer in Oberndorf also produces the nine-para Striker Fired Pistol 9 (SFP9) with a striker-fired action mechanism. In the USA this pistol is known under the designation VP9. The SFP9 is supplied in two variants: one compliant to the German Technical Guideline for Police Pistols (SFP9-TR) and the other variant for use in Special Forces (SFP9-SF). For the first time since the presentation of its MK23 pistol in the early 1990s, Heckler & Koch has developed a conventional pistol fully adapted to maritime environments, the SFP9M. It can be immediately fired by a surfacing shooter in "over-the-beach-sce-



Modular Sniper Rifle

DMR and Sniper Rifles

narios" and, according to the manufacturer, it also allows firing several magazines of full-metal jacket and even deformation ammunition underwater. Designed specifically for maritime Special Forces, the SFP9M has passed the toughest testing procedures, among them the NATO ten-day salt water endurance test.

SIG Sauer pistols belong to the equipment of military and police forces worldwide. A brand-new introduction to the portfolio is the modular P320 pistol family. These Double-Action-Only pistols are available in a Full Size and a shorter Carry variant. The weapons excel with a sophisticated modularity with respect to calibre conversion and size adaptation. SIG is presently working on a German Technical Guideline-compliant variant for the German police pistol market that is scheduled to be presented in April. The PPQ of Carl Walther/Umarex is based on the German Technical Guideline for Police Pistols but deviates with a different trigger resistance of approximately 25 Newtons. With its preset striker "Quick Defence" trigger, the PPQ in its Classic, SD (suppressed) and Navy variants was especially tailored for use by military Special Forces. The Navy variant is particularly suitable for maritime areas of operation. The PPQ M2 models feature a magazine release button which may optionally be located at the left or right weapon side instead of being integrated into the trigger-guard.

Not forgetting a funky new development! Commissioned by a European agency, the German handgun manufacturer Korth has developed the compact "Korth Sky Marshal" revolver with 9 x 19 mm (!) calibre and, above all, a Picatinny mount integrated into the right-hand weapon side.

Sub-Machine Guns and Personal Defence Weapons

Sub-machine guns and Personal Defence Weapons (PDWs) are extremely compact long guns that fire pistol ammunition over effective ranges of 100 to 200 metres. They are the typical primary weapons of military leaders, specialists and equipment operators and also in use with Special Forces.

Among the most commonly used submachine guns in the world is the HK MP5 which is currently being supplied as a Mid-Life Improvement (MLI) variant. As already mentioned, the FN 5.7 x 28 mm P90 with

	FN SCAR TPR	HK DMR762-MR Accuracy Inter- (G28) national AXMC		Haenel RS9 (G29-competitor)	Unique Alpine TPG-3A5 (G29-competitor)			
	-	T	FTT	North Contraction	-			
Purpose	Semi Automatic Sniper Rifle	Semi Automatic Sniper Rifle	Multi Calibre Bolt Action Sniper Rifle	Bolt Action Sniper Rifle	Bolt Action Sniper Rifle			
Calibre	7.62 x 51 mm	7.62 x 51 mm	a).338 Lapua Magnum (8.6 x 70 mm) b) .300 Winchester Magnum (7.62 x 67 mm) c) .308 Winchester (7.62 x 51 mm)	.338 Lapua Magnum (8.6 x 70 mm)	.338 Lapua Magnum (8.6 x 70 mm) (Multi Calibreoptional)			
Magazine capacity	10,20	10, 20	10	10	10			
Effective range	800 m	800 m	1,500 m (.338)	1,500 m	1,500 m			
Barrel length	20" (510 mm)	420 mm	20" (508 mm) 24" (610 mm) 26" (660 mm) 27" (686 mm)	27" (685 mm)	26" (660 mm)			
Total length (Shoulder Stock ex- tended/collapsed)	1,085 mm	1,050/970 mm	1,125/965 mm (27"-barrel)	1,300/990 mm	1,245/934 mm			
Weight	5,000 g	7,900 g (combatready)	6,600 g (empty)	8,000 g	6,200 g			

Machine Guns							
	FN MINIMI 556 MK3	HK MG5A1	M60E6	Negev-7	Rheinmetall MG3KWS		
	- Starter			-10	* *		
Purpose	SAW	GPMG	IMG/SAW	IMG/SAW	GPMG		
Action	Long stroke gas piston, firing from open breech, rotating bolt	Long stroke gas piston, firing from open breech, rotating bolt	Gas operated, firing from open breech	Short stroke gas piston, firing from open breech, rotating bolt	Recoil operated, firing from open breech		
Calibre	5.56 x 45 mm	7.62 x 51 mm	7.62 x 51 mm	7.62 x 51 mm	7.62 x 51 mm		
Muzzle velocity	860 – 915 m/s	840 m/s	853 m/s	810 – 860 m/s	820 m/s		
Effective range	500 m	1,500 m	1,100 m	1,000 m	1,200 m		
Rate of fire (rounds per minute/rpm)	800	640/720/800 cocking while safety is activated	500 – 650	850 – 1.150	1.200		
feeding	Belt or magazines	belt	belt	belt	belt		
Barrel length	349 mm 465 mm	663 mm	560 mm	420 mm or 508 mm	565 mm		
Total length (min/ max)	766mm/1,049 mm	1,055 mm	940 – 965 mm	730 – 1,000 mm	1,225 mm		
Weight	7,800 g – 8,100 g	10,100 g	9,270 – 9,850 g	7,500 g - 7,600 g	12,500 g		

associated Five-seveN pistol are currently replacing the previously used Uzi and FN nine-para High Power pistols in Belgium. SIG has recently presented its MPX with a design similar to the MCX except for its 9 x 19 mm calibre.

Designated Marksman Rifles and Sniper Rifles

Owing to innovative rifle marksmanship training concepts – e.g. the Swiss "Sniping 4th Generation (S4G)" – an assault rifleman can now be effective over relatively long distances. The benchmark should be the "infantry half kilometre" which Major Thomas P. Ehrhart postulated in his monograph "Increasing Small Arms Lethality in Afghanistan – Taking back the Infantry Half Kilometer".

The US-developed "Squad Designated Marksman" (SDM) concept for precise semi-automatic firing over increased distances has meanwhile become established in many NATO forces. It is based most frequently on a modified standard rifle with a simple rifle scope ("Designated Marksman Rifle/DMR"). In a short training course the shooter acquires the required skills to hit targets beyond 300 up to about 600 metres. Rifles mainly used for this purpose include the HK417 (France and Norway, among others), the HK G28 (Germany), the LMT 129A1 (United Kingdom), the FN SCAR-H PR (Lithuania)or the M14 EBR (USA).

Finally, the sniper of today has reached the highest degree of specialization. He has received considerably more intense and longer-lasting training, operates largely independently, is in most cases equipped with a precision bolt-action rifle and signifimade his longest kill at 1,920 metres in the Iraq War, and in November 2009 the British Corporal of Horse Craig Harrison eliminated two enemy machine gunners in the Afghan province of Helmand at a distance of 2,475 metres / 2,710 yards.



Heckler & Koch MG5 (front) and MG4

cantly superior optical, optronic and radio systems and is accompanied by an observer (spotter) who is a qualified sniper as well. Depending on their armament, a sniper team may be effective at some 1,800 metres. Even longer distances have been documented. The US Navy SEAL Chris Kyle Well-known semi-automatic sniper systems include the Knights Armament M110 (USA), the FN SCAR TPR and the G28. Yet snipers are typically using bolt action rifles with .300 Win Mag and increasingly .338 Lapua Magnum calibre ammunition. The Bundeswehr is therefore looking for such



XM25 "Punisher" deployed in Afghanistan



Vingmate Fire Control System attached to a HK grenade machine gun

will replace the MG3 of Rheinmetall, one of the world's best and most battle-proven weapons of its kind. To those nations that are going to retain the MG3 – which is still produced by MKEK as well as Pakistan Ordnance Factory - in cooperation with Tactics Group and Sport Systeme Dittrich, Rheinmetall will offer an upgrade kit, the MG-3KWS. The FN MAG also counts among the most commonly used Universal-MGs worldwide and continues to be produced. Further market opportunities are emerging for 7.62 x 51mm SAWs. In this segment, FN offers the FN Minimi 7.62 which is the big sister of the Mini Mitrailleuse (FN Minimi 5.56). HK has launched its MG4 which now features the arming functionality with activated safety like the MG5. US Ordnance recently registered a success in Europe as the Danish armed forces purchased their M60E6 as light infantry machine gun. The most recent developments cause one to speculate that one General Purpose / Universal together with one light machine gun (IMG) will become the established standard in infantry squads.

Grenades

Grenades remain versatile effectors of choice. Their spectrum ranges from hand grenades through underslung grenade launchers (UGLs), standalone grenade launchers (SGLs) and grenade machineguns (GMGs) to anti-tank and multi-purpose grenade weapons. Even mortars and guided missiles can fall into this category. At infantry squad level a "Designated Grenadier" could soon be established who is equipped with an SGL including fire control unit and programmable Air Burst Munitions to enable him to engage even defilade targets. Here the US forces favour

a weapon to be designated G29, while for the time being the Accuracy International G22 remains the service rifle. Meanwhile some manufacturers offer also multi-calibre sniper systems.

Machine Guns

The machine gun has traditionally been the primary weapon of the infantry squad. In the early 1990s the idea of two light belt-fed 5.56 machine guns – so-called "Squad Automatic Weapons" (SAWs) – per fire team seemed to win through. In recent years, however, the classic 7.62 x 51 mm "Universal-MG" (general purpose machine gun or GPMG) has enjoyed a revival. In particular Germany hews to the concept of the "Einheitsmaschinengewehr" (GPMG). In the near future the Heckler&Koch MG5



RGW 90 AD with Airbus DS Optronics Fire Control Unit

Grenade Weapons							
	XM25	Hydra	IMI MPRS	RGW90AD	T0605_Carl Gustaf M4		
		I			-		
Purpose	Magazine fed stand alone grenade gun	Magazine fed stand alone grenade gun	Assaul trifle with under- slung grenade launcher	Multi role grenade weapon; Davis Gun	Multi-role grenade rifle		
Calibre	25 mm x 40	40 mm x 46 LV/MV	40 mm x 46 LV/MV	90 mm	84 mm		
Effective range	500 – 700 m	400 m (LV) 800 m (MV)	400 m (LV) 800 m (MV)	20 – 1,200 m	Upto 1,000 m		
Ammunition	Air Burst	Air Burst	Air Burst	Blast/Frag (Air Burst) Illum, Obscurant, Anti Structure, Anti Vehicle	Anti Tank, Multi Pur- pose/Anti-Structure, Anti Personal (Air Burst), Illum, Obscurant		
Magazine capacity	4	4,6 or 10	Single shot	Single Shot	Single Shot		
length	749 mm	850 mm	Depends on rifle model used	920 mm	< 1,000 mm		
Weight (empty)	6,350	4,000 g	Depends on rifle model used	10,000 g	< 7,000 g		

a 25-mm weapon. During field trials in Afghanistan, the XM25 developed by ATK, Heckler&Koch and BAE Systems was nicknamed the "Punisher". South African Denel Dynamics is working on a semi-automatic Personal Area Weapon chambered for 20 x 42 mm grenades. Israel Military Industries offers its Multi-Purpose Rifle System in



Carl Gustaf M4 equipped with Aimpoint FCS-12 Fire Control System

which 40mm ammunition is programmed in the UGL barrel. Rheinmetall is developing the magazine-fed 40 x 46 mm Hydra SGL which transmits to the projectile the optimum time for detonation after leaving the weapon.

The larger-calibre anti-tank weapons have meanwhile turned into versatile multipurpose weapons. Only recently, Saab presented the 4th generation of the Carl Gustaf grenade rifle. Quite a few types of ammunition are meanwhile available for the 84mm launcher, some of which can also be fired from confined spaces. With its Recoilless Grenade Weapons of 60mm and 90mm calibre, however, Dynamit Nobel Defence backs a different system. The varied ammunition family consists of disposable cartridges with - depending on type –integrated or separate grip stock and fitted with either an optical system or a fire control unit. The weapons are based on the Davis-Gun counter mass principle so that they can be employed also from enclosed spaces.

Optical Equipment

Many armed forces use reflex sights and red dot sights, mainly to enable quick aiming and hitting and to reduce training periods. These types of sights provide, if at all, only low magnification. The shooter aims at the target via a reflected dot or a similar reticle. He can keep both eyes open, his field of view remains almost unrestricted and he retains his situational awareness. Reflex sights are considerably less prone to canting and are usable under almost any visibility conditions. Wherever the shooter homes in with the red dot he will hit. Among the biggest manufacturers of such sights are Aimpoint, Elcan, L3, Meprolight and Trijicon. Despite the resulting reduced training requirements it still makes sense to train the shooters in the use of conventional mechanical sights, the so-called Back Up Iron Sights/BUIS, because these are always good for a stopgap solution.

What has been true for weapons and equipment is equally valid for optical equipment: Modularity is standard. The Hensoldt company, now belonging to Airbus Defence& Space Optronics, is building up its targeting scope family around the ZO 4x30 scope which will become the standard targeting device in the Bundeswehr to be mounted - fitted with different reticles - on diverse small arms and light AT weapons. Moreover, the ZO 4x30 may be supplemented by additional Hensoldt infrared and night vision devices. In the meantime other renowned scope manufacturers also supply equally compact targeting scopes with 4x magnification.

The increasing importance of designated marksmen or sharpshooters gave rise to the idea of combining red dot sights with a targeting scope. Relevant examples include the Steiner 1-5 x 24, the Kahles K16i 1-6 x 24 or the Schmidt & Bender 1-8 x 24 PMII Short Dot. With red dots displayed in the reticle these scopes develop excellent close quarters shooting capabilities. Add-



Aimpoint M4 used in combination with a 3x Magnifier

ed to this is good magnitude adjustment functionality suitable for snipers without increasing the compact dimensions and low weight of the scopes. Another advantage remains common to all low magnitude scopes: The shooter can keep both eyes open when setting his sights on the target, thus preserving his overall situation alawareness.

Precise shots over long distances require high-power scopes that are mounted on adequate weapons and operated by highly trained sharpshooters. Lenses with variable 3x to 12x magnification and apertures between 50 and 56 mm are very common.

Traditional European manufacturers like Hensoldt, Kahles, Schmidt&Bender, Swarowski or Steiner naturally call the shots, but also the USA does not need to hide in this market, with outstanding manufacturers including Leupold& Stevens or Nightforce.

In the Precision Sniper Rifle (PSR) tender of USSOCOM, Schmidt & Bender was able

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German Infanterist der Zukunft – Erweitertes System equipped with G36A3, Hensoldt ZO 4x30 and Rheinmetall Vario-Ray laser-light module



The USMC has fielded the Schmidt&Bender 3-12 x 50 PMII as the M8541 Scout Sniper Day Scope and the Leupold Mark 4 as the Scout Sniper Observation Telescope

to get hold of a contract to the value to more than U.S.\$ 34.2 million – almost EUR 26 million – at the end of 2011. The Special Forces of Army, Navy, Air Force and Marines meanwhile use the 5-25x56 PM II scope in its PSR special variant on their sniper rifles. This scope is currently in the running for the German G29 project. The traditional American Leupold& Stevens company (originally founded, of course, by German emigrants) scored high marks with the US Army, and the Mark 4 6.5-20 x 50 Extended Range/Tactical riflescope mounted on the Enhanced Sniper Rifle XM2010 comes from its production.

Even high-power riflescopes with large apertures and increasingly larger zoom ranges are becoming shorter and more compact.



Meslas Fire Control Scope

Some examples: the Kahles K624i 6-24x56 is 405 mm long with a weight of 950 g; the Steiner Military 5-25x56 is 422 mm long and weighs 1,030 g; the latest Schmidt & Bender 3-27x56 PM II High Power has a length of 390.1 mm and a weight of 1,128 g; and the Hensoldt 3.5-26x56FF is 370mm long with a weight of 1,300 g. And there's more to come: Schmidt & Bender has developed the PM II Ultra Short 5-20 x 50 at just 299.5 mm long for use with short and light weapons.

To engage enemy forces at night, "in line" mounted night vision devices (image intensifiers or thermal imaging) are the norm. Many companies offer those sensors. Among them are AIM (HuntIR Mk 2), FLIR (HISS-XLR), Hensoldt (NSV600, NSV 1000, IRV600, IRV900,), L-3 (AN/PVS-24), Meprolight (Mepro NOA4x, NOA7x), PCO (PCS-5/5M, SCT Rubin), Rheinmetall (KN200/250), Qioptiq (Merlin, Dragon), Sagem (Sword)– to name just a few.

In the field of multifunctional handheld devices, Vectronix and Sagem have joined forces to develop one of the latest pieces of kit, the Moskito TI. It incorporates eight essential functions in one lightweight device: wide field-of view thermal imager for detection, LLCMOS camera for 100% positive identification by day and night, lowdivergence fibre laser rangefinder for best performance in harsh environmental conditions, direct view optics for maximum DRI performance, digital magnetic compass, inclinometer, global navigation satellite system (GNSS) and an internal, optional eyesafe laser pointer for target handover.

Are Fire Control Scopes the Future?

A riflescope alone does not make a master marksman. In fact, its effective use requires a lot of training and experience on the part of the shooter. Now, could cumbersome ballistic calculations, scope adjustments or even the spotter alongside the sniper become obsolete if scopes with integrated fire control computers find their way into the military? Advances along these lines have already been visible for years, for example with the Sniper Auxiliary Module of Hensoldt. Schmidt&Bender, too, have recently presented a digital scope into which diverse data relevant for target engagement are reflected.

Veritable fire control units or "smart scopes" will constitute the next step. At the SHOT Show in 2013, USA-based Tracking Point presented its Precision Guided Firearms (PGF). Their core is a networkable scope with laser rangefinder that blocks the rifle trigger until the reticle coincides with the target and

all calculated parameters promise high hit probability. Meprolight from Israel includes the Meslas fire control riflescope in its portfolio. Here also the shooter receives a scope packed together with laser range finder and ballistic computer. Yet for different reasons experts still voice doubts, for if the technology fails, sound proficiency and ballistic expertise will continue to be required. In addition, lessons learned in operations have shown that a sniper team needs at least a second, if not three or more men to be able to work shifts and to secure themselves effectively. Recent developments in programmable, guided small-calibre projectiles - bullets as missiles, will also soon need to be taken into account.

"Ceterum censeo... – Furthermore, I consider training to be part of the toolbox!"

Finally one aspect that matters in the overall consideration of existing hand weapon concepts needs to be particularly underlined: training. (Marksmanship training is a topic to be revisited later in the year with EUROPEAN SECURITY & DEFENCE – Ed.) The most reliable weapon with the most advanced calibre will be useless if its operator is unable to employ it properly. The soldier not only needs to master the basic



The L3 GPNVG night vision goggles offers a field of view of 97°

operation of hand weapon, optical equipment and ancillary devices and to acquire outstanding marksmanship skills: he must also excel through his will to fight, his readiness for action, and the responsible safe handling of his hand weapons. Only then will he be able to unleash full firepower in battle!



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Sustainable Options in Military Corrosion Defence Roman Kernchen

Corrosion of military platforms or their components is an enormous matter, that affects both economic and safety issues and is becoming more prominent as the acquisition of new equipment slows down and more reliance is placed on modifications and upgrades to extend the life of the current systems.

A rmed forces have long recognised the pervasive effects of corrosion on equipment and infrastructure and have developed corrosion prevention and control programs, including research and development, training, and operations. With ongoing reduction of defence budgets, serious consideration must be given to the selection of advanced materials, processes, and designs that will Chemical rust removal involves the use of highly concentrated acids which often have side effects for materials, people and the environment. Furthermore, when the solutions are exhausted they need to be neutralised. Both, physical and chemical corrosion removal require costly equipment, including a higher level of personnel protective equipment (PPE) and continued training as the personnel rotate.



Corrosion control on a Seahawk helicopter

require less manpower for corrosion maintenance. Of major importance is the development of new materials with improved corrosion resistance. However, it is equally important to develop procedures and methods to maintain the existing materials that are currently in use. The common physical rust removal methods are based on the use of abrasive grits, or the use of high power water jet blasting. These procedures do offer logistical advantages in the removal process, but the operational labour tends to be costly.

<u>Author</u>

Dr. Roman Kernchen is the Managing Director of Eyvor GmbH In recent times alternative approaches aim to adopt a less labour intensive and environmentally acceptable procedure that will dissolve the rust within a reasonable time and produce a cleaned surface. One major focus of these approaches involves the application of chelating agents for rust removal and inhibition. A chelating agent is a chemical compound that reacts with metal ions to form stable, water-soluble metal complexes. However, commonly used chelating agents are poorly biodegradable and concerns have been raised about their detrimental environmental effects. Therefore, considerable efforts have gone into searching for greener, more biodegradable alternatives.

Especially promising are biochemical chelating agents, known as siderophores.



Siderophore molecule with iron ion

Such agents offer several advantages related to rust removal including recyclability and biodegradability. Since the rust removal process of these agents is very gentle without strong acids or toxic substances, there is also no need for the utilisation of personnel protective equipment. The use of such chelating agents for corrosion defence, which today can be produced biotechnologically on competitive terms, could be an effective and sustainable alternative in protecting the safety of military personnel, eliminating hazardous waste disposal, reducing labour costs, and preserving defence readiness.

In spite of much advancement in the field of corrosion science and technology, the phenomenon of corrosion remains a major concern to armed forces around the world. Innovative chemical or biochemical agents for corrosion removal and inhibition, however, could have the potential to render possible a more environmentally friendly and sustainable corrosion defence.

Rising Challengers

Ambitious New Defence Exporters Are Reshaping International Defence Trade Heiko Borchert

The defence industries of South Korea, Turkey and the United Arab Emirates are forcefully entering global defence markets. What are their strategies, and what are the implications for European competitors?

mbitious emerging defence companies are changing the face of the global defence business. Most of them adhere to a traditional understanding of sovereignty: the government plays a central role, hard power is an important indicator of national sovereignty, and armed forces are key. Many European countries consider this approach outdated. Europe tends to downplay the political relevance of hard power; as a consequence, defence procurement budgets are decreasing. Defence suppliers looking for markets are therefore increasingly turning to the Greater Middle East, the Asia Pacific region and Latin America. But ambitious countries in these regions are no longer satisfied with simply buying defence products. They are striving for co-production, establishing their own manufacturing capacities and technological capabilities and boosting defence exports. This is changing the balance of the market.

New challengers are breaking into a global defence export business that up to now has been largely dominated by the United States and Russia. According to statistics from the Stockholm International Peace Research Institute (SIPRI), these two countries accounted for 56% of global defence supplies from 2000 to 2013. Among the new challengers, China is playing in a geostrategic league of its own, but Turkey, South Korea and the United Arab Emirates (UAE) share many similarities. In these countries, governments set the strategic guidelines, hold financial stakes in the major companies, finance defence-related research and

Author

Dr Heiko Borchert is the Owner and Managing Director of Borchert Consulting & Research AG, a consulting agency specialising in strategic affairs. development (R&D), and promote defence exports. Offset and transfer of technology requirements are vital for building up local defence industrial capabilities, and overall these countries use their armaments policy as a political currency. Booming defence countries in the region and beyond. But this strategy is risky: domestic consensus on President Erdogan's policy is fragile, and Ankara's zero problem policy has led the government to ignore strategic vulnerabilities in the past that are creating problems today (for example Syria and Kurdistan). Three aspects define South Korea's geostrategic environment. First, threats emanating from North Korea shape Seoul's defence capability and armaments priori-

defence capability and armaments priorities. Delaying the transfer of operational control in peacetime and war from the United States to South Korea is the sec-



The T-50 Golden Eagle is a family of South Korean supersonic advanced trainers and multirole light fighters, developed by the consortium that was established by Korea Aerospace Industries (KAI) along with the American aerospace company Lockheed Martin.

exports demonstrate that governments can successfully establish high-technology industries. This justifies and legitimizes the government's strong hand on the domestic front. In addition, defence exports are vital for exerting international influence by establishing and cultivating strategic partnerships.

Different Geostrategic Settings

Turkey aims to become a core regional actor. In alluding to the zone of influence of the former Ottoman Empire, Turkey follows a clever branding strategy that portrays the state as a preferred partner for Islamic ond important characteristic. Deferring this decision prolongs South Korea's strategic dependence on the United States and further strengthens the already dominant role of U.S. defence suppliers in the country. Finally, economic ties between China and South Korea are growing, which prompts the question as to whether Seoul can maintain the balance between security and economic loyalties or if Beijing will replace Washington as South Korea's key strategic partner.

A different dynamic is at play in the Greater Middle East. The six members of the Gulf Cooperation Council (GCC) follow individual foreign and security policy interests but are increasingly willing to use the GCC



Shipyard installations of Abu Dhabi Shipbuilding in the UAE

to adjust their activities. This strengthens the role of the Peninsula Shield Force as a mechanism to coordinate military cooperation. So far, Saudi Arabia has played the leading role, but Qatar and the Emirates have significantly increased their political stature in recent years. The Emirates are more active than their neighbours in pushing cooperation beyond the GCC to diversify political relations. Among others, the Emirates cooperate with the United States, France and the United Kingdom, as well as with Russia, Singapore, South Africa, South Korea and Turkey.

The Government's Very Visible Hand

In Turkey, the government holds stakes in several leading defence companies, in particular the national champions Aselsan, Roketsan and TAI. The government shapes interaction between these national champions and other national suppliers, research institutes and technology clusters. In addition, the government operates its own very effective defence capacities, such as the naval yards. By contrast, privately owned defence companies have a hard time. This was illustrated in 2013 when RMK Marine, which is part of the Koç family conglomerate, lost the contract for six new MILGEM corvettes following rumours of alleged irregularities during the competition. Over the years, Turkey has developed a very productive national defence industry. The land systems and naval and missile industries are the cornerstones, whereas the aerospace industry still depends on foreign partners, in particular for advanced propulsion systems. Turkey is ramping up its efforts in the fields of electronics and information technology, with the government paying specific attention to beefing up cyber security. South Korea's government holds stakes in Korea Aerospace Industries and Daewoo Shipbuilding and Marine Engineering (DSME) but uses technology and product development as its main inroad to shape the defence sector. Most importantly, it is the government that holds intellectual property rights (IPR) in the defence sector. The Agency for Defence Development (ADD) and the Defence Acquisition Program Administration (DAPA) are the key players. DAPA sets out strategic guidance for future weapons developments. With the support of ADD, DAPA also selects the relevant project participants. Defence companies are critical of this arrangement, as ADD is said to influence product design to its own advantage. ADD also operates as the sector-wide system integrator, putting together the components co-developed by private defence companies. With this, ADD acts as the ultimate balancer among South Korea's Chaebols, the dominating familyowned business conglomerates. The geostrategic setting has a direct impact on the strengths and weaknesses of South Korea's defence industry. All weapon systems supporting the army to defend the country against aggression from the north can be considered areas of strength, in particular the land systems industry. By contrast, in parts of the naval and aerospace segments South Korea continues to depend on foreign partners.

The Emirates leverage the dual-use nature of defence and aerospace, heavy industries, telecommunications and life sciences to diversify the national economy. When it comes to defence, the UAE has put a major emphasis on establishing local industrial capacities in the fields of precision guided missiles, cyber security, unmanned aerial systems (UAS) for intelligence and reconnaissance as well as unmanned combat aerial systems. In addition, the UAE defence industry has basic capacities to develop, produce and maintain land systems and has manufacturing capacities for munitions. The naval industry is well established, with Abu Dhabi Shipbuilding as the main actor, whereas the aerospace industry focuses mainly on maintenance, repair and overhaul. Right now, the defence industry is being overhauled by establishing the Emirates Defence Industries Company (EDIC), the new home of many different companies.

Offset and Transfer of Technology as Key Levers

From 1998 to 2012, foreign defence suppliers signed offset requirements worth around US\$17.6bn with Turkey. By the end of 2012, defence offset obligations worth US\$8.4bn were delivered – around 70% were met through Turkish defence exports. This exemplifies the key role of offset to internationalize the Turkish defence industry. The offset policy as set by the Undersecretariat for Defence Industries (SSM) is demanding, with offset requirements worth at least 70% of the contract volume and no minimum threshold. Transfer of technology is key to fulfilling offset obligations. Current SSM priorities - software development, command and control systems and electronic warfare – provide a glimpse into future preferences. To advance knowledge and technology transfer, SSM and the Middle East Technical University have set up a special programme to align research and defence industrial priorities. In addition, industry cluster and technology parks are important offset instruments, as they bring together all relevant national stakeholders and international partners.

DAPA is the key player in South Korea's offset policy. Offset worth 50% and more is due for contracts above US\$10m. DAPA is ready to make concessions based on government-to-government (G-to-G) agreements with foreign partners. There are different ways to meet offset requirements, including technology transfer, export for local defence suppliers, joint R&D projects and technical training for South Korean R&D personnel. In principle, foreign direct investment (FDI) could help meet

looking for. Overall, the UAE offset policy follows closely in Turkey's footsteps, which underlines the country's ambition. The fact that the former Offset Program Office has been transformed into the influential Tawazun Holding, which maintains stakes in the country's leading defence companies, is widely seen as a success. But challenges remain. In particular the lack of qualified local workers is a major problem. Out of 8.2m people living in the Emirates, only 10-15% are Emiratis. Shortfalls in the indigenous workforce seriously limit technology and know-how transfer and slow down the growth of the local defence industry. The significant proportion of foreign workers creates additional challenges concerning preventing unwanted disclosure of sensitive know-how and technology. The lack of





Among others, Roketsan's CIRIT missile has been proposed as a replacement for the unguided rocket weaponry of the Tiger attack helicopter.

offset obligations, but DAPA is reluctant to promote FDI, as the agency wants to strengthen local production capabilities. Foreign suppliers should be aware that DAPA and not the local defence industry holds IPR transferred to South Korea. This reinforces DAPA's pivotal role in the South Korean defence sector.

In the Emirates, offset serves the strategic goal of industrial diversification. Thus, the country's general offset policy is also relevant for the defence sector. The Emirates are prioritizing land, naval and aerospace systems, with a focus on unmanned systems, precision-guided missiles and electronics. Design, engineering, systems integration and manufacturing are among the functional key areas that the Emirates are local workers also inhibits the government from swiftly evaluating and approving offset proposals. This, in turn, delays cooperation programmes with international partners.

Government Support for Defence Exports

For 2023, the 100th anniversary of the Republic of Turkey, the government has set an ambitious goal: Exports should reach US\$500bn, up from US\$252bn at the end of 2013. As part of this overall plan, the government also wants to boost annual defence exports. These reached a record value of US\$1.6bn in 2013 and are to be increased to US\$2bn in 2023. This seems realistic, as offset requirements worth more than US\$9bn need to be met by 2020. Turkey prioritizes defence exports to the GCC and North Africa, Central Asia and the Caucasus, the Asia Pacific region, NATO and EU countries and Latin America. To enter foreign markets Turkish defence suppliers are leveraging their expertise in maintaining and upgrading Western defence platforms. Transfer of technology also plays an important role in defence exports. Turkey's international defence suppliers must meet demanding requirements to enable re-exports to third countries. At the same time, Ankara wants to maintain its technological lead over third countries and acts cautiously when exporting its own technology. Along with the country's industry associations, leading government officials actively promote Turkish defence products. This provides opportunities but also entails risks. Eqypt is a case in point. The Turkish industry has benefited from close political links with the Egyptian government of former President Mohammed Morsi, but prospects have dimmed since Morsi's fall.

South Korean defence exports that reached US\$2.3bn in 2012 are to be increased to US\$4bn by 2020. The government actively promotes defence exports with the help of regional strategies, financial aid and G-to-G agreements. So far, South Korea has not developed specific export configurations but sells national defence products such as the KAI T-50 Golden Eagle trainer and multirole fighter, K-9 Thunder self-propelled howitzer, naval ships and submarines. South Korea's most important defence export markets include the Asia-Pacific region (particularly Indonesia and the Philippines), North America and the Greater Middle East (for example, Iraq). The UK and Norway have picked DSME to provide new support vessels. In addition, Seoul maintains a strong interest in the Polish defence market. South Korea's R&D priorities mirror the country's export ambitions. Current priorities include surveillance and reconnaissance; precision-guided munitions, missiles and torpedoes; unmanned systems; protection technology; and air defence. These priorities fit into the geostrategic situation on the Korean peninsula and are relevant for other theatres around the globe. Thus, it is fair to assume that these priorities are meant to prepare for South Korea's second wave of defence exports.

Until recently, defence exports from GCC countries have been negligible, but things are changing rapidly, in particular in the Emirates. The Emirates have a tendency to "buy too much" and then have to of-fload overstock through re-exports and

hand-over to third countries like Eqypt and Jordan). Investments in local defence manufacturing capacities are a means to provide local job opportunities, but export ambitions are the main driver. Exports to meet offset obligations play an important role for the UAE as well, which is why the Emirates cooperate with partners that follow ambitious export plans. It is no surprise, therefore, that joint venture companies established with Turkish partners primarily target exports to the Greater Middle East, North Africa and Asia. The Emirates' current drive to sell UAS could be a harbinger of future activities. Russia is testing UAS made by Adcom, and the Emirates are negotiating with neighbouring GCC countries and Algeria. The UAE also tried to sell its UAS to France, but this attempt failed due to lack of interest on the French side

All-Round Carefree Financing

In Turkey, R&D for the defence, aerospace and space industries is part of the national strategy for science, technology and innovation. According to SaSad, a local industry association, overall spending on R&D for these sectors was worth US\$3.1bn from 2008 to 2012. The government funded 70%, which illustrates the shortfall in corporate R&D. To complement direct funding, the government also provides indirect fiscal incentives. For example, corporate R&D in technology parks and industry clusters benefits from temporary tax exemption and reduced value-added tax on software products. In addition, the government shoulders 50% of social security payments for workers. The credit line worth US\$250m for defence exports to Egypt can be seen as further sign of the government's growing maturity in defence export promotion. This was the first time that the government had granted export credits. For the future, SSM and the Turkish EximBank are working on a system for defence export financing.

In South Korea the government is the main sponsor for defence R&D as well. According to some estimates, the government spent around US\$1.7bn or 5.6% of the 2013 defence budget on R&D, and this is likely to increase in the future. But it remains to be seen how long the government will be able to support the country's broad defence portfolio. There is also a serious gap between the Chaebols and the country's small and medium-sized companies that hampers innovation. When it comes to exports, the government makes sure that companies pay very low interest rates on export credits. If needed, the



The UAE take part in the P.1HH HammerHead UAS programme of Piaggio Aerospace.

government is willing to subsidize prices to improve the competitiveness of South Korean products abroad.

In GCC countries defence financing is more opaque. The wealthiest GCC nations like Saudi Arabia, the Emirates and Qatar are financing their neighbours' defence procurement projects and providing financial support for other nations in the region such as Egypt, Jordan and Lebanon. In addition, the GCC nations also make smart use of their sovereign wealth funds and investment companies. These vehicles are used to acquire financial stakes in international partner companies that play a pivotal role in establishing the local defence industry. Following this pattern, the Emirati investment company Mubadala acquired the majority stake in Italy's Piaggo Aero, which helps build UAS for the Emirates.

Implications for Established Defence Exporters

For rising defence challengers like Turkey, South Korea and the UAE, establishing national defence industries, exporting defence products and advancing arms cooperation are important policy tools. As these countries progress, well-established defence exporters will need to address tricky questions to remain successful in the long run.

The defence business has always been strongly regulated by governments. The rise of new defence exporters is reinforcing this fact. Whereas European countries are striving for a common defence market with minimal government interference, governments playing a very active role dominate the defence world outside Europe. This growing dichotomy challenges European defence companies, as they need to operate under different frameworks. They will only master this challenge if governments and defence industries form strategic partnerships to identify joint interests and define common strategies that can be implemented in tandem.

More and more, emerging defence markets are challenging current export controls by stipulating demanding transfer of technology requirements. In response, Western governments and companies must have a mutual understanding of each other's "red lines". These red lines depend on political interests and preferences and on the ability to control the flow of technology and know-how. To keep technology transfer more or less under control, defence companies and governments must establish joint technology roadmaps. These technology roadmaps must analyse the impact of technology transfer on current levels of technological maturity. Based on these roadmaps a strategic dialogue is needed to decide where concessions are acceptable, where technology advances are to be maintained and what needs to be done to retain technological superiority.

Despite soaring ambitions, even the most advanced new defence challengers remain dependent on foreign suppliers. This creates opportunities. In addition to technology, emerging defence markets need qualified personnel, and so training and the promotion of local craftsmanship in defence are growing in importance. Offering support in these areas is beneficial for both partners: emerging defence markets receive additional help to diversify national economies, and well-established defence players can blend training with technology transfer.

The International Market for Frigates and Major Surface Combatants

Ted Hooton

Recent awards by Pacific Rim navies for frigates and destroyers emphasise the continued interest in major surface combatants.

Currently only the two former super powers, The United States and Russia, operate modern cruisers which may be regarded as surface combatants with a displacement in excess of 10,000 tonnes. The rest of the world's major navies rely for their major surface combatants upon destroyers and frigates.

Destroyers and Frigates – Technology and Capability Development

The destroyer evolved at the beginning of the 19th Century as an Anti-Surface Warfare (ASuW) platform but by the beginning of the Cold War had evolved into a platform to shield high value naval assets such as aircraft carriers or even special mission convoys of merchant ships against aircraft and submarines. Surface-to-air and surface-tosurface guided missiles have enhanced the Anti-Air Warfare (AAW) and ASuW roles with the former helping to define the role of the modern destroyer. It is usually a multi-role platform of 5,000-10,000 tonnes displacement powered by gas turbines, and the destroyer's primary role is area air defence for both fleet and merchant units. It is usually armed with a 127mm gun (whose range can be enhanced through the new generation of munitions) and it has an Anti-Submarine Warfare (ASW) role aided by embarked helicopters. In the past decade a further role has begun to evolve and that is Ballistic Missile Defence (BMD) using enhanced surface-to-air missiles and improved combat management systems; indeed this has become a major role of all

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The capability for defence against ballistic missiles has only recently been entered into the requirements profile for modern destroyers. The picture shows the launch of an SM-3 missile from a LAKE ERIE Class cruiser of the U.S. Navy.

US Navy cruisers and many of its destroyers as well as the latest destroyers of the Japanese Maritime Self-Defense Force.

There is a considerable degree of overlap in the roles and design of modern destroyers and frigates. The frigate evolved from an ASW platform to become by the beginning of the Cold War a multi-role escort platform for merchant ships or task groups of minor warships. Surface-to-surface missiles provide frigates with a significant ASuW capability and the modern frigate is generally a diesel- or diesel-electric powered multirole escort ship of 4,500-8,000 tonnes full load displacement. It remains primarily an ASW platform, aided by an embarked helicopter, with a local area AAW missile capability and secondary ASuW roles.

As both types of surface combatants are capable of area domination they tend to be what the Americans call 'big ticket items.' They require significant capital investment because they require sophisticated electronics and weapon systems and running

costs are high because they need substantial crews. Attempts have been made to reduce crew strengths but most navies recognise this policy has limitations which compromise efficiency in matters such as damage control and underway replenishment. There remains considerable demand for second-hand platforms, such as the US Navy's OLIVER HAZARD PERRY (FFG-7) class which is being replaced by the Littoral Combat Ship (LCS). But the modern destroyer/frigate is sought by the more prosperous nations to project power beyond their own coasts, and in the case of major navies to other continents thus demonstrating the ability and willingness to protect their vital maritime lines of communication.

Because these surface combatants require substantial capitalisation every effort is made to extend their operational lives through incremental upgrades. The German BRANDENBURG (F123) Class frigates, for example, have received a new combat



In the scope of the FAP 123 capability enhancement effort the German Class F123 frigates received an improved data link as well as a more powerful sonar. More modernisation measures have been planned.

management suite, improved data link and upgraded sonars and this will continue to provide a substantial amount of work for manufacturers. However, the average effective operational life of a major surface combatant is 25-30 years which means that ships have to be replaced on a regular basis but while there are requirements for new frigates in every continent, costs make demand for destroyers more restricted.

Tendencies in Europe

Europe is a case in point with only Russia building destroyers with the first Project 21956 ships being commissioned in 2016 with Moscow planning a total of 15. Problems with frigate designs in the past have made Moscow very cautious and while the last two of six ADMIRAL GORSHKOVs (Project 22350) will be delivered by 2016 the design has not proved a success and guestion marks must be raised about plans for another nine. Three each of the STERE-GUSHCHIY (Project 20380) and ADMIRAL GRIGOROVICH (Project 11356M) class are scheduled for delivery between 2014 and 2015 with another three each in the latter part of the decade if the design proves successful. In November it was revealed Russia had laid down a fourth ADMIRAL GORSHKOV Class frigate and the fifth of a planned six ADMIRAL GRIGOROVICH (Project 11356M) Class frigates of which the lead ship is nearing completion.

In Western Europe only frigate projects are under way or under consideration. Germany plans to receive another three BADEN-WÜRTTEMBERG (F125) Class ships by 2018, with the third laid down in June. France and Italy proceed with the Frégate Européenne Multi-Missions (FREMM) programme with the remaining nine of 11 French AQUIT-AINE Class ships scheduled for delivery between this year and 2022, the last two being AAW replacements for destroyers. Italy has received two BERGAMINI Class ships and will receive the remaining six in the same time frame, and while there is a possibility of another four this may well depend upon the outcome of the Euro crisis. FREMM was selected by Greece to meet its requirements for AAW ships but the same crisis has certainly pushed this project nearer to the end of the decade and this also applies to Spain's plans to replace the six SANTA MARIAS (PERRYs) with the multirole F110 which may not now appear until 2025. Meanwhile Poland is modernising its PERRY Class frigate ORP General Kazimierz Pulaski under a \$34 million deal which will be completed by 2016.

Denmark is completing the last of three lver Huitfeldts this year while the United Kingdom is steadily sailing on with the Type 26 Class frigate project. These will be multi-role ships replacing the Duke (Type 23) Class from 2021 and for cost efficiency will transfer combat management, sensor and weapon systems which have upgraded the Dukes.

Turkey had two frigate programmes; four multi-role TF100 being built as part of the Milgem or National Ship (Milli Gemi) programme and eight TF2000 AAW ships. The latter are supposed to join the fleet from 2018, their number increased in January 1913 from six, but the fate of the former is in doubt after the government cancelled the Milgem programme over claims of irregularities in the bidding process.

Turkey and Asia

Turkey bridges the gap between Europe and Asia and the Pacific Rim market is especially strong, reflecting both the region's growing economic power and the need for its major economies to secure their maritime lines of communication. This is especially true of the prime economies of the region; China, India, South Korea and Japan.

China is currently completing a programme for six Luyang II (Type 052C) Class destroyers with the last joining the fleet this year and may now focus upon its much-debated carrier programme while the first Type 052D was completed last year. However, six Jankai II (Type 054A) Class frigates may be added during the latter half of the decade as the last Type 054 is completed next year. India should complete the last of the three Kolkata (Project 15) Class destroyers this year. A successor, Project 15B, has been authorised and these four ships should join the fleet from the beginning of the next decade together with seven Project 17A class frigates. Pakistan plans to build another four Chinese-designed frigates about the end of this decade and will probably seek a Jiangkai I or II. Bangladesh is converting a former US Coast Guard Hamilton Class cutter into a frigate and may repeat the process with a second but has also ordered two Jianhu III (Type 053H2) Class frigates from China. Neighbouring Myanmar launched its third indigenous frigate in March and has also acquired two Jianhus from China. There are plans for six domes-



The Russian ADMIRAL GORSHKOV Class has the M55R CODAG propulsion system which enables top speeds of up to 30 kn.

tically-produced Aung Zeya Class frigates and four modified Aung Zeyas.

Thailand is upgrading its Naresuan (Type 25T) Class frigates and has ordered two multi-role frigates from South Korea for delivery by 2018. However, Bangkok has said these ships will be based upon the Kwanggaeto Daewang (KDX-1) Class destroyers and that they will be fitted for, but not with, an area air defence missile. The Philippines, which has also acquired Hamilton class cutters, is seeking two new frigates which will probably not join the fleet until the end of this decade or the start of the next. This programme began in July. Within South

East Asia Malaysia and Indonesia are focussed upon new corvettes but Vietnam plans to build two Gepard (Project 11661) Class frigates during the latter half of this decade to double its force of these ships.

In East Asia Seoul ended 2013 by announcing orders for another three Sejong Daewang (KDX-3) Class destroyers which have both a BMD and land-attack missile capability and they will probably begin joining the fleet at the end of the decade. It is planning six new 5,900-tonne destroyers in the KDDX programme and is seeking funding for the first three to be delivered by 2025. In addition a second batch of Incheon (FFX) Class frigates are likely to be ordered with some 18 appearing from early in the next decade to bring the total to 26 by 2026. They will join the remaining eight Batch 1 frigates which will begin replacing the Ulsan Class from this year. To the north Pyongyang is building two 1,300-tonne frigates while across the Straits of Tsushima, Tokyo continues to maintain work in its shipyards and modernises the fleet through a steady stream of orders, the latest for another two Aegisequipped Kongou Class destroyers for delivery circa 2020. The last of four Akizuki Class destroyers will join the fleet this year but an order may be expected for up to a dozen destroyers to replace the Hatsuyuki and Hatakaze classes from the second half of this decade.

Oceania

Australia is building three Hobart class destroyers which will join the fleet from 2015, the keel of the last being laid down in February. There is a requirement, SEA 5000, for some eight ships of some 7,000-tonnes and with landattack missile capability to replace the Anzac (MEKO 200) Class ships from 2025. Like the British Type 26 programme, the ships will have sensor and weapon systems transferred from the existing fleet and Canberra has threatened to buy hulls abroad. New Zealand's two Anzacs will be upgraded in Canada in a contract awarded to Lockheed Martin Canada in May. These ships will be the first to receive the MBDA Sea Ceptor surface-to-air missile system.

On the other side of the Pacific Canada's National Shipbuilding Procurement Strateqv includes a plan for 15 Canadian Surface Combatants from the beginning of the next decade. There is no detailed specification for these vessels which are to replace three Iroquois Class destroyers and 12 Halifax Class frigates, the former being AAW ships while the latter are multi-role escorts. Ottawa may well seek a basic multi-role frigate design which can be adapted, like FREMM, for the AAW role.

North America

The mighty United States Navy continues with its Arleigh Burke (DDG 51) class pro-



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At the end of 2013 Seoul ordered three additional SEJONG DAEWANG (KDX-3) Class destroyers which are to provide both a BMD and land target engagement capability.

gramme and has extended the Flight IIA phase with 10 ships due during the second half of this decade. They will be followed by up to 22 Flight III ships, which will see modifications to the combat management, sensor and weapon suites to become virtually new ships. Plans for a Flight IV ships in the 2030s are likely to be replaced by the Future Surface Combatant programme. Three Zumwalt (DDG 1000) Class ships will join the US Navy from 2016 to 2018 but the huge cost of these ships mean that plans for 32 were abandoned long ago in favour of the Arleigh Burkes (which will incorporate some of their technology) and their massive displacement, more than 15,000 tonnes loaded, suggest they may well be redesignated 'cruisers' following the precedent of the Leahy (DLG/CG 16), Belknap (DLG/CG 26) and nuclear-powered Virginia (DLGN/CG 38) classes.

The LCS frigate replacement programme remains contentious. They are highly advanced (and therefore expensive) platforms, due to a 40-knot requirement, which will take a variety of modules to meet varied roles from local area air defence to mine counter-measures. Outside the United States there is considerable scepticism about the LCS, which has been described as 'the world's biggest black-and-white' (police cars in the United States are referred to as 'black-andwhites'). It was influenced by the Danish Flygefisken Class although the Danes quickly configured their multi-role ships into dedicated role ones. The LCS has incorporated considerable foreign technology, with the Freedom (LCS 1) Class having EADS TRS-3D radar, and the funding is split evenly between the Freedoms and the rival Independence (LCS 2) Class. Of the first 10 Flight 0 ships each yard will deliver three by next year and there are plans to order another 10 each as Flight I which will join the fleet from the latter half of this decade. There are indications that the Defense Department is considering reducing the LCS programme from 52 to 30 or even 24 hulls while an alternative platform, the Small Surface Combatant, has been the subject of two requests for information during the summer.

South America

In South America financial problems continue to plague the continent and have an impact upon the market for major surface combatants. Brazil is seeking five 6,000 tonne frigates for its PROSUPER programme and competition is strong for this contract which is unlikely to begin before the middle of the decade. Colombia has a plan for a Plataforma Estratégica de Superficie to replace the four German-built Almirante Padilla (FS 1500) Class frigates. The ships will probably be built domestically to a foreign design but, like many navies, Bogota may turn to a corvette rather than a frigate. Argentina needs to replace its four Almirante Brown (MEKO 360) class destroyers and three Drummond (A69) Class frigates but the economy is simply too weak.

Middle East and Africa

Across the South Atlantic Algeria is the only Arab country with requirements for major surface combatants. It has a requirement for four frigates of which two will be built abroad and the others domestically. The only other Arab nation with a frigate requirement is Saudi Arabia with plans for between four and eight frigates to replace the Madina class, but there appears no urgency and if it proceeds it is unlikely to be before the end of this decade. Across the Gulf, Iran in April revealed plans to extend the Jamaran class frigates by three more hulls.

Expectations

As a result from increasing confrontations with irregular forces the operational reguirements for surface combatants have changed if compared to the 20th century. Nonetheless, the regeneration cycles of between 25 and 30 years will determine an almost unchanged requirement for such units in terms of hull numbers. However, the business perspectives of conventional "export" programmes have decreased for the naval shipyards of the industrialised nations since large production shares have had and will have to be transferred to customer navies as a result from respective offset and compensation programmes. Besides, the "second-hand market" and the market presence of former treshold countries that are now increasingly influencing international competitions with European licence designs have a negative effect on the employment numbers of the – still – numerous European naval shipbuilders. As a result from these market developments further industrial consolidation has to be expected in Europe.



The U.S. Navy is expecting to receive three units of the ZUMWALT Class between 2016 and 2018.









Alonso Head of Military Aircraft

(df) The European company Airbus Defence & Space has appointed Fernando Alonso as Head of its Military Aircraft business unit as of 01 March 2015. Bernhard Gerwert, CEO

(Photo: e m company/F. Lancelot)



hard Gerwert, CEO of Airbus Defence & Space, will act as interim Head of Military Aircraft until this date. Alonso replaces Domingo Ureña-Raso, who has resigned from his position. Alonso has been working with Airbus for many years and has a profound

knowledge of the A400M as well as the other military aircraft programmes. Since 2007, Alonso has served as Head of Flight Test Operations at Airbus.

CAE Acquires Bombardier's Military Aviation Training

(df) CAE and Bombardier announced that they have signed an agreement for CAE's acquisition of Bombardier's Military Aviation Training business for approximately €13.8 M. The closing of the transaction is conditional on usual conditions and regulatory approvals, and if those are obtained closing is expected to occur during 2015.

Bombardier's Military Aviation Training business includes approximately 200 employees supporting the NATO Flying Training in Canada (NFTC) program. This acquisition significantly enhances CAE's core capabilities as a training systems integrator globally, and expands its offering into support for live flying training of future military pilots, including next-generation fighter pilots, for the Royal Canadian Air Force and its allies.



Upon conclusion of this transaction, CAE will be the prime contractor responsible for the NATO Flying Training in Canada Program that trains qualified military pilots for defence customers.

Cyber Security Contract by U.K. Government

(df) At the end of January the U.K. Government awarded a contract to several companies to provide a range of cyber security solutions for the Government and other state institutions. Northrop Grumman is among the winning companies and has the stake to supply engineering and development services in support of data security and information assurance to the government. "As a long-standing partner with the U.K. Government, we are proud to have been selected to support the security of their digital domain and the protection of its citizens", said Kathy Warden, Corporate Vice President and President, Northrop Grumman Information Systems, in her statement concerning the contract.

RUAG Buys Patria's Space Unit

(df) Patria and RUAG have announced an agreement for the sale of Patria's Space unit to become part of RUAG's Space division. The transaction includes the business operations and assets. The 32 employees currently working in Patria's Space unit in Tampere will be employed in the newly founded company RUAG Space Finland. Patria's Space



Domecq New EDA Chief Executive

(df) Senior Spanish diplomat Jorge Domecq is the new EDA Chief Executive. He took up his new role on 01 February 2015. Domecq was the Ambassador Permanent Representative of Spain to the Organisa tion for Security and Cooperation in Europe (OSCE). Prior to that, he served as Ambassador of Spain to the Republic of the Philippines. Since the start of his diplomatic career in 1985, Jorge Domecq has held several positions with the Spanish Ministry of Foreign Affairs where he acted as Director General for United Nations, Global Affairs and Human Rights, as well as

Director General for Multilateral Affairs. Prior to that, he also acted as Director of the Private Office of the NATO Secretary General and as Diplomatic Adviser to the Spanish Minister of Defence.

activities are currently part of the Finnish company's Systems Business Unit. The key product areas are spacecraft control electronics, electrical power sub-systems, electronic units and related test equipment. The company has been successful and active in various Satellite programmes of the Euro-



pean Space Agency (ESA), such as the Earth observation satellites Sentinel-2, Earthcare and Swarm and the Gaia space telescope. Currently on-going for ESA's solar probe Solar Orbiter, where Patria is responsible for the spacecraft Electrical Power Subsystem, can be seen as a successful continuation from Rosetta power electronics equipment deliveries over the last ten years.

Seafort Advisors Buy Emder Werft und Dockbetriebe

(df) Seafort Advisors will aquire the shipyard "Emder Werft und Dockbetriebe" in the north German town of Emden from ThyssenKrupp. The finalisation of the deal is planned for the first quarter of 2015. ThyssenKrupp Marine Systems is not affected by the acquisition. Seafort Advisors plans to continue the business in the four main pil-



(Photo: ThyssenK

lars Merchant Shipping, Military, Public Customers and Offshore but will add services and repair to the portfolio. The Emder Werft und Dockbetriebe produced a turnover of €19.5 M with 55 employees in the fiscal year 2013/2014.

Sliusar President of UAC

(yl) Yury Sliusar has been elected new President of the Russian company United Aircraft Corporation (UAC) for a period of 5 years. Yury Sliusar has been head of the Aviation department of the RF Ministry of Industry and Trade since 2010 and been appointed Deputy Minister responsible for aviation industry development in May 2012. He re-

Harris Buys Exelis

UAC)

placed Mikhail Pogosyan, who had been running UAC since 2012. His main achievements are serial production of Sukhoi Su-30/34/35 4+ generation combat aircraft and Sukhoi superjet regional airliner as well as future generation fighter (FGFA/PAKFA) development. Pogosyan remains UAC gen-

Teaming of Kongsberg and Patria

(df) Kongsberg and Patria have announced a teaming agreement to pursue together a major combat vehicle and weapon system

programme in the Middle East region. Both

the Patria AMV 8x8 wheeled armoured ve-

hicle and Nemo 120 mm turreted mortar are

already in use in the Middle East. Patria AMV

8x8 is currently in service with seven nations

The Harris Corporation and Exelis, Inc. have made an agreement for Harris to acquire Exelis in a cash and stock transaction valued at \in 21 per share, meaning the total amount of the transaction will be \in 4.2 bn just for the stock transaction. The closing of the transaction is conditional on usual conditions and regulatory approvals just as



Exelis shareholder approval, and if those are obtained closing is expected to occur in June 2015. The new company is expected to create an output of more than €7 bn a year with 23.000 emplyoees.

in wide range of environments. The vehicle is combat-proven. Kongsberg offers products and systems for remotely controlled weapon systems, command and control, weapons guidance, communications solutions and missiles.

Big Growth in Cyber Security

(df) Israel Aerospace Industries (IAI) has defined cyber security as a strategic domain and one of the companys core areas of activity. To achieve this, IAI developed advanced cyber solutions for intelligence,



eral designer.

in the Middle East

The Global Event for Undersea Defence and Security

Next June, international representatives from military, industry and academia will gather in Rotterdam, the Netherlands, to discover the very latest innovations from the undersea defence and security community. Established for over 25 years, UDT is a multifaceted event that reflects this community's desire for continuous learning in dealing with the world's increasing diversity of threats and challenges.



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protection, monitoring identification and accessibility. The necessary technologies were developed by IAI's research, development and excellence centres. Cybersolution contracts reached "tens of millions of dollars in 2014" and therefore were among the biggest growth areas in the company's turnover, IAI stated. "The cyber arena requires a reliable, strong and experienced solutions provider to allow appropriate, constant managing of the threat," said Esti Peshin, director of cyber programmes at IAI. "We have harnessed the best minds and technologies to create a new approach, enabling our customers to manage today's and tomorrow's cyber challenges in an optimal fashion."

Goldstein New General Manager NAMEADSMA



(df) Col. Michael T. Goldstein of the German Air Force was assigned the position of General Manager of the NATO Medium Extended Air Defense System Management Agency (NAMEADS-MA) on 01 February 2015. He took over the responsibili-

ties from Gregory Kee, who had been the agency's General Manager since November 2008. Goldstein joined the German Air Force on 01 July 1975 and completed the Improved HAWK Officer Course at the GAF Air Defense School, Ft. Bliss, Texas, in 1981. Later, Goldstein served as a platoon leader Hawk at the 4th Battery SAM Battalion 34 in Manching, later Head of Patriot Scenario Generation Seciton, GAFADS, Ft. Bliss, Texas. Other assignments included Deputy System Manager Patriot at the Federal Ministry of Defence for almost three years. On 01 August 2012 Goldstein became Director Technical Integration at NAMEADSMA, followed by the position as Deputy General Manager & Director Technical Integration on 01 July 2014 and now General Manager & Director Technical Integration NAMEADSMA.

Rearranging Almaz-Antey

(yl) On 05 February 2015 the Russian President Vladimir Putin signed a decree to rearrange the Almaz-Antey Air Defence company into the Almaz-Antey Air and Space Defence stock company.

100% of the shares are icointrolled by the Russian State. Simultaneously the Russian Federation incorporated into the newborn company several new operations



including Kometa Corporation, Academician Berg Research Institute and the Saint-Petersburg based Navigator company among the others.

Almaz-Antey has been already comprising over 50 research and production facilities responsible for the development and production of a wide range of air defence and antimissile systems for all branches of armed forces. According to the Defense News 2014 survey, Almaz-Antey was ranked 14th among the Top 100 world defence companies. It has been granted the right for independent military-technical cooperation on upgrade, maintenance, spare parts supply and personnel training.

The new companies, especially Berg Institute and Kometa Corporation, have been responsible for the orbit component of air & space defence while Almaz-Antey has been producing all types of missiles and radars to hit all types of aerial targets. Almaz-Antey CEO Yan Novikov: "The company is capable to fulfill the task to form up a technical basis of the national air and space defence despite the economic sanctions from the Western countries."

Boeing Consolidates Management

(df) Boeing is consolidating management of key defence and space development programmes into a new organisation to enhance its performance on the pre-production development activities. BDS Development is patterned on the Airplane Development organisation in Boeing Commercial Airplanes.

Six programmes now managed elsewhere in BDS will be the first ones overseen by BDS Development: U.S. Air Force KC-46 aerial refueling tanker, the Air Force's presiden-



tial aircraft, CST-100 spacecraft for NASA's Commercial Crew programme, NASA's Space Launch System rocket, which will take humans beyond Earth orbit, Boeing's 502 small satellite effort and BDS work on Boeing's 777X commercial airplane.

"This BDS Development organisation is the next step in breaking the cost curve on our programmes", said BDS President and CEO Chris Chadwick. "We expect our customers to see step-function improvements in affordability and schedule performance as we more effectively apply engineering expertise, development programme best practices and programme management."

Saab Cooperates with IBD

(gwh) Defence and security company Saab has announced the signature of a cooperation agreement between Saab and IBD Deisenroth Engineering for the development of vehicle survivability.

Saab and IBD Deisenroth Engineering have synergies in their products and technologies that will allow the cooperation to provide advanced survivability solutions for land sea and air applications.

IT Support for Norwegian Logistics



(gwh) The Swedish International Financial Services company (IFS) has rolled out the IFS applications to cover additional Navy personnel, now supporting 2,500 users in the Armed Forces with mission-critical configuration management, MRO, and logistics.

The Norwegian Armed Forces (Air Force, Army, and Navy including the Coast Guard) have been using IFS Applications since 1999 for military logistics including configuration management, document and spare parts management, maintenance, repair, overhaul (MRO), and supply chain. The Navy's recent decision to cover additional users means that IFS's industry solution will empower more personnel working deployed on one of its vessels or on land. The solution is distributed between vessels and onshore sites, also offering integration with the government finance and HR system.
"Saab stands strong on the global market."



ESD: How do you assess Saab's current position in the international defence and aerospace market? Which major defence programmes are you currently working on, both in Sweden and abroad?

Buskhe: The security and defence market remains challenging and competition is fierce. Saab stands strong on the global market. Saab successfully combines very high capabilities with necessary affordability for customers. Our heritage of being a relatively small company in a small country on the border between east and west during the Cold War, forced our predecessors to constantly work smarter and more cost-efficient than before. And we continue to do so.

I would say Saab is one of very few defence companies that has ongoing development of two all-new aircraft: Firstly, there is Gripen NG; a radical enhancement of today's Gripen that expands the aircraft's capabilities in every conceivable way. Then we have an entirely new training aircraft, a 'clean sheet' design that we, together with Boeing, will offer the US Air Force for its T-X future aircrew training system.

Additionally, Saab has recently launched a new family of advanced radar systems and the fourth generation of the Carl-Gustaf multi-purpose weapon system.

ESD: The western European countries continue to afford three independent and competitive military aircraft industries, namely yourself, the Eurofighter consortium, and Dassault. Considering that some European countries are already committed to participating in the F-35 programme, what future do you envisage for the European manufacturers?

Interview with Håkan Buskhe, CEO, Saab AB

As a supplier of systems and capabilities for all branches of the forces Saab has established itself as one of the few remaining defence industrial giants in the Nordic area. Today the company controls the capabilities and capacities of the former Bofors and Ericsson Radar Electronics and thus constitutes an industrial element of strategic relevance for the Swedish and other armed forces. ESD spoke with Saab's CEO Håkan Buskhe.

Buskhe: Our competitors have their own plans for the future and we would never comment on those. When it comes to Saab we are clear that we will be in the manned fighter business for the long-term. We have solid programmes for production and further development in Sweden and Brazil. We expect to add that list -- and already today we are planning for active manufacturing to the 2040 timeframe. Gripen will continue to succeed by delivering an unrivalled combination of effectiveness and affordability. That continues to be our great strength on the market, something that I think makes us unique. And something that gives me a lot of confidence in our future.

ESD: What is the status of the Gripen NG programme in Brazil? How many aircraft are on order, to what extent will Brazilian industries participate in the programme, and what is the projected time schedule? **Buskhe:** The Gripen NG programme is on

track and making good progress, entirely according to the needs of the customer. As you know, in December 2013 Saab was selected to provide 36 Gripen NG fighters to Brazil to meet the air force F-X2 requirement there. This was a deal that was won after many years of hard work and in the face of some fierce competition. It was a great vote of confidence by Brazil in Gripen. From then on we worked hard with our Brazilian customer to finalise the order and in October 2014 we announced the formal contract for the development and production of those 36 Gripens. Preparations for that work continues and, for example, just before Christmas we agreed the Gripen contractor logistic support deal with Brazil's Ministry of Defence to support production work in Brazil from 2021 to 2026.

ESD: In July you announced the successful acquisition of TKMS/Kockums AB, formerly part of the German ThyssenKrupp Marine Systems group of shipyards. What are the objectives for the short-, medium- and long term?

Buskhe: Saab has a leading position in naval systems. With many years of industry experience, Saab has a proven history of delivering platforms, integrated systems and sub-systems for the maritime domain, submarines, surface vessels, combat systems, submarine rescue systems and demining systems. We have a long tradition of proving naval systems to both the Swedish and international market, such as torpedoes, sensors, control systems, remotely operated vehicles (ROVS), radar, combat management systems, missiles and communication solutions. Just like within any segment of Saab's product portfolio, the Saab naval systems offer innovative technologies and cost-effective solutions. The acquisition of Saab Kockums has been a natural step for Saab. It is in line with Saab's strategy to develop its role as a system integrator and enables us to meet the specific requirements of any customer globally.

One key objective is to secure the Swedish Navy's need for submarines in difficult operational environments like the Baltic Sea. The global market is always of great interest for a global company like Saab and we see a good future potential for Saab Kockums on the international market.

In January 2015 we announced that we were teaming with the Damen Shipyards group to pursue the emerging requirement for new submarines in the Netherlands. We are keeping a close eye on other future submarine programmes around the world; Australia is one well-known example.



The Gripen NG programme is on track and making good progress.

ESD: What is the status of the RBS 15 Mk3 programme for the German Class K130 corvettes? When will the service introduction be completed, and what are the perspectives? Buskhe: The latest Mk3 version of the much-respected RBS15 is enhanced with new technology that delivers a significant boost in performance to what was already a formidable missile. In the near future we will, together with our German partners Diehl BGT and the German Navy, verify its operational functionality. In January we announced that we had already conducted successful sea acceptance testing with a full load of missiles aboard Poland's Orkan-class fast attack craft. With the great effort we have put into the continuing evolution of the RBS15, we now have a new type of anti-ship missile that has no equal.

ESD: Which other navies operate type RBS15 missiles, and do you see market potential for the Mk3 variant in other countries?

Buskhe: The RBS15 is firmly established in service in air-, land- and sea-launched variants with several customers including Sweden, Finland, Germany, Poland, Croatia, Thailand and others. The missile can be carried on vessels of almost any size, and don't forget it can also be road-mobile or airborne. Its high performance and sophisticated tactical behaviour makes the RBS15 Mk3 equally effective in long-range 'open ocean' engagements or in complex littoral waters. This means that the RBS15 customer base is not limited by any one factor and we see interest in the system from armed forces all over the world.

ESD: Is it correct that Saab is expanding its activities in the segment of autonomous underwater vehicles?

Buskhe: Over the years, Saab has developed and established unique expertise and we are proud that more customers have chosen Saab to deliver various underwater systems. Saab's underwater systems are the choice for both civil and military purposes. Today we have 50 per cent of the world market for electric driven underwater systems. The systems are proven and highly qualified and

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are available with many advanced tools and customised accessories.

ESD: Which market share and applications do you envision for this type of vehicles? **Buskhe:** Saab is an established and well recognized supplier of AUVs worldwide in civilian security and offshore applications. This proven, reliable, robust and cost effective technology is therefore as well the basis for our military equipment. Future military and

targets such as large radar stations. Aeromechanical flights have been performed on the Gripen fighter, although TAURUS KEPD 350 has not yet to be procured by the Swedish Air Force. Since the Swedish Air Force has stated a requirement for a long-range stand-off weapon, we are optimistic that TAURUS will in the future be procured by the Swedish Defence Forces.

ESD: Carl-Gustaf has been subject to a major modernisation effort. Which measures have been/will be applied to this weapon system?

Buskhe: The Carl-Gustaf is in service in more than 40 countries worldwide and is the world's most successful multi-purpose weapon. Recently our fourth generation was released; the Carl Gustaf M4. It has evolved over the years with lighter and more capable weapons and new improved ammunition to fit any possible asymmetric warfare scenario. Additionally, it offers significant (30%) weight savings to the soldier. The Carl Gus-



The RBS15 is firmly established in service in air-, land- and sea-launched variants with several customers.

civil security needs in terms of mine counter measures, harbour protection or underwater surveillance present a market that Saab can fill with products that fit all needs and that if necessary can even be easily and individually tailored to every customer's needs.

ESD: Although Taurus is a joint development of Sweden and Germany the weapon system has not yet been integrated with the Gripen fleet of the Swedish Air Force. What can you tell us about that?

Buskhe: Gripen can carry the joint German-Swedish Taurus missile. The TAURUS KEPD 350 is an advanced, modular stand-off missile system for precision strikes against bunkers and other hardened, deeply buried targets, as well as high-value point and area taf M4, weights 7 kilos while its predecessor weights 10 kilos. The Carl Gustaf M4 is the logical next step for users who already have great experience and confidence with the Carl-Gustaf system. And development does not stop here. Future complementary improvements to this formidable system will include development of smart programmable ammunition, advanced sighting systems, and expanded confined space capabilities. It's also worth mentioning that during 2014, the Carl-Gustaf was designated as an official programme of record for the 'regular' US Army and a multinational procurement contract also was closed with the European Defence Agency EDA.

The questions were asked by Juergen Hensel.

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