

European Defence Matters

EU Global Strategy – What's next for defence?



Interview: Stéphane Mayer
NEXTER CEO / KNDS co-CEO

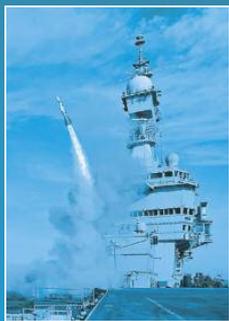


Focus on energy
management in defence



Interview: Jens Stoltenberg
NATO Secretary General

CHOOSE SAMP/T,
THE UNIQUE EUROPEAN
EXTENDED AIR
DEFENSE SYSTEM



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EUGS: setting the ambitions for a stronger CSDP

The new EU Global Strategy sets an ambitious vision for Common Security and Defence Policy (CSDP) and provides a good foundation for a stronger, more credible and more efficient European defence

When the High Representative of the Union for Foreign Affairs and Security Policy and Vice-President of the Commission, Federica Mogherini, last June presented the EU's new 'Global Strategy for Foreign and Security Policy' (EUGS), our choice for the cover story of this 11th issue of *European Defence Matters* became a no-brainer.

Indeed, as Prof. Dr. Sven Biscop, Director at the Egmont Royal Institute for International Relations in Brussels and one of our guest writers in this magazine, accurately points out: "The EUGS is one of the most ambitious EU documents on defence to date. For the first time, strategic autonomy has unambiguously become the objective. Not a moment too soon, as security challenges inside and around Europe are rising, while the US has made it clear that it will not, and cannot, solve all of Europe's problems".

Arguably, among the most ambitious EUGS statements, ideas and proposals many are related to defence and military capabilities. In a nutshell, it calls for a more credible, efficient and interoperable European defence. Europeans need to be better equipped, trained and organised to take effective military action autonomously, if and when necessary. Europe needs a sustainable, innovative and competitive defence industry allowing it to rely on the "full spectrum" of land, air, space and maritime capabilities, including strategic enablers. And, most importantly, Member States need to move towards defence cooperation "as the norm". However: ambitious as the EUGS might be, what really matters at the end is its practical implementation.

We therefore propose an analysis of the defence aspects of the EUGS while also looking at the follow up, especially in view of the strategy's concrete

implementation. This should include further specifying the civil-military level of ambition, tasks, requirements and capability priorities. In particular, we asked Prof. Dr. Sven Biscop to outline what, in his view, this defence strategy should entail and how it could be implemented. Furthermore, Luis Simón, Director of the Brussels office of the Royal Elcano Institute, looked at the EUGS through the prism of increasing geopolitical interdependence.

In the first of a new series of 'Industry Talk' interviews which will become from now on a regular feature of our magazine, we spoke to Nexter CEO Stéphane Mayer about the recent merger with Krauss-Maffei Wegmann (KMW) and the creation of KNDS which, many say, could be the beginning of a consolidation process in the land defence systems sector in Europe.

EU-NATO cooperation is another topic after the two organisations signed a Joint Declaration last July. We also spoke to NATO Secretary General Jens Stoltenberg about this, the recent Warsaw NATO Summit and the EU Global Strategy.

In a longer article, we looked at the growing importance of energy management in the defence as the impact of energy consumption on defence budgets and military effectiveness is growing drastically.

In our 'Opinion' section, Jyrki Katainen, European Commission Vice-President, shared his analysis about the importance of the 'circular economy' concept for the defence sector and how it can help to improve the European defence industry's competitiveness. We also have an exclusive interview with the chair of the EU military Committee (EUMC), General Mikhail Kostarakos.

Should you have comments or suggestions to make, please contact us: info@eda.europa.eu.

Enjoy your reading! 

News

Industry wants research to be "top priority" of Defence Action Plan

In a position paper issued in July, the AeroSpace and Defence Industries Association of Europe (ASD) asked the European Commission to focus its upcoming European Defence Action Plan (EDAP), expected before the end of this year, on a limited number of clearly defined priorities, together with concrete measures and a timetable for their implementation.

Research should be the "top priority" because it is "crucial to ensure that European industry remains competitive and that our armed forces get state-of-the-art equipment

they need to fulfil their missions", ASD said. It called on the Commission to make a clear commitment in the EDAP to develop the Preparatory Action (PA) for CSDP-related research further into a legislative proposal for a "substantial" European Defence Research programme (EDRP), funded by "circa €500m/year", as part of the EU's next multiannual financial framework (2021-2027). The action plan should also give an orientation on how to improve the effectiveness of the two 2009 EU directives on defence procurement and intra-European transfers.

Furthermore, the Commission should make security of supply a priority of its work programme for 2017 with a view to effective implementation of the roadmap concerning this issue before the end of its mandate in 2019. The future security of supply regime should be based on a commitment by Member States not to hinder any transfer of goods needed for the use, maintenance or modernisation of defence equipment acquired by another Member State, once it has authorised the initial sale of the equipment, ASD said. www.asd-europe.org 



Multinational Multi-Role Tanker Transport Fleet (MMF) takes shape

On 28 July, the Dutch Ministry of Defence (MoD) notified its national Parliament of the signing of a Memorandum of Understanding with Luxembourg to proceed with the acquisition of a pooled fleet of Airbus A330 Multi Role Tanker Transport (A330 MRTT) aircraft.

It also announced the signing, that same day, of a contract paving the way for the delivery of two Airbus aircraft with options for

up to six more when, as expected, other nations join the grouping. "The MRTT (Multi Role Tanker Transport) project is an example of the type of future-oriented collaboration between European countries that the government advocates", the Dutch MoD said in a press statement. The aircraft will be NATO property and will be stationed at Eindhoven Air Base for pooling and sharing. The European Defence Agency (EDA), which facilitated the project, and

the European materiel organisation Organisation Conjointe de Coopération en matière d'Armement (OCCAR) are closely involved in the purchase of the aircraft, on behalf of the NATO Support & Procurement Agency (NSPA). Discussions are underway at various stages with Belgium, Germany, Norway and Poland with a view to those nations also participating in the programme, known as the Multinational MRTT Fleet (MMF) initiative. 

EU Global Strategy – Meeting the security

Now that the new EU Global Strategy (EUGS) is on the table, the critical work of implementation has to start.

One of the core areas for urgent follow-up is defence and in particular the future defence capabilities EU Member States' Armed Forces will require to be able to live up to the Union's Common Security and Defence (CSDP) ambitions.

In the following dossier, *European Defence Matters* analyses the defence implications of the EUGS and gives the floor to subject matter experts to comment on the Strategy document and the actions which need to follow.

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› Serving European Security – Towards defence cooperation becoming 'the norm'

Released by EU High Representative **Federica Mogherini** end of June in the immediate wake of the UK's vote to leave the European Union, the long-awaited 'Global Strategy for the EU's Foreign and Security Policy' probably didn't get the immediate attention and appraisal it deserved. Yet the document, only the second of its kind after the 2003 European Security Strategy, sets ambitious goals and puts forward a number of innovative initiatives which, if followed-up, have the potential to bolster the Union's Common Security and Defence Policy (CSDP) in the years ahead

Presented with the Global Strategy at a 28 June European Council meeting entirely overshadowed by Brexit, EU leaders understandably stopped short of discussing the content of the document but "welcomed" its presentation and, most importantly, invited the High Representative, the Commission and the Council "to take the work forward". Notwithstanding, there are multiple reasons why energy matters for the military.

The High Representative decided to stick to the time schedule for the publication of the Strategy because, as she explained in the foreword, there was no time to lose. "In challenging times, a strong Union is one that thinks strategically, shares a vision and acts together. This is even more true after the British referendum. This is no time for uncertainty: our Union needs a Strategy. We need a shared vision, and common action", she stated.

Some guidance on how the 'work forward' should look like, at least on its defence-related part, is already given in the Strategy itself: it calls for the development of a "sectoral strategy" to be approved by the Council which "should further specify the civil-military level

of ambition, tasks, requirements and capability priorities stemming from this Strategy".

On 18 July, EU foreign ministers meeting in the Foreign Affairs Council had a first discussion on the follow-up strategy; they welcomed the document and expressed their readiness to continue the work in the implementation phase. The High Representative concluded this first ministerial debate underlining her intent to present "in the autumn" of 2016 a framework with processes and timelines. This framework, Mrs Mogherini said, "will detail the work to come to operationalise the vision set out in the strategy, on

strands such as security and defence", but also on other civilian policies including sustainable development and migration, as well as the link between development and humanitarian aid. It will be a "clear framework with timetables and proposals for starting implementation of the Global Strategy already in September". Defence ministers will be

involved in this exercise, she added.

Soft AND hard power

A fundamental point is made from the outset by Mrs Mogherini in the Strategy's foreword: to protect the security and prosperity of the citizens in and around Europe, the EU cannot limit itself to 'soft power' tools but must rely on a wide array of policies and instruments, including military power if required. "The European Union has always prided itself on its soft power – and it will keep doing so, because we are the best in this field. However, the idea that Europe is an exclusively 'civilian power' does not do justice to

an evolving reality. For Europe, soft and hard power go hand in hand", the High Representative insists. This maxim – considered all but self-evident in the past – is reiterated even stronger in the main text of the Strategy: "In this fragile world, soft power is not enough: we must enhance our credibility in security and defence".



Member States will need to move towards defence cooperation as the norm"

ing Unity Challenges

Global

curity

"This is no time for uncertainty: our Union needs a Strategy. We need a shared vision, and common action"

Strategic autonomy

With a constant emphasis on the intertwined security issues at home and abroad, the Strategy very comprehensively outlines the political level of ambition the EU should have as a world actor by touching upon a vast number of important topics. But the most ambitious statements, ideas and proposals it puts forward are related to defence and military capabilities.

First and foremost, the Strategy insists on the need for Europe to develop an appropriate level of 'strategic autonomy' in order to be able to guarantee the security of the Union and its citizens. "Europeans must take greater responsibility for (their) security" and, therefore, need to invest more and better in defence in order to be "better equipped, trained and organised", be it for contributing to collective defence efforts (NATO) or for acting "autonomously if and when necessary". Therefore, "an appropriate level of ambition and strategic autonomy is important for Europe's ability to foster peace and safeguard security within and beyond its borders".

The Strategy also stresses that "a sustainable, innovative and competitive

European defence industry is essential for Europe's strategic autonomy and for a credible CSDP". A solid European defence, technological and industrial base needs a "fair, functioning and transparent internal market, security of supply, and a structured dialogue with defence relevant industries".

In this respect, EU funds to support defence research and technologies and multinational cooperation are crucial for European security and defence efforts underpinned by a strong European defence industry, the Strategy underlines. "Crucially, EU funding for defence research and technology, reflected first in the mid-term review of the Multiannual Financial Framework, and then in a fully-fledged programme in the next budget cycle, will prove instrumental in developing the defence capabilities Europe needs".

While insisting on the undisputed fact that "NATO remains the primary framework for most Member States", the Strategy underscores that the EU needs to be strengthened as a "security community: European security and defence efforts should enable the EU to act autonomously while also contributing to and undertaking actions in cooperation with NATO".

Echoing the letter and spirit of the Joint

Declaration signed by both organization on 8 July in Warsaw, the Strategy calls for a strong EU-NATO relationship with both sides being complementary: "The EU will therefore deepen cooperation with the North Atlantic Alliance in complementarity, synergy, and full respect for the institutional framework, inclusiveness and decision-making autonomy of the two".

Defence cooperation has to become "the norm"

For Europe to achieve strategic autonomy and become a security provider capable of responding to external crises and keeping its territory and citizens safe, Member States need to have at their disposal "all major high-end military capabilities and equipment", as well as the technological and industrial means to acquire and sustain such capabilities. "This means having full-spectrum land, air, space and maritime capabilities, including strategic enablers", one reads in the Strategy.

Europeans must also improve the monitoring and control of flows which have security implications. This requires investing in Intelligence, Surveillance and Reconnaissance, including Remotely Piloted Aircraft Systems (RPAS, or drones), satellite communications, →



"Crucially, EU funding for defence research and technology(...) will prove instrumental in developing the defence capabilities Europe needs"



and autonomous access to space and permanent earth observation, the document emphasizes.

Furthermore, Europeans must invest in digital capabilities to secure data, networks and critical infrastructure within the European digital space. "We must develop capabilities in trusted digital services and products and in cyber technologies to enhance our resilience. We will encourage greater investments and skills across Member States through cooperative research and development, training, exercises and procurement programmes".

Against this backdrop, and notwithstanding the overarching consensus that "Member States remain sovereign in their defence decisions", the Strategy urges EU leaders to come to terms with the reality that "no Member State can afford to do this individually: this requires a concerted and cooperative effort". As a consequence, "Member States will need to move towards defence cooperation as the norm". Cooperation is all the more indispensable as "nationally-oriented defence programmes are insufficient to address capability shortfalls".

EDA as a key cooperation tool for Member States

The current "voluntary approach" towards defence capability cooperation will not suffice to achieve these goals and, therefore, must be turned "into real commitment", is stated in the Strategy which calls for collaborative programmes to be "systematically encouraged" at EU level.

A crucial role lies with the European Defence Agency (EDA): the "full use of its potential" in the capability development field is an "essential prerequisite" for European

security and defence efforts. In particular, the EDA has a "key role to play by strengthening the Capability Development Plan, acting as an interface between Member States and the Commission, and assisting Member States to develop the capabilities stemming from the political goals set out in the Strategy".

The Strategy also stresses the importance of a "gradual synchronization and mutual adaptation of national defence planning cycles and capability development practices" which can enhance strategic convergence between Member States. "Regular assessments of EDA benchmarks can also create positive peer pressure among Member States".

An annual coordinated review process at EU level to discuss Member States' military spending plans could, for instance, generate greater coherence in defence planning and capability development. This should take place in "full coherence with NATO's defence planning process".

Exploring enhanced cooperation

To shape a more responsive and effective CSDP, the EU should also streamline its

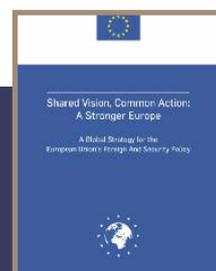
institutional structure. Though the Strategy refrains from openly calling for a "permanent civil-military chain of command" as did the German and French Foreign ministers in a joint statement end of June, the Strategy nevertheless calls for a "strengthening of operational planning and conduct structures" as well as closer connections between civilian and military structures and missions, bearing in mind that these may be deployed in the same theatre. To this end, "enhanced cooperation between Member States should be explored, and might lead to a more structured form of cooperation, making full use of the Lisbon Treaty's potential", it is stated in the Strategy.

High expectations

As the preparatory work on the defence sub-strategy continues, expectations are high among defence stakeholders (including the EDA, see box below) that swift and concrete steps will be taken in order to translate the Strategy into tangible follow-on actions which match the expressed level of ambition. 

Federica Mogherini was mandated to prepare the new EU Global Strategy by the European Council in June 2015 and invited to present it to the leaders in June of this year. The strategy is the result of an open and transparent process: between the summers of 2015 and 2016, extensive consultations took place with the EU Member States, the European institutions, the European civil society at large, including think tanks. The strategy, elaborated under the leadership of the High Representative, reflects the collective views expressed in the process and offers a strategic vision for the EU global role.

The full text is available here:
http://eeas.europa.eu/top_stories/pdf/eugs_review_web.pdf





› An ambitious defence follow-up for an ambitious EUGS

In the following pages, Prof. Dr. Sven Biscop outlines what, in his view, a sectoral defence strategy or EU Defence White Paper – announced as part of the EU Global Strategy follow-up – should entail and how it could be implemented

The EU Global Strategy for Foreign and Security Policy (EUGS) is one of the most ambitious EU documents on defence to date. For the first time, strategic autonomy has unambiguously become the objective. Not a moment too soon, as security challenges inside and around Europe are rising, while the US has made it clear that it will not, and cannot, solve all of Europe's problems.

The operational dimension of strategic autonomy comes down to the ability to act without the US whenever necessary. From that follows the industrial dimension: having a defence industry that can produce everything that this requires, notably the strategic enablers.

The EUGS sets out four major military tasks: to help protect the European way of life at home; to maintain stability in the broad neighbourhood; to maintain the freedom of the global commons; and to contribute to United Nations collective security. Together, these four tasks represent a clear increase in the burden placed on Europe's armed forces.

The neighbourhood especially presents a challenge. The emphasis is on increasing resilience and building capacity, but where war is ongoing, the EUGS also commits the EU to protect civilians →

and to consolidate local ceasefires. That entails deploying troops on the ground with serious firepower, backed up by air support and ready reserves, who will not necessarily seek out and destroy an opponent but who will fight when the civilians for whom they are responsible are threatened. Without that determination, the EU will not have created a safe zone but a trap. For many Member States, land operations with such a high potential of combat go far beyond anything that they have recently undertaken, certainly in an autonomous European framework.

It is vital therefore that the implications of this and the other tasks are spelled out and fully taken on board by the political and military leadership. The EUGS provides for a "sectoral strategy" on defence to do exactly that, under the heading, recently announced by the High Representative, of a Strategic Implementation Plan on Security and Defence. What this really is, of course, is an EU defence white paper.

The EUGS itself calls for "full-spectrum land, air, space and maritime capabilities, including strategic enablers". The white paper must now quantify the four military tasks and the desired concurrency: How many operations, of which size, should Europeans be able to undertake simultaneously, without relying on non-European assets?

When a new strategy demands strategic autonomy, it would be contradictory to set too modest a level of ambition. Some now propose to focus on the autonomous deployment of a brigade, presenting this as an increase as compared to the ambition to have two battalion-size Battlegroups on stand-by. That, of course, is the wrong point of departure: the existing level of ambition is the Headline Goal – to deploy and sustain up to a corps of 60,000. It is the Headline Goal that must be revised – upwards.

For sure, if after a Brexit the British contribution is withdrawn from the EU's Force Catalogue, it will create gaps that in the short

term cannot be easily filled by the existing capabilities of the remaining Member States. But the Headline Goal was set in 1999, for a Union of 15 Member States. A revised Headline Goal will be a target for a Union of 27, with 1.35 million troops and a total defence expenditure of \$200 billion. At the very least, the current Headline Goal should remain eminently feasible. But with such overall numbers even an increased Headline Goal can be achieved over time – on the condition that defence integration is pushed much further. And an increased Headline Goal will be necessary if Europeans want to be able to deploy, simultaneously: long-term brigade-size stabilisation

operations and a high intensity crisis management operation of several brigades and squadrons in the neighbourhood, as well as long-term naval operations, and battalion-size contributions to UN peacekeeping, while engaging in capacity-building and military cooperation.

In light of the crises in Europe's neighbourhood and the global geopolitical tensions, this level of ambition is none too high. It is but the reflection of the rhythm of operations of the last decade. Maintaining and, over time, even increasing the Headline Goal is the realist option therefore: in view of what is necessary, but also in view of what is possible, looking at Europe's military potential. Realism not only means not setting unachievable objectives – it also means not

"The (defence) white paper must now quantify the four military tasks and the desired concurrency: How many operations, of which size, should Europeans be able to undertake simultaneously, without relying on non-European assets?"

Prof. Dr. Sven Biscop is the Director of the Europe in the World Programme at the Egmont – Royal Institute for International Relations in Brussels, and teaches at Ghent University and at the College of Europe in Bruges. He is an Honorary Fellow of the European Security and Defence College, and chairs the jury of the biennial EDA-Egmont PhD Prize.



setting the bar too low and underexploit the potential that is there.

The white paper need not be very long, nor therefore should it take a long time to draft – it ought to be adopted in early 2017. Subsequently, the EU Military Staff (EUMS) can revisit the illustrative scenarios for European operations. The existing scenarios focus on peace enforcement, peacekeeping, evacuation of EU citizens, capacity-building, and supporting disaster relief.

These can be updated by incorporating the implications of tasks related to "homeland security" and counter-terrorism; perhaps an

additional maritime scenario can be envisaged. Then has to follow a new iteration of the Capability Development Mechanism (CDM), updating the detailed catalogues of capability requirements, existing capabilities (minus the UK), and shortfalls.

This will take time, but immediately after the adoption of the white paper, the European Defence Agency (EDA) can already update the Capability Development Plan (CDP), which was foreseen in 2017 anyway, and generate a

first set of capability priorities in order to link national and multinational efforts to the objective of strategic autonomy.



"The (defence) white paper is key to the industrial side of strategic autonomy too"



These priorities can then be incorporated into the NATO Defence Planning Process (NDPP) as well. Only if the next iteration of the NDPP takes into account the capability requirements of European strategic autonomy, notably with regard to enablers, can a capability mix be created that allows Europeans to do all: to contribute to Article 5, to undertake non-Article 5 operations with the US and the other non-EU Allies, and to launch autonomous expeditionary operations. In the words of the EUGS: "European security and defence efforts should enable the EU to act autonomously while also contributing to and undertaking actions in cooperation with NATO".

The white paper is key to the industrial side of strategic autonomy too. Under the next framework programme for research (2021-2027), the European Commission will, for the first time, provide significant funding (of at least €500 million) for defence research – a concrete result of the December 2013 European Council meeting on defence. The white paper and the resulting capability priorities must become the formal guidance for the use of these new funds, so that they will directly contribute to the goal of strategic autonomy. Industry must serve the Member States and their armed forces, not the other way around.

Finally, Member States need not wait until the new Headline Goal has been translated into detailed requirements and a new CDP to take action. The EU should avoid the impression that the EUGS has just engendered another paper tiger. The only way to achieve the capability targets will be further cooperation and integration, at two levels. At the EU-level, making full use of the EDA, to acquire the necessary strategic enablers. And at the level of various clusters of Member States, to create larger deployable formations through a combination of far-reaching pooling and specialization. The EU as such can facilitate cooperation in clusters, but only the Member States themselves can initiate it. They should do so as soon as the EU white paper is finished.

At that point, two simultaneous processes should thus take off: while the EU institutions prepare a new iteration of the CDP, one or more clusters of Member States coming at it from the other side should immediately announce the start of closer military integration between them, in order to demonstrate a number of shorter term results. For results are what we need. ■



› European Strategy in times of geopolitical interdependence

As Europeans struggle to get through an economic and political crisis that is shaking the foundations of European integration, security-related concerns have returned to the center stage of political debate, says **Luis Simón**, Director of the Brussels office of the Royal Elcano Institute

Russian revisionism represents a direct threat to many eastern and central European countries.

In turn, the ripple effects of instability in Syria, Iraq or Libya continue to be felt throughout Europe, not only through successive waves of refugees and migrants, but also through terrorism and mounting insecurity.

Following the publication of the EU's Global Strategy on Foreign and Security Policy (EUGS) in June 2016, and NATO's July summit in Warsaw, most discussions on European strategy appear to be revolving around the following questions: (A) how to bring security to Europe's immediate neighbourhood and (B) how to balance attention and resources between Eastern Europe, North Africa/Sahel, and the Levant.

When it comes to strategy, prioritization is essential. And it does make sense for

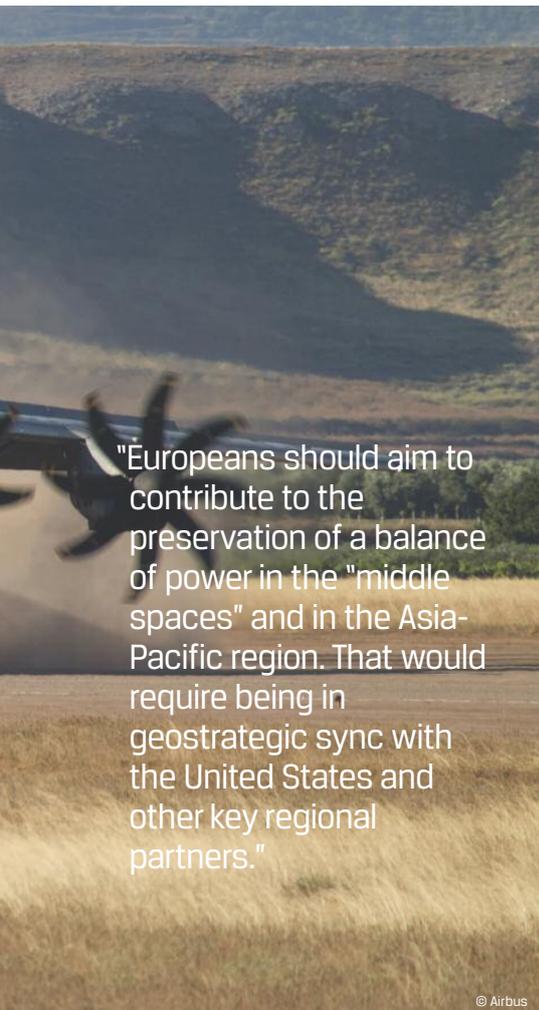
Europeans to put their own neighbourhood first, given the proliferation of crises and instability along the continent's eastern and southern peripheries. However, a world that is increasingly characterized by the rise of Asia and the multiplication of centres of economic activity is one that calls for a truly global approach to foreign and security policy.

Europeans should be careful not to make too strict a distinction between the neighbourhood and what is beyond – and avoid confusing a "neighbourhood-first" with a "neighbourhood-only" approach to strategy and foreign policy. Two reasons stand out in this regard. The first is the geography of the European peninsula, and its contiguity with the rest of the great Eurasian landmass. The second relates to the fact that economic globalization and advances in military technology (including the proliferation of

precision-guided weaponry and systems) have led to greater global geopolitical and strategic interconnectivity. For instance, the increasing number, survivability and range of Beijing's missile inventory, as well as China's rapidly expanding subsurface fleet, have already extended the reach of China's so-called "anti-access and area denial" capabilities to cover much of the Indian Ocean region. This suggests that Asian powers can greatly impact the geostrategic balances of the Persian Gulf and, by extension, parts of the immediate European neighbourhood, such as the Levant and even the eastern Mediterranean.

What does this increasing geostrategic interdependence mean for the future of European strategy?

It means Europeans should perhaps pay more attention to those regions or



"Europeans should aim to contribute to the preservation of a balance of power in the "middle spaces" and in the Asia-Pacific region. That would require being in geostrategic sync with the United States and other key regional partners."

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"middle spaces" that connect Europe and its immediate neighborhood to the rest of the Eurasian landmass all the way to the Asia Pacific, i.e. the Indian Ocean, Central Asia, and the Arctic. These geographical spaces are increasingly relevant because countries like China, India, Japan and South Korea are reaching westwards, all the way to the Middle East, Africa, and even to Europe, in order to satisfy their need for energy, other resources and export markets. And they are doing that primarily through the Indian Ocean and Central Asia – and perhaps also increasingly the Arctic in the future.

The extra-regional outreach of Asian powers is primarily economic and diplomatic, but it is beginning to have geopolitical and strategic ramifications, both in the middle spaces and in the European neighbourhood itself. In this regard, Europeans should perhaps think harder about the geopolitical implications of China's 'One Belt, One Road' initiative, or the ongoing proliferation of so-called Anti Access/Area Denial bubbles in the Indian Ocean region. It is increasingly unclear how Europeans would be able to secure their

interests in their immediate neighbourhood, while simultaneously ignoring adjacent regions whose economic, political, and strategic developments will no doubt impact the security of Europe and its immediate neighbourhood.

Presumably, the very same logic that leads Europeans to conclude that 'developments in their neighbourhood affect the security and prosperity of Europe itself' should lead them to also think that developments beyond their immediate neighbourhood can affect the stability of their own neighbourhood – and of Europe. Therefore, it seems that Europe's ambitions should be global in nature.

Having said this, Europeans need to be realistic about their own limitations, given the need to attend to current crises in their immediate backyard.

Against this backdrop, a few final observations can be offered.

Firstly, Europeans should remain ambitious in their immediate neighbourhood. In terms of goals, that means the primacy of European power and values. That goes for eastern and southeastern Europe, as much as it goes for the Mediterranean basin. In this sense, the idea of accommodating revisionist powers and accepting different spheres of influence in Europe's immediate neighbourhood – let alone in Europe itself – should be resisted.

Secondly, Europeans need to increase

their contribution to "Western" primacy in the so-called 'global commons', such as air and maritime domains, as well as space and cyberspace. Admittedly, when it comes to the security of the global commons, the lion's share of the burden will continue to fall on the United States. However, Europeans can and should contribute more to the security of the air- and sea-spaces of Europe's extended neighbourhood – including the Gulf of Guinea, the Mediterranean and Red Seas, the western Indian Ocean, and the Arctic. In this regard, they should step up their efforts in terms of military-technological innovation and also contribute to the security of outer space and cyber-space, alongside the United States.

Thirdly, Europeans should aim to contribute to the preservation of a balance of power in the "middle spaces" and in the Asia-Pacific region. That would require being in geostrategic sync with the United States and other key regional partners.

These three geographical levels of analysis are very much intertwined, in that preventing the emergence of a regional hegemon in the Asia-Pacific region is directly linked to the preservation of Western strategic primacy over the global commons and to the security of the "middle spaces." That, in turn, is the key to preserving the balance of power globally and the stability of the international liberal order. ◀

Luis Simón is Director of the Brussels office of the Royal Elcano Institute and Research Professor at the Institute for European Studies (Vrije Universiteit Brussel). On 1 May 2016 the Elcano Royal Institute opened an office in Brussels, its first outside Spain. The purpose behind the expansion is to embark upon a broadening of the Elcano Royal Institute's international activities, starting with Brussels from where it will produce reports, projects and activities in cooperation with other think tanks and research centres as a means of extending its European and international operations.

The setting up of the Brussels office is linked to one of the Institute's most ambitious projects in recent years: the creation of a 'Map of Spain's influence in Brussels'. The project's aim is to study the organisation and operation of the Spanish system of relations with the EU, both at the official/institutional level and in terms of networking in which private stakeholders also participate. The Elcano Royal Institute is a private foundation whose essential mission is to serve as a means of focusing thought and generating ideas that might prove fruitful to policy-makers, leaders of relevant public and private institutions and the shaping of public opinion.

www.realinstitutoelcano.org



>"European consolidation is an efficient way to achieve competitiveness and interoperability"

In December 2015, Nexter and Krauss-Maffei Wegmann (KMW) announced the completion of their association and the creation of a new joint holding company – KNDS – which, many say, could trigger a wider consolidation in the sector of land defence systems in Europe. To find out more about the strategy behind the transaction and its wider impact on the defence industry landscape, *European Defence Matters* spoke to **Stéphane Mayer**, CEO of Nexter and co-CEO of the newly created KNDS

Which were the main drivers behind the Nexter-KMW merger and the creation of KNDS (KMW + Nexter Defense Systems): synergy and cost-saving considerations or more long-term, strategic ambitions?

The strategic aim of the joint venture between Nexter and KMW is to create a European leader in land defence offering joint products that meet the operational needs of the French and German armies, and obviously those of other European and international forces. This will result in genuine convergence for users that often operate together in the same theatres. The success of our alliance will be boosted by two kinds of convergence between our Governments, which must not only define common requirements, but also

adopt the same approach to export controls.

Over the last few months, we have been developing synergies by gradually combining our efforts in several areas: sales, communication, purchasing, finance, products, engineering and production. We are aiming to both boost revenue and limit costs. The process does not involve any restructuring, because both Nexter and KMW are profitable companies with order books representing more than three years of business.

Would you say that KNDS is the starting shot for a major consolidation process in the European land defence systems market to ensure Europeans remain competitive?

When we announced our joint venture, we



were the first, and the move came as a surprise to some. In Europe, our Governments need efficient and competitive products and are aiming for more inter-operability. On the worldwide market, the competition is extremely strong. A European consolidation process is an efficient way to achieve those objectives. Besides France and Germany, we are aiming to progressively expand our industrial footprint in other European countries to continue this strategic move.

Some say KNDS could become the "Airbus of the land systems sector". Is this your



"We need to maintain and develop a European industry that guarantees the sovereignty of EU states"

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ambition and are you already looking for additional European partners to join the group?

The Joint Venture between Nexter and KMW is the first step towards a strong, durable and independent European industry. Since we started the project, we have consistently stated our desire to drive European consolidation, partly through new industrial alliances. Today, we are laying the foundations of a new group, based on the excellent fit between Nexter and KMW's businesses and the expertise of two

companies leading their national markets. In the future, we want to strengthen the group further by welcoming new partners that are an equally good fit and equally effective. I am very confident about this new phase of consolidation, although at the moment the priority remains setting up KNDS with Nexter and KMW.

I would also like to take this opportunity to talk about European consolidation in another area, that of ammunitions. In 2014, Nexter acquired Mecar in Belgium and Simmel Difesa in Italy who joined our Nexter

Munitions division, which is now Europe's third-largest munitions player. Combining these three companies has allowed us to generate multiple synergies in ammunitions, but more importantly to maintain a high level of quality in terms of precision, effectiveness and security. As a result, the KNDS group can rely on a solid munitions business.

R&T is a domain where huge synergy effects can be expected from this merger.

What do you hope to achieve in R&T together what was not possible alone and →

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CAESAR artillery system in operation with French Armed Forces in Mali

how do you see the future of R&T at EU level?

KNDS will indeed lead to R&T synergies. Financing innovation is crucial for the success of our plans, since innovation will allow us to maintain a technological edge over our rivals by developing distinctive systems. Naturally, we will work to eliminate potential duplication of R&T within the new group. Moreover, we welcome the willingness of the Governments to support advanced technologies and R&T studies for the current and future systems. The single most important subject for us in terms of R&T and innovation is linked to the Franco-German initiative to jointly develop the technologies for the MGCS (Main Ground Combat System) and CIFS (Common Indirect Fire System).

It seems that in a first phase, both companies involved in KNDS will keep their organisation, staff and even their own range of products. When do you foresee the first jointly developed and produced KNDS weapon systems – for instance a combat tank – to be on the market?

For many years, we will have to keep large parts of our present organisations unchanged in order to deliver on our commitments to our customers and our existing partnerships and to remain able to support our products in service. However, we are already starting to identify synergies, to act jointly on several matters (sales, product policy, finance, purchasing, communication, etc.). We have also started to work together on future systems, including combat tanks and artillery systems. These programs will be managed, developed and produced by a shared organisation. Their calendars are mainly driven by the operational needs of our customers and

the timeframe to achieve a common vision between the German, French and other European customers. In the Defence industry, this takes 5 to 10 years!

2016 has seen a lot of movement in CSDP (EUGS set to be followed by a sectoral defence strategy; launch of Pilot Project and preparation of the Preparatory Action on defence-related research) and more is expected in the coming months (European Defence Action Plan by the EC). How optimistic are you that all this will give a boost to the European defence industry in general, and to the land systems sector in particular?

We can be optimistic, while remaining realistic. The land defence market is doing well internationally, and there are still many opportunities, particularly in Asia and the Middle East. However, it is an extremely competitive sector and every tender process requires increasingly large investments from the companies involved. In Europe in the last few years, Nexter and KMW have taken part in tender processes with products such as our 8x8 combat vehicles (VBCI and Boxer) and 155mm artillery systems (Caesar and PZH2000). We were not successful.

Unfortunately in some cases buyers decided to purchase non-European equipment or untested equipment.

Of course competitiveness is essential in order to meet the European market's needs. But there are also needs for greater European awareness regarding defence, and particularly land defence. Armies on the ground need to be much more integrated through common equipment, we need to maintain an independent EDTIB that maintains Europe's superiority in certain areas of excellence (protection, firepower, communication systems, etc.) and we need to maintain and develop a European industry that guarantees the sovereignty of EU states.

On the other hand, there is also the uncertainty created by the Brexit vote and the prospect of the UK leaving the EU. How will all this impact European defence cooperation?

The European defence project is vital and the many dramatic events we have seen in recent years are a reminder that we must not let down our guard on security and defence issues. We are therefore confident that the United Kingdom will remain a staunch ally and continue to develop a strong defence relationship with France. Nexter has a joint venture with BAE, CTA International, based in France. CTA International specialises in telescoped 40mm-calibre armament systems, and has developed a revolutionary new cannon. This 40mm cannon has been acquired by both the French and British armies as part of the Scorpion and Scout programmes, proving both the effectiveness of the weapons themselves and the wisdom of our Franco-British joint venture. Brexit is unlikely to have an impact on our projects. 

"Brexit is unlikely to have an impact on our projects"

Stéphane Mayer joined the Airbus group (formerly EADS) in 2003 as Chairman and CEO of EADS Socata, an aviation component and aircraft manufacturer. In 2007, EADS appointed him for a 3-year term as CEO of ATR, a joint venture plane maker. In 2010, he joined the Daher group as President and CEO of its aviation and defence division. At the end of 2015, he was appointed Chairman and CEO of Nexter Systems, which designs, integrates and maintains in operational condition weapons systems and armoured vehicles. As part of the association with Krauss-Maffei Wegmann, he simultaneously became co-CEO of KNDS, the joint holding company which owns the two operating entities.



EU naval industry in good shape but more R&T investment needed, study says

Goods news from our shipyards: EU manufacturers of military vessels and submarines are doing well, especially on international markets where exports are booming. No reason though for the industry to rest on its laurels as it urgently needs to invest in research & technology (R&T) if it wants to stay at the top, as a recent study commissioned by the European Defence Agency (EDA) shows

Despite difficult conditions on a growingly turbulent global naval market – mainly caused by rising exports from Chinese, Russian and South Korean shipyards – Europe's naval industry has managed to maintain its position as a highly competitive global player if not a world leader, notably thanks to its technological edge and strong exports, the EDA-commissioned 'Study on Industrial and Technological Competences in the Naval Sector' concludes.

The study, which was carried out by a consortium in 2015 and early 2016 (see box below), confirms that European naval industries are very strong in their respective domestic European markets – but also in international

markets such as the Middle East, Africa, Asia and Latin America which all devote growing budgets to defence and often have no meaningful indigenous naval industry. Also due to decreasing defence budgets in Europe (at least over the past decade, whereas the trend has now started to reverse), export markets nowadays account for 42% of the European naval order book value.

Healthy successful industrial base, but...

Another positive characteristic of the European naval industry, according to the study, is its ability to design, integrate and produce the whole range of naval ships and almost the totality of its core systems and components. "Considering the complexity and sophistication

of the products designed and built by these companies, they can be regarded as 'system integrators', dismissing once forever the old image of shipbuilders as mere assemblers of steel blocks", it says.

The European naval industry's supply chain is also considered both diverse and complete with no area in which a monopoly exists. Most importantly (with regard to Europe's strategic autonomy in defence) there are European alternative suppliers and replacement options in place for all systems/components currently procured from outside Europe.

Business diversification is another trump card played by the European naval industry. The majority of the naval players are also successful players in the high-end segments of merchant shipbuilding (e.g. cruise ships and mega-yachts) and in the related maritime activities (e.g. offshore and marine renewable energies). "This diversification strategy has created a favourable cross-fertilization between civil and military technologies (dual-use technologies), both at the Prime Contractors and at the Supply-Chain levels, leading to cost-effective designs and solutions", the study says.

The study's overall conclusion could hardly be more encouraging: "The European Naval Industrial Base today is made up of healthy,

About the study

With the adoption of the EU Maritime Security Strategy in 2014 which also encompasses defence-related aspects through its CSDP dimension, the maritime domain has gained renewed focus at EU level. The ability for European nations to implement such a strategy will depend on both the availability of required capabilities for both civilian missions and military operations, and the existence of a competent and competitive naval industrial base. Therefore, in 2015, the EDA commissioned this study – which was conducted by a consortium of Sea Europe (lead partner), Damen, DCNS, Fincantieri, Navantia and TKMS – to acquire a comprehensive picture of the European Naval Technological and Industrial base and its technological priorities.



capable, diversified and successful export-oriented companies".

...more R&T investments needed

However, all forecasts in the study are not entirely rosy. The study also warns that some threats stemming from non-European competitors are on the horizon such as fierce price competition from non-EU countries, especially China, South Korea and Russia. Countries which very actively support their naval industries "as an act both of foreign and industrial policy".

According to the study, the best way to counter this threat is by maintaining Europe's technological lead at the Prime/System Integrators level as well as across the full supply chain "through increased, more supported, more coordinated and more focused investments in Research, Development and Innovation (RDI) at national and European level". In order to increase intra-EU cooperation in the naval defence and security domain, a dedicated area for naval related research should be secured within the next multi-annual Framework for Research, Development and Innovation starting in 2021, the study recommends: "This is essential to the long-term sustainability of the European naval industry".

The European Commission's upcoming Preparatory Action (PA) on defence-related research and the Defence Action Plan (scheduled for later this year) could also play a key role as political frameworks to increase the resources devoted to defence research activities, including in the naval domain, the study concludes. "Here, a distinct role of overall coordinator is foreseen and advocated for the EDA", it says. The study also pleads for a regular exchange of ideas between the EDA and the major players in the naval shipbuilding sector in order to better coordinate and integrate the objectives of the future R&T programmes in this field.

Finally, the study has also led to a list of technologies considered of "primary importance" both to maintain the European competitiveness and technological lead and to ensure the required level of operational superiority. In total 13 high priority topics and 4 new items were identified.

The high priority list includes surface technologies topics (virtual ships, simulation, maintenance, oceanography, environmental protection, supply & support), subsea technologies (hydrodynamics and UxV integration, modularity, UxV integration, vulnerability reduction, propulsor) as well as



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The five Spanish Air-Defence frigates Álvaro de Bazán equipped with the American Aegis combat system



© Damen

The Damen Frigate Sigma Class Allal Ben Abdellah taking evasive action during an exercise



© Marina Militare

Italian FREMM Frigate Virginio Fasan just before its birthing

services and transversal technologies (uninhabited systems, propulsor & propellers).

The identified new R&T topics to be focussed on in the future are 3D printing, high capacity batteries, augmented reality and drones. ■



> "We took the NATO-EU cooperation to a new level"

NATO Secretary General Jens Stoltenberg talks to *European Defence Matters* about the recent Warsaw Summit, the EU Global Strategy and the future EU-NATO relationship

In the light of a possible Brexit, how do you envisage the future development of the NATO-EU relationship?

Cooperation between NATO and the European Union has become even more important in the wake of the UK referendum. Unity and cooperation are essential to deliver the defence capabilities we need. Our security is interconnected, and today we face security challenges of a magnitude and complexity much greater than only a few years ago. Neither NATO nor the EU are entirely equipped with the tools to tackle these challenges, but together we have the full tool-kit. Our partnership will continue to grow.

By working together, we make the most efficient use of our resources.

While it will take time for the consequences of 'Brexit' to become clear, the importance of a strong European Union has not changed. NATO provides a platform for transatlantic cooperation and I welcome more cooperation within Europe. The United Kingdom will continue to play an essential role in NATO – and hence in Euro-Atlantic security.

The EU Global Strategy calls for EU defence cooperation to become 'the norm'. How can NATO support the EU in the enhancement of defence cooperation in Europe?

I welcome the EU Global Strategy. It highlights the importance of a strong European Union and cooperation between the EU and NATO. For decades, NATO has provided a framework and standards for strengthening defence cooperation, ensuring that Allied forces can work together seamlessly. This also helps strengthen the capacities of those Allies who are members of the European Union. I also want to underline that increased defence spending is important for European Allies because without more investments in our security, we will

not be able to deliver the capabilities we need in the long-run.

The Warsaw NATO Summit 2016, will it be remembered as the moment when EU-NATO relations and cooperation entered a new era?

Yes. At Warsaw, we took NATO-EU cooperation to a new level. The Joint Declaration we signed will give new impetus and substance to the NATO-EU partnership. It sets out concrete areas for cooperation and outlines measures for implementation. This will enable us to work closer together than ever before.

We will boost our ability to counter hybrid threats, including through timely information sharing, and cooperation on civil preparedness, cyber defence, and strategic communications. Our respective Playbooks on hybrid threats will identify how we interact with each other if our nations come under attack.

To project stability, we both agreed to do more to foster the resilience of our partners, including by strengthening maritime capacity. To strengthen our own defence capabilities, we will expand our coordination on cyber defence, and train our cooperation through linked exercises.

We will also expand our cooperation in the Mediterranean Sea, which will make us more effective in tackling illegal migration, terrorism and other challenges. We agreed, in principle, on a possible NATO role in the Central Mediterranean, to complement or support the EU's Operation Sophia.

At Warsaw, I also shared with the President of the European Commission NATO's baseline requirements for national resilience on issues such as energy security, food and water supplies and continuity of government, to enable better coordination.

So at Warsaw, we set out clear ambitions for the future of our relationship with the European Union. The Summit should indeed be remembered as the moment when we took our cooperation to a new level. →

"I welcome the EU Global Strategy. It highlights the importance of a strong European Union and cooperation between the EU and NATO"

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President of the European Council Donald Tusk, NATO Secretary General Jens Stoltenberg and President of the European Commission Jean-Claude Juncker at the Signing Ceremony of the EU-NATO Joint Declaration

"We will also expand our cooperation in the Mediterranean Sea, which will make us more effective in tackling illegal migration, terrorism and other challenges"

At the signing of the EU-NATO Joint Declaration, you said the agreement would allow both organisations to "make the most efficient use of their resources".

Where do you see the biggest potential for complementarity and additional added value?

I would like to see more progress in the areas of maritime security and countering hybrid threats. Both areas offer new opportunities for enhanced cooperation.

On maritime security, we can build on our effective cooperation in the Aegean to cut the lines of human trafficking. At Warsaw, we agreed on a possible NATO role in the Central Mediterranean. This could complement or support the EU's Operation Sophia, providing a range of capabilities, including Intelligence, Surveillance and Reconnaissance. If requested by the European Union, the Alliance is also ready to contribute to the capacity building of the Libyan coastguard and navy.

On countering hybrid threats, we have made great progress. We are sharing more information and have developed Playbooks to increase our resilience to hybrid attacks. But we can do more. Our Joint Declaration sets out our ambition to work together on analysis, prevention and early detection of hybrid threats. Timely information sharing between staffs and

cooperation on strategic communications will be a priority. NATO and the EU share twenty-two members, and more than four hundred and fifty million citizens. It is therefore essential that we do not duplicate our efforts and work together to make the most efficient use of our resources.

Both sides also urge to invest the necessary "political capital and resources" to make the Joint Declaration a success. Do you see that the political willingness to advance in this domain is in place? How do we ensure an ambitious implementation?

Yes, there is more political willingness than ever before. It is important to remember that we have concluded more formal arrangements between our organisations in the past six months than in the previous thirteen years. This speaks volumes of the progress we are making.

To ensure the implementation of our Joint Declaration, NATO and EU staff will work together to develop concrete proposals and coordination mechanisms. NATO staff will report their progress to Foreign Ministers by December this year.

In the Warsaw Summit conclusions (par.124), NATO recognises the importance of a stronger and more capable European defence which will lead to a stronger NATO and foster an equitable sharing of the burden, benefits and responsibilities of Alliance membership. In view of this, how could we enhance the present relationship on both sides of the Atlantic, which is purely doctrinal and operational, into also an industrial and technological one?

Through our Joint Declaration at Warsaw, we agreed to facilitate a stronger defence industry and greater industrial cooperation within Europe and across the Atlantic. NATO staff, together with the staff of the European External Action Service, will now work on concrete options for implementation. We expect to review progress later this year. 



Joint EU-NATO Declaration

Signed in the margins of the July NATO Summit in Warsaw, the EU-NATO Joint Declaration is meant to reinvigorate and enhance cooperation between the two organisations. "We believe that the time has come to give new impetus and new substance to the NATO-EU strategic partnership", European Commission President Jean-Claude Juncker, European Council President Donald Tusk and NATO Secretary General Jens Stoltenberg state in the Joint Declaration. The cooperation established more than 15 years ago between NATO and the EU already contributed to this end "but in light of the common challenges we are now confronting, we have to step-up our efforts", they said. "We need new ways of working together and a new level of ambition. A stronger NATO and a stronger EU are mutually reinforcing. Together they can better provide security in Europe and beyond". The EEAS and the NATO International Staff, together with Commission services, have been tasked to "develop concrete options for implementation, including appropriate staff coordination mechanisms" to be presented by December 2016. On the EU side, HR/VP Federica Mogherini will steer and coordinate this work.

www.consilium.europa.eu/en/press/press-releases/2016/07/08-eu-nato-joint-declaration/

> Circular Economy matters

Jyrki Katainen, European Commission Vice-President for Jobs, Growth, Investment and Competitiveness, shares with *European Defence Matters* his analysis about the importance of the 'circular economy' concept (which, in a nutshell, aims at closing the loop of product lifecycles through greater recycling and re-use of materials) for the defence sector and how it can help to improve the European defence industry's competitiveness

End of June, HRVP Federica Mogherini presented the new EU Global Strategy, aiming at setting out the European Union's strategic security and foreign policy priorities. The Commission is also working on adopting the European Defence Action Plan (EDAP) by the end of this year, which will turn these objectives into concrete EU military capability priorities.

Strengthening Europe's security capabilities is a challenge that requires strategic planning and an efficient use of resources. Existing projects or initiatives taken by the European Defence Agency (EDA) already prove how the implementation of the circular economy principles in the field of defence can help achieve this objective. Yet, increasing transfers of knowledge between the civilian and the military sectors and integrating a longer-term perspective in the production process could bring even further benefits.

Modernising and improving the competitiveness of the defence sector through the Circular Economy

Modernising our economy is a priority for this Commission. We believe that the future of competitiveness lies in advanced manufacturing and smart and sustainable value chains.

Since this Commission took office, we have therefore made every effort to ensure that Europe's industries – and in particular SMEs – can benefit from a growth-friendly framework. This means not only facilitating investments into innovation, but also supporting new technological solutions and new business models which implement circular economy principles by suggesting more sustainable production, consumption

and waste management.

Our Circular Economy Action Plan, published in December 2015, aims at introducing these principles along the entire value chain, therefore addressing all industrial sectors.

Defence industries are no different – resource efficiency, security of supplies are as much, if not more, important to defence industries than to the civilian sector. The transposition of the circular economy principles in the defence sector can benefit the European industry and economy in many ways. Optimising the use of existing resources, encouraging developing new materials, and promoting the use of secondary raw materials will create new incentives to innovate. And we are not talking only about big manufactories here – defence supply chain includes plenty of SMEs and midcaps. This will in turn contribute to preserving and creating new jobs. In an environment of reduced government public spending, the focus on waste reduction will also help the industry reduce its costs, and improve its competitiveness and efficiency targets.

Many civilian businesses have already

understood that the 'old fashioned linearity' of business models and products will soon add to operational risks. They are therefore integrating resource efficiency and circularity logic more systematically in their production processes.

Positive developments are also noticeable in the military sector where the efforts of the European Defence Agency have already materialised beyond expectations. Very concrete examples include the EDA's Energy and Environment Programme which supports Member States Armed Forces through the introduction of low-carbon and energy-efficient actions in the fields of capability, armaments and research perspectives; or, the 'Go Green' project which encourages Armed Forces of seven Member States to produce their own electricity from renewable sources, thus generating additional revenue for defence budgets.

Well-planned dual-use research is essential to fully benefit from Circular Economy initiatives

The defence sector could also reap the





"Modernising our economy is a priority for this Commission. We believe that the future of competitiveness lies in advanced manufacturing and smart and sustainable value chains"

© European Union

benefits of the R&I dimension of our Circular Economy Action Plan. Through the initiative 'Industry 2020 in the circular economy', the European Commission will grant over EUR 650 million in 2016-2017 to research and innovation. Undoubtedly, the emergence of a growth-friendly framework, as attested by the recent launch of 'Innovation Deals', could have a positive impact on investment into innovation and may create other positive spill-overs in the defence sector. For these spill-overs to materialise, knowledge transfers between the civilian and the military sectors are fundamental. The EDA has already carried out considerable work to encourage synergies between civil and military policy initiatives, in areas such as the Single European Sky, Energy Efficiency, Maritime Security Strategy, Space, etc.

New opportunity for the EDA

The Circular Economy Package provides a new opportunity for the EDA to use its enriched stakeholder network and experience in identifying mutual benefits to broaden this cooperation. The participation of the defence sector in the transfer of knowledge to and from the civilian industries on the recycling, remanufacturing, or reparability aspects in defence industries will be key to ensure the success of this process. In concrete terms, this

means that lifecycle assessment will need to be considered if civilian use is being planned at the end of service life in the defence sector.

Here again, some practical examples already exist. Building upon years of successful dual use research in materials and nanotechnology sciences, the EDA's CapTech Materials & Structures now embraces new advanced materials with extremely interesting features for defence. Among them, smart materials are expected to be further developed, allowing not only reductions in weight or increased strength, but also self-repairing or condition monitoring of deployed personnel. However, challenges remain in the price of these products or in the complexity associated with the repairing and disassembling processes. This is precisely where encouraging dual research and development activities could be mutually beneficial by providing the necessary resources for the industry to embrace the circular economy principles already in the design phase.

The implementation of the Circular Economy Action Plan presents numerous opportunities for the defence sector. Taking this new approach could help the industry modernise and become both more efficient and more competitive. Better integrating innovation principles through a deepened collaboration with the civilian sector

could also accelerate the development of new technologies and materials, hence providing better equipment for our troops.

Development opportunities exist and the Commission has set the ground for investment into innovation to take off. But to fully reap these benefits, a long-term perspective will need to be factored in at early stages of the production process – including in tendering and design phases.

The circular economy is a long-term challenge which requires comprehensive handling at every stage of the process. I have complete confidence that the defence sector will naturally integrate this approach, and appreciate its interests in this development. **K**

Jyrki Katainen is currently Vice President of the European Commission responsible for Jobs, Growth, Investment and Competitiveness. He joined the college in July 2014 as Vice-President for Economic and Monetary Affairs and the euro. Before that he served as Prime Minister of Finland (2011-2014) and Minister of Finance (2007-2011).

More details about the Commission's Circular Economy Strategy can be found here:
http://ec.europa.eu/environment/circular-economy/index_en.htm

"82% (of recently surveyed Europeans) want greater EU involvement in fighting terrorism, 66% want the EU to intervene more in security and defence policy"



› Why European defence research is vital

By Jorge Domecq – Chief Executive of the European Defence Agency

Research matters. Let's take one example: Galileo. In 2003 the European Union and European Space Agency agreed to launch this ambitious project. Inspired by the genius of one of Europe's finest thinkers, Galileo aimed not only to propel Europe to the top of the €175 billion global satellite navigation system market. But also to benefit European services and users, boost innovation and create jobs

Its applications are staggering: they range from search and rescue services, through scientific research, to positioning services (GPS) as used in cars but also aviation, maritime, rail, and even pedestrian traffic. Galileo ensures that Europe is independent in its access to satellite signals. Putting the programme in place has not been easy from a political or economic point of view. But the advantages – innovation, skills, jobs, growth, and independence – have made this worthwhile. Galileo demonstrates what team work is about: exploiting the strengths of individual elements for achieving common goals. *This recipe for success should now be applied to European defence.*

Today, the European Union faces a plethora of challenges. The growing scepticism regarding its objectives, financial uncertainty and threats to its security require a fundamental debate on the future of a strong Europe. 82% of respondents to a Europe-wide survey¹ have confirmed they want greater involvement of the European Union in the fight against terrorism; 66% want the Union to intervene more in security and defence policy. The recently published EU Global Strategy highlighted the increasingly blurred lines between internal and external security. Defence does not live in a bubble. It is inextricably linked to security and prosperity. So Europe needs to be a reliable security provider for its partners while at the same time protecting its citizens.

In order to achieve this goal, defence can

no longer be looked at simply from a national perspective. Cooperation in defence is not an abstract concept. Just like Galileo, European defence is stronger than the sum of its parts. This means greater cooperation in defence innovation, in cutting-edge capabilities, in research and technology. And it needs to happen now.



Following a call by European leaders, the European Commission has recently proposed to invest €90 million in defence research between 2017 and 2019. This may be modest when compared to the latest US defence innovation initiative of some \$18 billion or even the Galileo programme which requires investment of around €5 billion. But it is a start; and an important one. It is also, for the EU, a revolution. For the first time in its history, the EU is paving the way through this so called Preparatory Action for a substantive defence research programme in the next multiannual financial framework. This means

using the EU budget for defence, something that was unthinkable as recently as three years ago!

Capability programmes entrusted to the European Defence Agency are a start but we need to look at the longer-term development if we want to retain Europe's ability to be a credible security provider that relies on state-of-the-art cutting-edge technologies. And we need to do it now. Capability development takes time. Using EU budget for defence R&T should by no means replace national efforts but it will help to generate critical mass, to network European research entities, and very importantly to increase interoperability and standards. Besides, we know that research in defence has concrete and profitable spill-over effects for everyday life like the Internet or GPS.

R&T is not nice-to-have. It is an essential prerequisite to develop the capabilities of the future and thus to provide for our citizen's security. It also underpins Europe's strategic autonomy, boosts its industry, creates jobs and stimulates growth. Commitment by the European institutions, Member States and industry are required to make it happen. But a fully activated and properly resourced Preparatory Action is an opportunity we cannot miss. The European Parliament and Council of the EU will be asked to approve this crucial step during their budget decisions. I sincerely hope they do so. ❏

1. Special Eurobarometer of the European Parliament, published in June 2016: <http://www.europarl.europa.eu/atyourservice/en/20160623PVL00111/Europeans-in-2016-Perceptions-and-expectations-fight-against-terrorism-and-radicalisation>

> Sustaining Europe's Armed Forces

Energy efficiency, renewables and environmental protection are probably not the first attributes springing to people's minds when they think of the military. Times are changing though: with Member States' Armed Forces being among the largest energy consumers in Europe and energy becoming an Achilles heel of military operations if incorrectly managed, the impact of energy consumption on defence budgets and military effectiveness is growing drastically

In contrast to industry and the wider public sector, European Armed Forces are not yet subject to binding obligations under EU law for the simple reason that, at the explicit request of Member States, they are exempt from the main EU directives applicable in this domain such as Energy Efficiency Directive, the Renewable Energy Directive, the Energy Performance in Buildings Directive and the Energy in Transport Directive.

Notwithstanding, there are multiple reasons why energy matters for the military.

Starting with the most important: operational advantage. Operational energy required for training, moving and sustaining military forces and weapons platforms for military operations is a fundamental enabler of military action – as essential to mission accomplishment as food, water and ammunition. The more military equipment and logistics are energivorous, the more complex and costlier it becomes to move them to where they are needed most, especially in the last tactical mile of resupply or in hostile environments subject to ambush.

Therefore, energy efficiency is critically important to improving military capabilities, unit autonomy and operational resilience on the battlefield. This does not apply just to the design of platforms and when they are used on deployed operations. In keeping with the adage 'we train as we fight', it is imperative that military forces operate in an energy-efficient manner at home to transfer that skill to operations conducted in overseas theatres; there is also scope for increased use of synthetic training environments to save energy.

Cost-savings are a second important argument in favour of increased energy efficiency, especially in times when Ministries of Defence are cash-strapped anyway and the EU

is dependent on imports of fossil fuels. Military vehicles, ships and aircraft consuming less fuel or the ability to use renewable energy sources to operate military infrastructures, platforms and systems can save huge amounts of money. Diversifying energy supplies while increasing alternative energy sources in the overall energy mix will reduce defence budgets exposure to the risks of future price instability. Finances saved on energy expenditure can be channelled to other military tasks. Therefore, to improve security of supply and reduce operational expenditures, Armed Forces have a strong interest in reducing their fossil fuel dependent footprint.

Energy & Environment Programme



Thirdly, making defence more environmentally resilient also pays off for Member States on a political level: they are allowed to account energy savings achieved within their defence and security sector against their global CO2 emission reduction obligations, even if the military sector is not subject to such obligations. A strong incentive for voluntary action.

Looking further ahead, the EU Global Strategy sets out that climate change and energy insecurity endanger our people and territory, while wider environmental stresses could exacerbate potential conflict, in light of

their impact on desertification, land degradation, and water and food scarcity. This is also likely to impact on where Armed Forces are deployed and the way in which they operate in the future. Operating in increasingly hostile environments could increase energy demand and trigger the need for new advanced materials to cope with tougher conditions, shaping our capability requirements. budgets.

High potential

Against this backdrop, the enormous potential of energy efficiency, energy management and renewable energies in the military has been increasingly recognized and followed by action over the past few years, nationally (by the Armed Forces themselves) but also on a wider European level.

In 2011, the European Defence Agency (EDA) confirmed fuel and energy as one of the top ten capability development priorities and started implementing the first projects under the 'Military Green' umbrella (see details below).

In its 2013 Communication 'Towards a more competitive and efficient defence and security sector', the European Commission noticed that the defence sector could become a "frontrunner" in the deployment of emerging technologies under the Strategic Energy Technology (SET) plan to promote innovative and low-carbon energy technologies. The Commission also decided at that time to set up a consultation mechanism with Member States on renewables and energy efficiency in the defence sector – an initiative which led in 2015 to the setting up of the 'Consultation Forum on Sustainable Energy in the Defence and Security Sector' (CF SEDSS) – the European Commission's flagship initiative on energy and defence, organized and managed by the EDA.

Mindsets in the military have thus started to

change with energy efficiency and sustainable management increasingly being seen as strategic goals. "Some of the world's most efficient militaries are progressively replacing expensive fossil fuels with power generated by solar panels, wind turbines and rechargeable batteries. This is not only about more reliable on-site energy generation. It's also about making it safer and cheaper for troops to complete their missions", EU Commissioner for Energy and Climate Action, Miguel Arias Cañete, stated at the opening plenary session of the Consultation Forum last January in Brussels.

"Sustainable energy use starts at home. This is true for individuals as well as for the armed forces", adds Jorge Domecq, the EDA's Chief Executive. "The energy bill for Europe's armed forces amounts to billions of euros. The EU legislation in place for energy efficiency, renewable energy and energy performance in buildings can certainly improve the armed forces' energy output. Ultimately this will not only benefit their environmental footprint but will also result in considerable savings".

Examples of how Armed Forces can become more energy-efficient and environmentally-friendly include deploying troops to low-footprint, low-energy camps and developing energy efficient, self-sufficient operating bases - domains in which the EDA has already initiated concrete projects.

EDA: from 'Military Green' to the Consultation Forum

In 2011 the EDA spearheaded the first European targeted approach to managing energy in the military with its innovative initiative, 'Military Green'. Combining the EU military concept for Environmental Protection and Energy Efficiency, national armed forces priorities and EU directives, Military Green defined the concept, the principles and responsibilities to meet the military's energy and environmental challenges. It attempted to bring all stakeholders together to establish a common understanding of the defence sector's

role in contributing to EU energy and environmental goals.

In 2014, this led to the establishment of a dedicated EDA Energy & Environment Working Group. The approach is the following: understand the strategic drivers for the military, define the scope of the challenge through data collection and analysis, educate and inform, focus on efficiency gains, then on the scope for alternative energy sources.

Lack of military energy data capture

To date there has been no global capture of energy usage in the military at a European level; statistics are based on interpretation and estimations. Member States individually have data available and work has recently begun in the EDA on a data collection, analysis & sharing (DCAS) activity. This aims to collect information from Member States, at a macro and non-sensitive level, on the significant energy users of energy and fuel sources in the military. The data will be used to define the scale and complexity of the challenge facing the sector and assist Member States in setting priority areas for attention in terms of R&D, procurement, design and operational control over the coming years.

Energy Management Systems (EnMS)

Proactive energy management is not yet universal across the European defence sector and improvements will not only enhance military capability and reduce financial and operational risks, but also strengthen the competitiveness of the technological and industrial base. Although Energy Management Systems (EnMS) have grown in importance and some Member States have adopted international standards, wide scale

penetration of energy management systems implementation into the European defence community remains low. At the request of several Member States, the Energy & Environment (EnE) working group and EDA's Education, Training and Exercises unit (ETE) developed a comprehensive EnMS Training course which will be offered towards the end of 2016, early 2017, to educate and assist them in applying a systems approach to energy management at an operational level based on the ISO 50001 standard. The course will include classroom based learning, supplemented by ongoing mentoring to support Member States in applying EnMS principles in their own armed forces.

Smart Energy Camp Technical Demonstrator

EDA's Smart Camp Technical Demonstrator project analyses the benefits of integrating new technologies into traditional power grids for deployed camps. As part of the project, energy management equipment was installed in October 2015 at the European Union's Training Mission (EUTM) in Mali; it is the first time a technical demonstrator is used in a truly operational, multinational deployed camp. The main objectives of project (the first test phase of which was concluded in March 2016) are:

- to test and verify the efficiency of various types of flexible, combat suitable photovoltaic panels in specific climatic conditions and test the integration of renewables with battery storage in a deployment scenario; →



- to test 'demand management' technology and its impact on inhabitants;
- to collect reliable data for analysis and sharing with MS and to develop benchmarks for planning support tools for CSDP operations.

BAE Systems (UK) are the contractor for this project (see interview below). Positive results have been collected, showing savings of between 33% up to 60% of energy in the test building, with the potential of possible savings of up to 75% with additional technical interventions.

Member States are now considering a second research phase including an upscaling of the equipment installed to provide more renewable power to the camp, water management technologies, waste management technologies including waste to energy conversion, and further efficiency measures. Alternatively, some Member States have expressed an interest to trial the equipment in their national deployed camps.

Smart Blue Water Camps

Existing civil and military water management infrastructure is facing pressure due to climatic changes and limited new investment. Military installations are so far among the least acknowledged elements in water cycle management.

Acknowledging water as a critical resource throughout Europe, including for their Armed Forces, six EDA Member States – Greece, Cyprus, Spain, Portugal, Ireland and Italy - have recently committed to participating in a novel water management project: the 'Smart Blue Water Camps project' (SBWC). It examines water management on defence lands from a hydro-



informatics, conservation, sustainability and technological innovation point of view.

For the first phase which kicked off in September 2016, the EDA provides funding to conduct workshops and analysis of water management technology for fixed military installations on a chosen military site in each Member State. The second phase will involve implementation of the most suitable identified interventions.

Consultation Forum

Since 2015, the EDA's Energy & Environment Working Group has been the umbrella for the Consultation Forum for Sustainable Energy in the Defence and Security Sector. The Consultation Forum is a European Commission (DG Energy) initiative managed by the EDA. It brings together experts from the defence and energy sectors to share information and best practice on improving energy management, efficiency and the use of renewable energy in the military.

The Consultative Forum's objectives are:

- to assess ways and means of how to best implement existing EU energy legislation in the military and defence domain
- to stimulate collaborative sustainable energy projects in the defence sector

- to identify applicable funding streams for such projects and give a tailored information regarding access to EU funding.

The work is carried out in three parallel working groups each with a particular focus: i) "Energy Management" deals with the Energy Efficiency Directive, data collection and analysis, and with EnMS; ii) "Energy Efficiency" focuses on key articles of the Energy Efficiency and Energy Performance in Buildings directives, the technology side of energy in buildings and fixed infrastructure, renovation of existing buildings as well as on heating and air conditioning inspection schemes and technical building systems requirements, and their applicability to the defence sector; iii) "Renewable Energy" deals with the application of Renewable Energy Systems (RES) in the military, national RES action plans, decentralisation and the use of RES at military sites, and technologies in the area of solar, wind, biomass, geothermal and small Hydro as well as with fuel cells, storage and smart grids.

Protection of Critical Infrastructure

Recently the Consultation Forum topics have been extended to exchanges of experience on the Protection of Critical Infrastructure (PCEI). This implies sharing expertise on the analysis of criticalities and the interdependencies for the protection of the energy infrastructure against man-made and natural hazards.

In May 2016, the EDA held an initial meeting to exchange views with national representatives and the Commission's DG Energy on the need to explore PCEI from a military point of view and to assess how the EU energy legislation on European critical (energy) infrastructures can be applied by the defence sector.

The Consultation Forum takes place in a series of five plenary meetings over two years; two of which have been successfully completed. The first meeting was held in Brussels in January 2016 and the second meeting in Dublin in June 2016. The third plenary



"We expect tangible results"

The Italian MoD is the latest newcomer in EDA's **Smart Blue Water Camps** project which it joined last August. "We did so because we strongly believe in European defence cooperation, especially in energy and environment-related domains where we all have similar problems. So, why not explore common solutions together?", Lt Colonel Vincenzo Mauro, Italian project point of contact, told us. "We also expect tangible results for our military operations and exercises, such as a reduction in water and energy consumption which will also result in operational advantages because it will reduce the logistic burden of operations". Smart water management in field camps is not a topic previously explored in such detail by the Italian MoD on a national basis. "Given that the project deals with less sensitive security questions, it allows for a very open cooperation which should allow us to achieve maximum results", Lt Colonel Mauro said.

meeting takes place in Italy from 22nd - 24th November 2016; two further meetings will be held in 2017.

The Consultation Forum is being carried forward with the participation of 27 EU Member States including Denmark (which is not a member of the EDA) as well as Norway and Switzerland which shows the critical importance of energy efficiency to European Ministries of Defence. The final deliverable will be a guidance document which all Member States can use to find practicable solutions to

military energy management challenges.

The way ahead

Richard Brewin, EDA's Energy and Environment Systems Project Officer concludes that: "Understanding and managing energy alongside other existing and emerging risks including climate change, resource depletion, and security of supply considerations will help shape our future capability requirements and maintain military capability to the required levels of effectiveness".

The EDA's Energy and Environment programme will continue to serve as a platform for Member States willing to deal in a collaborative way with energy and environment-related challenges in the defence sector. Working group meetings are scheduled for this autumn to discuss the next phase of the Smart Camp Technical Demonstrator project, for instance. It is also planned to consider the scope for and benefits of the circular economy as well as sustainable procurement to Europe's military organizations. **K**



Four Questions To...

Jon Woodman of BAE Systems (UK)

BAE Systems are very active in developing energy-related products. Would you say that it is nowadays a commercial 'must' for a defence producer to 'think green'?

Emissions targets mean that governments and their militaries are being driven to reduce their carbon footprint. Initially this focused on their fixed infrastructure and what they can do within their homebases. Operational energy largely avoided the need to be too concerned with how much pollution they are producing, but things are changing. Training facilities often located within home nations mean that they have to abide by local laws and regulations so they need products and equipment that will meet those guidelines. Given the tight budgets for equipment and the need for standardization, those 'eco-friendly' operational platforms start to form the backbone of the deployed operational force. Whilst industry is developing greener products there is more that could be done through better requirements setting, e.g. better range doesn't have to mean a larger fuel tank. I don't think it is yet a 'must' but it will be soon.

What are the biggest obstacles for expanding smart energy management in the military sector?

Finance. Most of the smart energy technologies you see being discussed in the military sector are all commercially available and in some cases deployed on a large scale. The military often sees itself as a 'special case' and therefore believes it has to provide demonstrable evidence of the savings that can be achieved using different technologies. These technologies are supported by business cases developed over the years and proven through commercial installations. There is no need to repeat them because the installation is surrounded by razor wire and guarded 24/7. They need funding to get them installed and start saving money so it can be re-directed. Unfortunately reducing emissions doesn't immediately link to supporting the operational need and there are long procurement cycles and a nervousness on relying on 'new' technology. Work needs to be done in ruggedizing some technologies for military use but this should be a simple process and could easily result in smart energy systems being deployed sooner rather than later.

What kind of new initiatives or measures would the industry like to see in order to accelerate the energy transition in the European defence?

Industry is involved in working groups and forums across Europe and beyond often at its own expense because it believes in the products it has developed and the potential for the military sector to embrace it. For me on the surface there appears to be duplicated research either at multi-national organization level or across nations. What would be really good is mapping out all of this great research, modelling and trials and then overlaying it onto a plan of national procurement cycles. If industry can see the end game they will happily play along but without the vision of what it is round the corner it makes investment decisions hard to justify. We need smarter requirement setting by the military, greater visibility of information to the user and a willingness by the military to accept that if you want this new technology then you will have to step away from the 'one size fits all' mantra of the diesel genset generation.

How do you see the Smart Energy Camp deployed in Mali develop in the near future?

I would like to see it develop into a Net Zero Camp demonstration site. Moving away from individual technology 'trials', as we know they all work, and pulling together a suite of technologies that when installed together will drive the camp to the holy grail of zero emissions.

Jon Woodman,

Business Development Manager at BAE Systems Energy Solutions & Services, is the project lead for the EDA Smart Camp Technical Demonstrator Project. Over the last 9 years he has worked on similar programmes for the UK MoD leading trials in Wales, Cyprus and Kenya as well as carrying out detailed studies into the suitability of technologies for deployed camp operations. BAE Systems was selected as the Industry lead for the EDA Smart Camp Technical Demonstrator Project in Mali following the tender in late 2014.



> Building Open System Architecture for military land vehicles

The more military equipment is built on open-source technical standards, the more interoperable and flexible it is, especially when deployed in multinational operations. This applies in particular to electronic networked mission systems installed in manned or unmanned military land vehicles. Rather than developing bespoke systems designed for specific tasks and vehicle types, the future lies in Open System Architectures able to integrate multiple subsystems

The trend towards systems based on open reference architecture is amplified by an increasing need for military land vehicles, especially armoured fighting vehicles (AFVs), to be equipped with networked information technology providing them with optimal situational awareness and combat

capabilities. Ensuring full data-exchange interoperability between all types of land vehicles involved in an operation with the help of integrated mission systems has become crucial, both from an operational and economic (cost saving) point of view.

Operational benefits and significant cost savings

Relying on a modular fleet of configurable, interconnected land vehicles capable of exchanging data and information irrespective of the size and composition of the operation, obviously

provides a significant operational advantage. "A vehicle crew's situational awareness expands greatly with far more possibilities for data exchange. In addition to that, the mission system equipment can be reconfigured and upgraded much easier and quicker in the field, with logistics and training being much simplified too", explains Marek Kalbarczyk, Project Officer for Land Systems Technologies at the European Defence Agency (EDA).

Thanks to open-source technology standards "the operational efficiency and effectiveness in a networked environment can be improved drastically with no significant cost increase", he says. A vehicle equipped with an open mission system can be easily adapted to new emerging technologies by simply adding, replacing or upgrading sub-systems. In the



"The overall costs savings of creating open-source technical standards are significant"

Marek Kalbarczyk
Project Officer for Land Systems Technologies, EDA

same way, specific mission tasks can be carried out and unexpected problems mastered during an operation by simply adjusting the military land vehicles' sub-systems accordingly. "The whole logistics task is greatly simplified and the exchange of spare sub-systems across various types of vehicles, even among different European Armed Forces participating in a joint mission, is possible", explains Peter Round, the EDA's Capability, Armament & Technology Director.

The economic benefits are self-evident too. They range from cost savings in the procurement phase of vehicle systems (due to reduced prices as a result of increased competition) to reduced training and maintenance costs and longer vehicle life cycles thanks to regular, low-cost system updates and upgradings. "The overall costs savings of creating open-source technical standards are significant", underlines Mr Kalbarczyk. Based on a theoretical multinational buy of 800 vehicles, it can be estimated that total life-cycle cost savings over 25 years would amount to 17% compared with buying vehicles based on proprietary standards. Additionally, there would also be economies for in-service vehicles: savings of up to 10% of the original fleet purchase price could be generated by doing updates with parts and functionalities designed according to open-source standards, he says.

Avoiding duplication: EDA supports NATO standardisation work

With this in mind, efforts to promote open architecture systems were undertaken already several years ago at various levels across Europe.

In 2011, the UK Ministry of Defence (MoD) mandated open architecture for new land vehicles through the so-called UK Defence Standard 23-09 'Generic Vehicle Architecture' (GVA). The UK initiative subsequently triggered similar activities within NATO and the EDA.

It was the Military Vetronics Association (MILVA) - an association of government agencies and industries promoting Vehicle Electronics (Vetronics) in the military environment in close co-operation with NATO - which took the lead in 2012 to develop the so-called NATO Generic Vehicle Architecture (NGVA), better known as 'Standard Agreement (STANAG) 4754'. The agreement is currently in the process of being ratified by NATO Member States.

Simultaneously, at the EDA, Member States and industrial experts gathering in a dedicated

expert panel (CapTech) on 'Ground Systems' identified system architecture and integration as a defence technology gap and recommended to address this topic. The initial idea and ambition was to define a specific European standard for an open-architecture mission systems. To this end, participating EDA Member States launched the 'Land Vehicle with Open System Architecture' (LAVOSAR I) study which was carried out in 2013 to define a comprehensive reference open architecture for military land vehicles with focus on their mission systems and to propose it as a reference solution for developing and implementing future mission systems..

LAVOSAR I and II

However, since most of the EDA's Member States participating in that project are also NATO Member States, and in order to avoid unnecessary duplication, it was decided within the EDA not to proceed with developing a separate European standard but to support NATO's STANAG activities instead, in order to establish a single common open standard for military land vehicles and their mission systems.

As a consequence, the EDA has since then actively supported NATO Generic Vehicle Architecture (NGVA) standardization by providing key inputs to STANAG 4754 or its potential future developments. For example, NGVA Data Infrastructure Allied Engineering Publication (AEP) used several parts including NGVA Data Infrastructure Layer View/ Network Topology/interfacing network to other services and gateways provided by LAVOSAR I. The study has also provided NATO with verification and validation concepts and guidelines, safety criteria concepts and crew terminal software architecture.

A second EDA study on 'Electronic Reference Open Architecture Standard for a Modern Integrated Electronic Mission System in Military Land Vehicles' (LAVOSAR II) was carried out in 2015 and completed this year. It extended the model defined by LAVOSAR I and provided further new areas for NGVA future developments regarding logistics, maintenance and upgrading, training and data exchange mechanisms.

As a next step, the EDA and its participating Member States are currently working on a follow-on programme called 'Land Vehicle Open Systems Standardisation (LAVOSS) Study Programme'. The aim is to select specific topics

for a future new study which could built on the two previous LAVOSAR studies to identify areas where standardisation of a vehicle mission system electronic architecture would prove beneficial to all nations. The EDA also continues to support NATO standardisation activities.

Industry participation is crucial

Work on LAVOSAR I and II were guided by a multi-national team of experts and industrialists led by a Rheinmetall Defence Electronics as prime contractor.

As Dr. Norbert Härle (Rheinmetall Defence Electronics GmbH) explains, "Open System Architectures are preparing the future for networked sub-systems which provides the functionality and performance of a fully integrated and comprehensive system providing while still being modular and flexible."

"Without a standardized Open Architecture, it will not be possible to comply with current and upcoming user needs..."

Dr. Norbert Härle, Rheinmetall Defence, Mission Equipment - Head of Innovations and Patents



For a military vehicle mission system, currently several separate and individual sub-systems are used which do not share information between them and are difficult to operate. "Especially with the high demand on better performing, more flexible, and increasingly IT-based mission systems, an Open Architecture approach is necessary to make such systems operable, to manage complexity, to make them affordable and to enable innovation", he states.

Dr Härle claims that "without a standardized Open Architecture, it will not be possible to comply with current and upcoming user needs and to keep up with technical possibilities as they are offered for other application areas on the civil market with reasonable development and integration costs and for a reasonably priced system". Such standardisation is only possible in close cooperation between Industry and NATO which represents the international user as well as procurement.

"The EDA plays an important role as it consolidates a European approach, and, due to its size, may be more agile", he explains. "This way, The EDA can make significant impact to initiate and influence useful NATO standardisation". ◀



"EU-NATO complementarity in capability development remains a crucial issue"

› Military capabilities: "Europe still lacks strategic enablers"

Most tangible expression of the EU's Common Defence and Security Policy, CSDP operations and missions face new challenges as a result of the fast-changing security and defence environment Europe has to deal with. In an exclusive interview, **General Mikhail Kostarakos**, the Chairman of the European Union Military Committee (EUMC), shares his analysis with *European Defence Matters*

General Kostarakos, what are in your view the main challenges EU CSDP operations face in the future?

The Common Security and Defence Policy (CSDP), as an integral part of the Common Foreign and Security Policy (CFSP), contributes to enhancing the security of European citizens and to international peace and stability. This was recognized by the Council on 18 May 2015 and the EU Council in June 2015. To achieve deepened cooperation with collective defence organizations, namely NATO, to further fine-tune our performance on the ground, to maximize the results of our training missions, they are also among the challenges that we persistently face in our effort to become more efficient and to optimize our performance!

Beyond them, the challenge I regard as the major one is to identify ways to further contribute to the EU's comprehensive Capacity Building efforts in the places we are – or will be in the future – deployed, assisting the local security and defence-related Institutions in taking over the task to provide security by themselves to their fellow citizens.

To launch CSDP operations and missions, it requires not only political will but also the necessary capabilities. To what extent have lacking capabilities already become a stumbling block for new EU operations?

For every CSDP operation and mission, the participating countries need to have at their disposal the enablers which will allow for their deployment and sustainment. Unfortunately,

there are still significant shortfalls in areas like air-to-air refuelling and intelligence, command & control and strategic reconnaissance. Clearly, these remain absolute priorities for European capability improvement. Obviously, EU-NATO complementarity in capability development remains a crucial issue.

As we speak, the EU runs no less than six CSDP-related missions and operations, two of them executive, the remaining being of an advisory and training nature. Problems arose in the past; they continue to rise, thankfully in a diminishing frequency and of lower severity. The point we have reached on the learning curve, enables us to tackle them in a timely manner and to proceed with our missions before they create further complications. Furthermore, the so far experienced 'lack of capabilities' has never been a 'no-go' factor for the EU, in launching an operation or mission that the political leadership regarded as necessary or indispensable.

And in the future?

It depends on the specifics of the operation we examine, on the region in which it will take place, on the mandate and the objectives that we would be tasked with, on the situation on the ground and on countless other major or minor details that have to be included into our planning procedures.

Taking into account that our current operations and missions are at the lower to medium end of the military spectrum, we are in position to realize a demand for similar

operations without any major concern, should the EU leadership decide so.

Unfortunately, the so desired European strategic autonomy, always speaking strictly within the context of CSDP operations, remains an unaccomplished objective. Despite all the efforts made so far, Europe still lacks those strategic enablers that would render it capable of independently performing the full range of tasks associated with the missions and operations it launches.

While it is true that duplication of efforts and of capabilities are the contemporary 'anathema' and as such they have to be avoided, it also goes without saying that defending values and enjoying premium privileges such as autonomy comes with a cost. This 'in house' capabilities development is under no circumstances contradictory to the stated objective of strengthening cooperation between the European Union and NATO nor should it be regarded as challenging the Alliance's leading role in assuring the territorial integrity of Member-States.

On the contrary and being mindful of the fact that the means of both organizations are – for the vast majority of them – nationally owned, this development will only increase the operational flexibility of the Alliance, it will facilitate a clear division of the respective roles and it will portray the complementarity of the European Union and NATO.

With the publication of the new EU Global Strategy, do you expect any major strategic →

or operational changes in the way CSDP operations and missions are contemplated, planned, decided and implemented?

The EU Global Strategy, as the HR/VP has stated, "...nurtures the ambition of strategic autonomy for the European Union." This level of ambition has taken into account the contemporary security environment and reflects the role envisaged for the EU as a global actor and a security provider. It also portrays the level of engagement the European Union foresees for itself in the shaping of the future geostrategic environment in its neighbourhood and beyond it, in order to protect and advance its interests. In this context, the EU Global Strategy will affect and change the way we manage our operations and missions. A review of our procedures will have to take place and changes, were needed, will be applied, to ensure that we remain in good shape to respond to our role and to contribute to the EU's Comprehensive Approach in a professional way.

Do you anticipate more EU operations in the future as a result of the renewed dynamic and security engagement which could result from the EU Global Strategy?

The EU Global Strategy provides a European answer to the deteriorating security environment in our neighbourhood and in the 'neighbourhood of our neighbourhood'. The increasing geographical proximity of conflict, the ongoing occurrences of state fragility as well as the root causes of these phenomena that guarantee the reappearance of the flux unless addressed with determination: they are the scene setters of a broader European Union engagement with its geostrategic environment. Whether this engagement incorporates and to what extent each time the military element, remains to be seen. I expect that, at a different level for each particular engagement, the military element will be called to contribute, as the EU's Comprehensive Approach provides for. This is, after all, the comparative advantage of the European Union. The nature of the contemporary challenges Europe faces – multifaceted, ambiguous or hybrid – calls for responses that address all of their aspects at the same time in a concerted way. The military can largely contribute to that, taking over a variety of roles. And this is thanks to the fact that the military is the most flexible, versatile, available and deployable tool in the European toolbox!



"The Global Strategy will affect and change the way we manage our operations and missions"

Operation Sophia (EUNAVFOR Med) is the first CSDP operation with an openly coercive mandate which, if implemented, would lead the EU to engage in 'peace enforcement'-type activities. What are the lessons learned so far from this operation since it reached its full operational capability in July 2015?

Operation Sophia (EUNAVFOR Med) has been a perfect test bed for coordination among EU actors on the ground. Namely, an EU regional task force on migration has been set in Catania under the coordination of Frontex which included EUNAVFOR Sophia, the Commission's DG HOME, Europol, the European Asylum Support Office (EASO) and the Italian law enforcement authorities, including the Prosecutor's Office, Guardia Costiera, Carabinieri, Guardia di Finanza. UNHCR was also associated with the work of the Task force.

CSDP organisational structures and cultures have successfully met the demands of their ever-changing environment, being flexible, adaptable, agile and responsive. The Comprehensive Approach and partnerships worked very well avoiding duplications and developing synergies. It was a clear change of mind-set.

The EDA is active in supporting CSDP missions by offering its resources, expertise, existing projects as well as ready-to-use solutions and framework contracts. How important is this for EU operations and which additional role could the EDA play in order to ensure availability

of necessary military capabilities now and in the future?

Against the backdrop of a complex and rapidly changing geostrategic environment and daunting fiscal constraints, the EU must ensure that it has the requisite capabilities and resources to act decisively as a security provider. Otherwise, the Global Strategy will remain an academic exercise and the vision of EU be seen as a credible security provider will become wishful thinking.

In this context, the role of the EDA in ensuring the timely development is undoubtedly essential. Although the development of military capabilities is primarily a national responsibility and will remain so for the foreseeable future, the new Capability Development Plan (CDP) tool and the revitalised Collaborative Data Base (CoDaBa) can help military planners to align planning processes and to identify possible partners in the development of future projects. The new EU Global Strategy could prove to be a catalyst, leading to improved cooperation between Member-States in order for the identified capabilities for its implementation to be developed.

To facilitate matching the EDA's programmes to the actual needs of Mission and Operations, I suggested to their respective Commanders to visit the EDA upon taking up their commands to be briefed on the tools and services available to them. Feedback upon the completion of their tour would provide valuable input on how to better steer the efforts and offer better and more relevant tools and services to the troops deployed. ❏

General Mikhail Kostarakos was born in Thessaloniki in 1956. He graduated from the Hellenic Military Academy in 1978 as 2nd Lieutenant in the Artillery and commanded combat units of both Field and Air Defence Artillery (HAWK Missile system). As general Officer he commanded the Brigade level Command at CHIOS island, a Mechanized Infantry Division and the C' Army Corps and NATO Deployable Corps Greece. He was assigned as Chief of the Hellenic National Defence General Staff from 2011 to 2015. The EU Foreign Affairs Council appointed him as the Chairman of the Military Committee effective from 06 November 2015. He holds a Political Science degree from the Law Faculty of the University of Athens and a MSc in "Diplomatic and Strategic Studies".

Key Quotes

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"The only way to achieve the (defence) capability targets will be further cooperation and integration, at two levels. At the EU-level, making full use of the EDA, to acquire the necessary strategic enablers. And at the level of various clusters of Member States, to create larger deployable formations through a combination of far-reaching pooling and specialization"

Prof. Dr. Sven Biscop, Director at the Egmont – Royal Institute for International Relations in Brussels)

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"Europeans should remain ambitious in their immediate neighbourhood. In terms of goals, that means the primacy of European power and values (...) The idea of accommodating revisionist powers and accepting different spheres of influence in Europe's immediate neighbourhood – let alone in Europe itself – should be resisted"

Luis Simón, Director of the Brussels office of the Royal Elcano Institute



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"The EDA has already carried out considerable work to encourage synergies between civil and military policy initiatives in areas such as the Single European Sky, Energy Efficiency, Maritime Security Strategy, Space, etc.. The Circular Economy Package provides a new opportunity for the EDA to use its enriched stakeholder network and experience in identifying mutual benefits to broaden this cooperation"

Jyrki Katainen, Commission Vice-President for Jobs, Growth, Investment and Competitiveness

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"R&T is not nice-to-have. It is an essential prerequisite to develop the capabilities of the future and thus to provide for our citizen's security"

Jorge Domecq, Chief Executive of the European Defence Agency, EDA



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"The joint venture between Nexter and KMW is the first step towards a strong, durable and independent European industry"

Stéphane Mayer, CEO of Nexter and co-CEO of the newly created KNDS

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"The challenge I regard as the major one is to identify ways to further contribute to the EU's comprehensive capability building efforts"

General Mikhail Kostarakos, Chairman of the EUMC

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"Cooperation between NATO and the European Union has become even more important in the wake of the UK (Brexit) referendum"

Jens Stoltenberg, NATO Secretary General



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