

European Defence Matters

Space & Defence The sky is *not* the limit

Industry Talk



> Frank Haun
KMW CEO /
KNDS co-CEO

Analysis



> McKinsey analysis on
the benefits of EU
defence cooperation

Academic View



> European defence –
60 years after the
Treaty of Rome

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Off to new horizons

Europe's space policy is gaining prominence in the context of the EU's CSDP

So far away and yet so close. Space-based civilian services have become indispensable in everyone's daily lives.

Think of satellite TV, mobile phones, navigation systems in cars or taking the plane. The European Union owns world-class space systems with Copernicus for Earth observation as well as EGNOS and Galileo for satellite navigation and geo-positioning. With 18 satellites currently in orbit and over 30 planned in the next 10-15 years, the EU is the largest institutional customer for launch services in Europe.

But Europe's space policy is also gaining prominence in the context of the Common Security and Defence Policy (CSDP): space-based communication, situational awareness, and navigation and earth-observation capabilities play an increasingly critical role in security and defence. Satellite reconnaissance is one of the key functions allowing states to gather information about military build-up or movement of troops worldwide. Precision-guided munitions, missile warning and launch detection systems, and space-based missile defence systems are other examples of space-enabled defence capabilities.

Against this backdrop, the recently adopted European Commission's 'Space Strategy for Europe' takes on a wider, much more significant meaning. For the first time ever, the EU identifies space as a 'strategic asset' for strengthening European security & defence and even a core element in achieving Europe's objective of 'strategic autonomy'.

Reason enough for *European Defence Matters* to analyse the Space Strategy's defence-related

aspects and repercussions, especially in connection with the Commission's European Defence Action Plan (EDAP), and to give the floor to the main actors in this field: European Commissioner Elżbieta Bieńkowska, European External Action Service's (EEAS) special envoy for space François Rivasseau, EU Satellite Centre (SatCen) director Pascal Legai, European Space Agency (ESA) Director General Jan Woerner as well as the European Defence Agency (EDA) Chief Executive Jorge Domecq. To hear the European space industry's views, we spoke to Jean-Loïc Galle who is not only CEO of Thales Alenia Space but also President of ASD-Eurospace.

Frank Haun, the President & CEO of Krauss-Maffei Wegmann (KMW) and Co-CEO of KMW+Nexter Defense Systems (KNDS), is our guest for this edition's 'Industry Talk' in which he makes a plea for consolidation and streamlining to strengthen Europe's defence industry.

In the same vein, the head of McKinsey & Company's activities in the defence sector in EMEA, Wolff van Sintern, tells us in a very interesting interview how important it is for Europe to overcome the current fragmentation of its defence market, to boost cooperation and to achieve greater integration based on standardized requirements and equipment.

The analysis by Daniel Fiott (Security & Defence editor at the EU Institute for Security Studies) of the EU's defence policy 60 years after the Treaty of Rome is another highlight of this 13th edition of *European Defence Matters* which we hope you will enjoy!

As usual, should you have comments or suggestions to make, please contact us directly: info@eda.europa.eu. 📧

News

Ministers endorse reinforcement of the EDA as outcome of Long Term Review

On 18 May, Defence ministers meeting at the European Defence Agency (EDA) Steering Board endorsed the final conclusions and recommendations of the EDA's Long Term Review (LTR) which aim to reinforce the Agency in order to keep it fit for purpose in the light of upcoming, more ambitious tasks and challenges.

The LTR exercise was launched last year by Federica Mogherini (EU High Representative for Foreign Affairs and Security Policy, Vice-President of the Commission and Head of the EDA) who asked Defence Ministers to engage in an in-depth reflection and structured assessment of the Agency's longer-term objectives, priorities and way of working.

In the context of the EU's new Global Strategy, which includes a call on making 'full use of the EDA's potential', the LTR had one overarching goal: to make sure the EDA remains capable of dealing efficiently with the more ambitious tasks to come. Ministers subsequently designated personal sherpas to participate in a series of LTR meetings which took place between November 2016 and April 2017, resulting in a set of conclusions and recommendations with a view to increasing the EDA's output and added value for Member States' defence capabilities. They were presented by Federica Mogherini to the May Steering Board which discussed and endorsed them. Ministers agreed to revert by spring 2019 to take stock of progress and assess the need for additional recommendations and further steps.

Jorge Domecq, the EDA Chief Executive, welcomed ministers' support for strengthening the Agency.

Reinforced EDA mission

The recommendations focus on reinforcing the EDA's mission and making of the Agency:

- **the main intergovernmental prioritisation instrument** at EU level in support of capability development. Several actions have been identified to help to achieve this goal: – develop a more output-oriented Capability Development Plan (CDP) covering the entire




capability landscape of Member States and addressing R&T and industrial aspects; – link the CDP with the Overarching Strategic Research Agenda (OSRA) and Key Strategic Activities (KSA) at European level; – operate the Coordinated Annual Review on Defence (CARD) in view of performing an overarching assessment of the European capability landscape; – reinvigorate cooperation with EEAS (incl. EUMS) and EUMC towards the CDP and CARD;

- **the preferred cooperation forum and management support structure** at EU level to engage in technology and capability development activities, ranging from R&T to critical enablers, exercise and training as well as support to operations, including the industrial dimension. Special attention is given to ensuring a capability-driven approach throughout all Agency activities and stepping up the EDA's support in line with Member States' needs. The number, size and impact of EDA ad-hoc projects should also be increased;
- **facilitator and interface between Member States and EU institutions**, exploiting wider EU policies to the benefit of defence, and a central operator for EU funded defence-related activities, notably by implementing the Preparatory Action and the envisaged future European Defence Research Programme (EDRP) and by promoting the coherent uptake of R&T results into development activities.

First steps

Member States agree that in order to deliver on the renewed ambition in the short term, the Agency requires:

- 1. increased efficacy in interacting with Member States**, meaning the EDA will engage more with and increase reach out to strategic level interfaces in national MoDs (to facilitate strategic guidance) and review the sequence and format of meetings;
- 2. effective relations with the Agency's stakeholders, partners and third parties.** This includes a more seamless articulation with the work of EEAS (including EUMS) and EUMC, exploring the potential of a more structured EDA-OCCAR relationship, improving the coherence of outputs/timelines between EDA and NATO activities as well as setting up a structured dialogue and enhancing engagement with industry;
- 3. a more efficient and integrated way of working as ONE EDA**, based on stronger prioritisation of activities with Member States, especially by developing the EDA's Three-Year Planning Framework (3YPF) into a tool for increased prioritization;
- 4. resources allowing the Agency to fulfil its tasks.** It is acknowledged that the renewed ambition and expectations towards the Agency may have resource implications and that administrative costs for EDA activities derived from the EDAP are to be covered by the EU budget. 


News

Jorge Domecq extended as EDA Chief Executive

Following a proposal by Federica Mogherini, the EU High Representative for Foreign Affairs and Security Policy, Vice-President of the European Commission, as Head of the European Defence Agency, the 27 Member States of the European Defence Agency (EDA) have decided unanimously to extend the initial three year mandate of Jorge Domecq as Chief Executive of the Agency for an additional two years, up to 1 February 2020.

Jorge Domecq has led the EDA since February 2015. Mr Domecq's prolongation comes at a crucial time for EU defence in general, and for the European Defence Agency in particular. As the Agency is crucially involved in the practical implementation of all recent European defence initiatives – from the EU

Global Strategy and its Implementation Plan to the European Defence Action Plan (EDAP) and the implementation of the EU-NATO Joint Declaration – Mr Domecq's extension will provide the necessary continuity in the EDA's top team to make sure the Agency can play its role to the full.

The implementation of the EDA's Long Term Review, which was set in motion by the Head of the Agency last autumn (*see related article*) and the upcoming launch of the European Commission's Preparatory Action on Defence Research (PADR), in which the EDA will play a central managing role through the signing of a delegation agreement with the Commission, are two additional challenges lying ahead of the Agency and its re-confirmed Chief Executive. 



MARSUR put to the test at OHQ EUNAVFOR MED (SOPHIA)

The EDA's Maritime Surveillance Networking (MARSUR) tool, designed to enhance the recognized maritime picture and to support CSDP operations, was tested during a recent live demonstration at the OHQ of operation EUNAVFOR MED (SOPHIA) in Rome.


Following its launch in 2006, MARSUR has grown to become EDA's longest running project, with 17 EU Member States plus Norway now forming the MARSUR community. The live demonstration in Rome was attended by 30 distinguished guests from participating Member States as well as the EU Military Committee (EUMC), the European Maritime Safety Agency (EMSA) and the European Union Satellite Centre (SATCEN).

For the first time, the event brought together the input provided by Member States via the respective Maritime Operations Centers (MOCs) and demonstrated how they can be used to create a comprehensive maritime situation picture which is absolutely



key to an operation such as SOPHIA.

EDA Deputy Chief Executive Rini Goos, who addressed the meeting, said: "The link between Operation SOPHIA and MARSUR is the perfect example of constructive and targeted efforts to implement the EU Maritime Security Strategy, ensuring overarching information

exchange among European actors in a cross-sectoral and comprehensive way. This interaction with multiple maritime security stakeholders makes MARSUR and SOPHIA's endeavour an excellent implementation example of the goals and principles we have set for our Union in the maritime domain." 

2016 military spending slightly up in Europe


Total world military expenditure rose to \$1686 billion in 2016, an increase of 0.4% in real terms from 2015, according to figures released in April by the Stockholm International Peace Research Institute (SIPRI). Trends and patterns continued to vary considerably between regions.

At €307 billion (\$334 billion) in 2016, Europe's military spending accounted for 20% of global military expenditure. The figure is an increase of 2.8% compared with 2015 and is 5.7% higher than in 2007. Spending increased in all subregions, according to the SIPRI report: Central and Eastern Europe's military expenditure increased by 2.4% and 3.5% respectively, in 2016, while

in Western Europe spending rose by 2.6%. Italy recorded the most notable increase, with spending rising by 11% between 2015 and 2016, according to SIPRI. Four of the fifteen largest military spenders in the world (France, UK, Germany, Italy) are in Western Europe. Together, they account for 10% of global military expenditure. Many of the European countries with the largest relative increases in military spending between 2015 and 2016 are in Central Europe. "Given the wider regional slowdown, this ongoing rise suggests that the perception of an increased threat from Russia following the Ukraine crisis persists", the SIPRI report notes. At 44%, Latvia's increase in military expenditure in 2016 was the highest in Europe, while

Lithuania's military expenditure rose by 35%. Russia's military spending in 2016 was \$69.2 billion, an increase of 5.9% over 2015 and 87% compared with 2007, according to SIPRI.

The report also shows that the US remains the country with the highest annual military expenditure in the world: US military spending grew by 1.7% between 2015 and 2016 to \$611 billion, according to SIPRI. Military expenditure by China, which was the second largest spender in 2016, increased by 5.4% to \$215 billion, a much lower rate of growth than in previous years. Russia increased its spending by 5.9% in 2016 to \$69.2 billion, making it the third largest spender.

The full SIPRI report is accessible at www.sipri.org 



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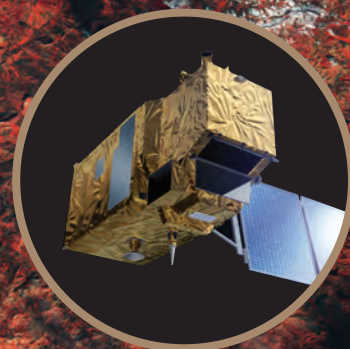
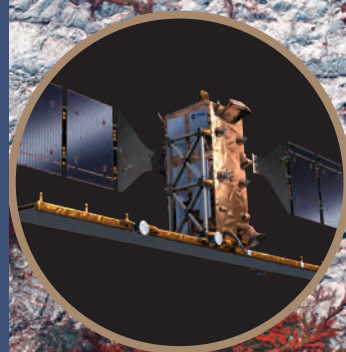
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One Giant Leap: Defence embraces Space

Last autumn, the European Commission presented a new 'Space Strategy for Europe' designed to further strengthen the European Union's space industry and to allow the EU to fully seize the benefits of this strategic asset which is key in supporting Europe's autonomy of action, including in defence.

In this respect, the Space Strategy complements last year's EU Global Strategy which insisted on the need for Europe to promote the autonomy and security of its space-based services.

In the following pages, *European Defence Matters* analyses the Space Strategy and its defence implications, and gives the floor to key institutional and industrial decision-makers and stakeholders to comment on the strategy, ongoing projects, challenges & opportunities and the way ahead.



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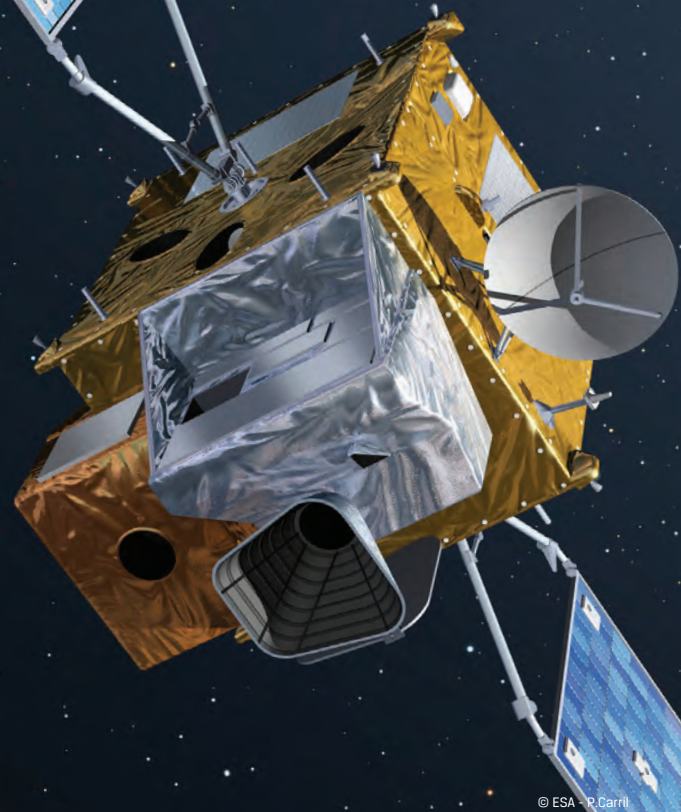


15. 3 Questions to... Pascal Legai

The Director of the EU Satellite Centre (SatCen) shares his views on the challenges ahead



> Space Strategy: Europe needs civil-military synergies



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When it presented its new 'Space Strategy for Europe' in October 2016, the European Commission not only set as an overarching objective to "maximize the benefits of space for society and economy" and to "foster a globally competitive and innovative European space sector". For the first time, it also identified space as a strategic asset for strengthening European security & defence and a core element of the EU's strategic autonomy

Acknowledging that space capacities are "strategically important" not only to Europe's civil and commercial actors but also "security and defence-related policy objectives", and that "Europe must draw on its assets and use space capacities to meet the security and safety needs of the Member States and the EU", the Commission's Space Strategy set the tone for an ambitious policy change in an area which, perhaps like no other, is predestined for greater synergies between its civil and defence dimensions.

Hence the need to develop closer links between space technologies and European space programmes on the one hand, and Europe's security and defence

objectives on the other hand. Bringing the two together makes perfect sense since "space services can strengthen the EU's response to growing security challenges by improving, for instance, the monitoring and control of flows which have security implications", as stated in the strategy which was prepared under the lead of Elżbieta Bieńkowska, the European Commissioner for Internal Market, Industry, Entrepreneurship and SMEs (see *her interview – right*) and with the support of Vice-President Maroš Šefčovič.

However, to make this a reality, Europe has to further reinforce the synergies between civil and security space activities. Europe is not starting from scratch and the Strategy can build upon activities

that have already been undertaken in cooperation between the EDA, the European Space Agency (ESA) and the Commission. "Most space technologies, infrastructure and services can serve both civilian and defence objectives. Although some space capabilities have to remain under exclusive national and/or military control, in a number of areas synergies between civilian and defence can reduce costs, increase resilience and improve efficiency. The EU needs to better exploit these synergies", the strategy reads.

To this end, the Commission restated its determination to closely collaborate with the European External Action Service (EEAS), the European Defence Agency (EDA) and the EU Satellite Centre, together →



Three Questions To...

Elżbieta Bienkowska - European Commissioner for Internal Market, Industry, Entrepreneurship and SMEs

The Space Strategy calls for making 'greater synergies between civil and defence aspects'. Where do you see the biggest potential for such synergies?

Synergies between civil and military aspects are certainly not limited to space.

They are first and foremost needed in the face of the evolution of the threats and big security challenges confronting Europe and its citizens. Crisis management, fight against terrorism and smart border management may require both civil and military assets. One of the biggest threats for defence is hybrid warfare, which calls for improved synergies between civil and military actors to be responded properly.

Nevertheless, space is an obvious candidate for civil-military synergies. As mentioned in both the Space Strategy and in the European Defence Action Plan, most space technologies, infrastructure and services can serve both civil and defence objectives. Although some space capabilities have to remain under exclusive national or military control, in a growing number of areas synergies between civil use and defence can reduce costs, increase resilience, improve efficiency, and contribute to Europe's technological leadership and industrial competitiveness.

For instance, protecting European space infrastructure is a growing challenge which requires synergies between civil and military actors.

The EU has developed, for the first time, a specific governance model targeting civil-military synergies, namely the Space Surveillance and Tracking (SST) support framework, which aims at protecting EU space Infrastructure against space debris. Based upon its success we will enhance the current EU SST services and consider comprehensive space situational awareness services addressing other threats.

The Commission, the ESA and the EDA are working on a new GOVSATCOM initiative, the first European, inter-institutional, dual-use effort in space and defence. Which governance principles and structure do you foresee for this strategic partnership?

You are perfectly right to stress that we are working hand in hand with the ESA and the EDA on developing GOVSATCOM, and have been doing so since the very early stages of the initiative. Each institution focuses on its respective area of competence and excellence.

Together with the EEAS and the ESA, we have also worked on high level user needs, which set out principles to guide further work. For instance, our requirements document demonstrates an interest in pooling the civil and military user demand and in developing joint European solutions to perform the security assessment of future GOVSATCOM services. We are not starting from scratch, many SATCOM solutions are already available both in some EU Member States' Defence organizations and among private European Satellite Operators.

Based on the users' needs and on an analysis of existing solutions, the Commission is currently conducting an impact assessment to further

evaluate different governance scenarios, as well as consulting the various stakeholders.

It is too early to anticipate the outcome of this work. But I am confident that the GOVSATCOM proposal, which we intend to present by the end of this year, will offer the most suitable solution making the best use of the existing capacities while ensuring that Governmental users have the Satellite Communications they need whenever it is required.

The Space Strategy stresses that the EU has to draw on its assets and use its space capacities to meet its security needs. In this context, how will the Commission strengthen the security dimension of Galileo and Copernicus, as called for by the Strategy?

The Security dimension of Copernicus has undergone a significant evolution in 17 years since its precursor, GMES initiative, has been launched. Already back in 2007 we have initiated a debate on the Security dimension of Copernicus, then called GMES, with the objective of making it a dual-use programme under civilian control. We have cooperated with the EDA and opened up discussions with CFSP/CSDP communities and involved them in R&D activities. This paved the way for the security services we have in place today: Border Surveillance, operational through FRONTEX since early 2016, Maritime Surveillance, operational through EMSA since late 2016. Additionally we are just about to start operations for the Support to EU External Actions service with SatCen, a service specially targeted to respond to the needs of CSDP/CFSP users.

Important technology advances are also foreseen for the next few years, including a denser network of very high resolution satellites as well as new capabilities such as streaming video and complementary observations by remote piloted aircrafts. These will reduce the current wide-gap between observation capacities and the needs of security applications.

But it is not only in the technology domain that the gap needs to be narrowed. To be effective, we also need to improve information sharing between civil and defence observations and to promote exchange of data and know-how through collaborative research and joint operations at the international level. This is the challenge for years to come.

Galileo is a civilian programme under civil control. Having said that, Galileo has certain features which make it particularly valuable for security sensitive applications. I am referring here to the Galileo Public Regulated Service, which has been specifically developed for services where robustness and complete reliability must be ensured. I am very proud that on 15 December we declared the launch of the Galileo Initial Services, including the Public Regulated Service.

But this is only the beginning. Our next objective is to declare the availability of full services by 2020. For the Public Regulated Service this should translate into easier access to the service and its handling. In addition, we are continuously improving and reinforcing the security of the system itself. This is an important element for all users, but for users of security sensitive applications it is an additional trust factor.

Sentinel-2 is a polar-orbiting, multispectral high-resolution imaging mission. It can also deliver information for emergency services



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Three Questions To...

François Rivasseau - Special Envoy for Space of the European External Action Service (EEAS)



As Special Envoy for Space you coordinate space-related activities for the EEAS. In concrete terms, how does space support the EU's CSDP today and what are the main challenges and prospects for the future?

The space domain is playing an important role in preserving the security of our citizens and the independence of our actions. More specifically regarding CSDP, every EU space project – its flagships Galileo/EGNOS and Copernicus in particular – is providing various services, including defence and security ones.

Therefore each level of the CSDP governance, a field commander of an EU civilian/military mission or a political representative of the EU, should be aware of the capabilities of the EU space programs and should be able to benefit from them. The main challenge ahead of us is to be able to constantly adapt to the rapidly changing international environment and to the technological development.

The EUGS calls for promoting the autonomy and security of the EU's space-based services, including in defence-related domains. How can this goal be achieved?

When speaking about space and autonomy, the first thing that comes to my mind is the EU Satellite Centre, an EU agency providing high-level geospatial analyses based on satellite imagery to the EEAS, the EU Member States and to some international organisations such as OSCE and OPCW.

In the domain of CFSP and CSDP, the EU SatCen plays a crucial role simply because it provides a unique autonomous intelligence gathering capability. Autonomy and security are also important

objectives for other EU systems (Galileo and Copernicus again), framework (SST) and initiatives (GovSatCom for instance).

Economic diplomacy is one of Europe's most efficient external relations tools, as particularly highlighted in the EU Global Strategy. How do you assess the relevance and efficacy of economic diplomacy in the space and defence sectors?

As it is stated in the Space Strategy for Europe: "The European space economy, including manufacturing and services, employs over 230,000 professionals and its value was estimated at EUR 46 - 54 billion in 2014." I am of the opinion that the EU space industry could serve as a case study for a more active engagement by EU institutions in advocating EU economic interests abroad.

There are already some success stories and at the same time, a lot of work still needs to be done. Firstly we have to strengthen our internal EU coordination mechanism and secondly, we need to develop a coherent dialogue with the EU space industry simply because we should understand their needs and the EU space industry should be aware of our possibilities and limits as well.

François Rivasseau currently serves as Special Envoy for Space and Head of Security Policy and Space, European External Action Service, Brussels. He previously served inter alia as minister counsellor and deputy chief of mission of the EU Delegation in the United States (2011-2015). He also was the permanent representative of France to the Conference on Disarmament in Geneva (2003-2006).



Sentinel-2A in the vacuum chamber during testing at IABG in Munich, Germany. Information from this mission is helping to improve agricultural practices, monitor the world's forest, detect pollution in lakes and coastal waters, and contribute to disaster mapping

with Member States and the European Space Agency (ESA) "to explore possible dual-use synergies in the space programmes". The new GOVSATCOM initiative providing resilient satellite communication services for governmental and institutional security users (*see more details in box below*), the first European dual-use effort in space and defence, is a perfect example for this new and successful inter-institutional cooperation.

The Commission also wants to further assess the potential of Copernicus and Galileo/EGNOS to meet EU autonomy and security needs and improve the EU's capacity to respond to challenges related to migration, border control and maritime surveillance. "To this end, the Commission will strengthen security requirements when developing these systems and will reinforce synergies with non-space observation capacities (e.g. unmanned aerial vehicles)".

Maintaining Europe's autonomous access to space

Another key aspect of the Space Strategy is the Commission's attachment

to Europe's "autonomous, reliable and cost-effective access to space". "Europe needs to ensure its freedom of action and autonomy. It needs to have access to space and be able to use it safely", it stresses.

Therefore, "access to the radio frequency spectrum must be guaranteed and protected from interference in full complementarity with the Radio Spectrum Policy's aim of maximum spectrum usage efficiency".

In the next 10-15 years the EU plans to have launched more than 30 satellites for its Galileo and Copernicus programmes, notably on the future European-built launchers such as Ariane 6 and Vega C, making the EU one of the largest European institutional customers for launch services. The Commission said it will therefore aggregate the launch service

needs of EU programmes and act as a smart customer of European reliable and cost-effective launch solutions.

"It is crucial that Europe continues to have modern, efficient and flexible launch infrastructure facilities. In addition to measures taken by Member States and the ESA, the Commission will consider

ways to support such facilities within its areas of competence, for example through its contracts for launch services or other instruments where this is needed to meet EU policy objectives or needs".

The Commission also wants to complement the efforts of Member States, the ESA and industry in addressing

long-term research and innovation needs, including low-cost access to space for small satellites; advanced →

"Most space technologies, infrastructure and services can serve both civilian and defence objectives. Although some space capabilities have to remain under exclusive national and/or military control"

REACT: EDA study to boost imagery intelligence

'Imagery intelligence' (IMINT) is information derived from the analysis of imagery from several types of sensors: electro-optical, radar, infrared, multi-spectral or laser. Typical platforms providing this information are unmanned aerial vehicles, reconnaissance aircraft and ground systems.

Also, with their powerful imagery capabilities and immunity from ground threats, satellites are key IMINT platforms. Consequently, in 2014, the European Defence Agency (EDA) was tasked by its Member States "to develop tools and applications to support EU operations with improved geo-information and satellite imagery,

in coordination with the EU Satellite Centre (EU SatCen) and European External Action Service (EEAS)..."

The EDA commissioned the REACT study (Radar imagery applications supporting ACTIONable intelligence) which was conducted in 2016 by a consortium composed of e-GEOS, Telespazio Ibérica and INTA. The objective was to give greater value to imagery data through identifying areas where military imagery analysts can be assisted by tools/workflows to produce valuable and

possibly actionable intelligence. The study focused on the use of Synthetic Aperture Radar (SAR) imagery with data preparation and product interpretation being at the centre. Workflows were divided by: target analysis, searching, monitoring, planning and damage assessment.

The study was completed in February 2017. Its main output was the 'Workflow Description Document' which, from now on, will serve as a comprehensive reference providing advice and assistance to Member States' imagery analysts in the

production of actionable intelligence with satellite radar data. The outcome is increased knowledge in the use of radar imagery by the military communities. "The study has already had a positive impact.

For instance, it has enhanced imagery operators' abilities to manage the complexity of working with radar imagery, especially by providing practical information on the various steps of the workflows to be followed", says Chris Stace, the Head of the EDA's Information Superiority Unit, and going on to say, "REACT also helped to establish credible working procedures for radar imagery exploitation. The work undertaken also allowed us to evaluate new tools and sophisticated algorithms for radar imagery exploitation, such as Automatic Target Detection & Recognition."

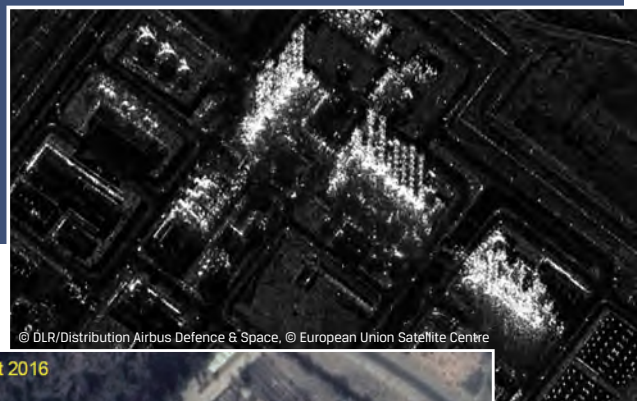
Given the value of the REACT study, the EDA has been tasked to take forward the work within a follow-on project in 2017/2018. Working again with the EU SatCen, the focus will be on making SAR IMINT workflows more efficient through defining operating procedures and the use of business process workflow tools. One key objective is to increase the speed of analysis within the radar IMINT tasking cycle. Mr Stace highlights, "working with operators in the SatCen and with expertise from Member States, EEAS and FRONTEX will add real operational benefits to be developed within crucial IMINT tasks supporting EU-led missions and operations."



Chris Stace, Head of Information Superiority Unit, EDA

Battle damage assessment carried out by a SatCen image analyst

Analysis of nuclear facilities using SAR images



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manufacturing; breakthrough concepts (such as re-usability); mitigating environmental impacts; and providing regular opportunities for European in-orbit validation services for new technologies and products to be used in space. It will also encourage the development of commercial markets for low-cost small launch systems or for commercial space

activities such as spaceflight or suborbital space tourism.

Protection of critical European space infrastructure

The proliferation of space debris remains the most serious risk to the sustainability of space activities and will continue to be addressed at European and

international level. The EU has dealt with this issue through the implementation of the EU space surveillance and tracking (SST) support framework which has now started delivering operational services based on a pool of Member States' capacities.

The Commission intends to reinforce the SST support framework to improve the →

Three Questions To...

Pascal Legai - Director of the EU Satellite Centre (SatCen)

From your perspective as a satellite service and solutions provider, what would you say are the biggest shortfalls Europe is currently facing and where do Member States need to cooperate and invest more?

The EU SatCen is an operational centre supporting the decision making and actions of the European Union in the field of the Common Foreign and Security Policy (CFSP), in particular the Common Security and Defence Policy (CSDP), by providing products and services resulting from the exploitation of relevant space assets and collateral data, including satellite and aerial imagery.

For such a centre the image acquisition process is an essential issue, since SatCen doesn't operate a space system and doesn't have direct access to a sensor. Today, the European commercial suppliers efficiently provide Very High Resolution images but, for classified images, SatCen relies on the European governmental systems. In some cases, SatCen also resorts to non-European suppliers offering access to 25 cm resolution imagery. Thus, the access from European commercial companies to 30 cm optical imagery, but also to radar and infrared, in a reactive mode if needed, would constitute an important step.

Regarding future governmental systems, a very operational access, including to programming, would also bring a substantial additional capacity to the EU. In addition, a new challenge is appearing with the arrival of systems, in particular constellation of small satellites, allowing very short revisit times – a field where today Europe is absent. Another issue concerns the secured transmission channels to deliver products and services: Today we rely on the EU Ops WAN network, but it cannot be used to provide large data volume products or services to end-users.

The necessity to simplify the access to the relevant information drives to offering integrated services, for example merging earth observation and localization data, allowing real-time navigation.

The EU Space Surveillance and Tracking Support Framework, launched in 2016, is a first step to address the protection of European spacecraft but it partially depends today on non-European data.

European autonomy, priority of the Global Strategy for the European Union's Foreign and Security Policy, requires addressing all these shortfalls.

How could Europe benefit more and in a better way from available civilian satellite technologies for meeting the needs of Member States' Ministries of Defence (MoDs)?

In Europe, the military space budget is smaller than the civil one, unlike the US situation. This means that the civil technologies are fundamental for the development of military space programmes and associated services.

There are several ways to enhance a dual-use approach: using civil services/systems for military missions (ex. satcom for relaying drone data); using civil services/systems with improved performances only reserved for military users (ex. PRS Galileo or COSMO-SkyMed system); using civil satellites to perform military missions thanks to hosted payloads; and using civil technologies, improved in terms of robustness and security, for developing military space systems (ex. CSO spacecraft based on the Pleiades heritage). An important issue is to identify all potential users and needs, including military ones, for R&D activities.

How do you see the future of SatCen's cooperation with the EDA?

On 18 July 2016, the European Defence Agency (EDA) and the European Union Satellite Centre (SatCen) formalized their cooperation with an exchange of letters defining several areas of common interest. A joint road map has been established to run concrete projects to meet operational needs of end-users. The implementation of the Global Strategy for the European Union's Foreign and Security Policy and the European Defence Action Plan offers excellent opportunities.

Pascal Legai has been the SatCen Director since 1 January 2015. Previously, he was the SatCen Deputy Director (2010-2014), Commanding Officer of the French Air Force Base in Grenoble (2008-2010), Human Resources adviser of the French Air Force (2006-2008) and Head of the French Imagery Intelligence Centre (2004-2006).


performance and geographical coverage of sensors.

It will consider extending its scope to address other threats and vulnerabilities, for example cyber threats or the impact of space weather on satellites and on ground infrastructure such as transport,

energy grids and telecommunication networks.

In the long term, this SST model could evolve into a more comprehensive space situational awareness service, building on existing activities in the Member States and ESA, and taking into account

international cooperation frame works, particularly with the US.

The full text of the Commission's 'Space Strategy for Europe' is available here: <https://ec.europa.eu/transparency/regdoc/rep/1/2016/EN/COM-2016-705-F1-EN-MAIN.PDF> 

EDA-SatCen cooperation in good shape

In July 2016, the EDA and the European Union Satellite Centre (SatCen) formalized their close and fruitful cooperation, already in place since 2004, with an exchange of letters between Jorge Domecq (EDA Chief Executive) and Pascal Legai (SatCen Director). Both organisations perform complementary roles and activities in the space-based earth observation domain and more generally in the space and security sector.

Whereas the EDA's work is focused on the harmonisation of requirements and the promotion of appropriate schemes for future capability development, SatCen's activity supports the decision making and actions of the EU by providing products and services resulting from the exploitation of space assets in particular in the CSDP field.

Since 2004, the EDA and SatCen have collaborated on projects as important as GISMO (Geospatial Information to Support Decision

Making in Operations) and GISMO 2, SULTAN (Persistent Surveillance Long Term Analysis) and REACT. With the exchange of letters, the EDA and SatCen establish a more structured cooperation meaning that they will even more focus on activities of mutual interest, such as studies, workshops, projects and programmes.

The EDA and SatCen have also identified specific cooperation areas such as imagery exploitation, geospatial analysis and applications, future space-based earth observation systems, cyber defence, Big Data exploitation in the space and security domain, space situational awareness or maritime surveillance. The two Agencies will also develop a joint roadmap for cooperation detailing the activities of common interest as included in the respective work programmes. The roadmap will be updated annually.



Liftoff of Ariane flight VA233, carrying four Galileo satellites, from Europe's Spaceport in Kourou, French Guiana

GOVSATCOM: A model of cooperation between the EDA, ESA and EC

Reliable, stable and secure communications are crucial in any CSDP mission or operation. Yet, terrestrial network infrastructures are not available everywhere, for instance in areas hit by natural disasters, at sea, in the air or in hostile zones. Satellite communications (SATCOM) can be the solution: rapidly deployable, flexible and distance insensitive, they offer communication links where terrestrial networks are damaged, overloaded or non-existent.

However, access to SATCOM cannot be taken for granted at any time, especially not when government users require them at short notice and without pre-arranged agreements. In situations of high demand, competition with other users of commercial SATCOM capacities creates a risk of non-availability and high costs. Against this backdrop, European Heads of State and Government decided in 2013 that there was a need for a new solution combining the advantages of commercial and military satellite systems in order to address both civil and military needs through European cooperation. No sooner said

than done: the European Defence Agency (EDA), in collaboration with the European Commission (EC) and the European Space Agency (ESA), is now preparing the next generation of Governmental Satellite Communications (GOVSATCOM).

This initiative, aiming at the Pooling & Sharing of relevant governmental satellite systems and commercial solutions, is intended to provide a secure and guaranteed access to end-to-end satellite communication

solutions to a wide range of civil and military users between 2025 and 2040. Dual-use by nature, GOVSATCOM will be a capability that is placed in between the commercial satellite communication (COMSATCOM) market and the highly protected military satellite communication (MILSATCOM) capability, the latter being characterised by nuclear hardening, anti-jamming/dazzle features and secure telemetry, tracking and command links, supplemented by associated robustness and resilience in the ground segment.

"In a nutshell, GOVSATCOM will thus be secure and resilient to ensure that information passes swiftly even in hostile environments. The objective is also to keep it affordable for end users in terms of terminal cost and service access, as well as flexible and guaranteed so as to provide communications where and when needed. It should also support the European satcom industry by boosting competitiveness and innovation as well as strengthen Europe's technological independence",



Holger Lueschow, Programme Manager in charge of satellite communication, EDA



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says Holger Lueschow, the EDA's Programme Manager in charge of satellite communication.

Although highly complex from an institutional, political and technical point of view, the project is making remarkable headway: in March 2017, the EDA Steering Board (in Member States' Capability Directors formation) approved the Common Staff Requirement for GOVSATCOM and the associated Business Case that recommends a Pooling & Sharing demonstration of governmental resources provided by a consortium of EDA Member States, and used by all Member States that intend to participate in this demonstration project as well as European civil and military CSDP actors.

The legal arrangement for this project is currently negotiated between the interested users (all EDA Member States). The start of the project, which could pave the way into a European GOVSATCOM capability, is foreseen for early 2018.



Jorge Domecq, Chief Executive, European Defence Agency

› Space and Security: Crucial synergies for European citizens

Joint Opinion Editorial by **Jorge Domecq**, Chief Executive of the European Defence Agency and **Johann-Dietrich Wörner**, Director General of the European Space Agency

Europe has been earmarking space and security as priorities for over a decade. Yet, it still hasn't fully lived up to its ambitions. There is now an unprecedented window of opportunity for addressing these shortcomings: a series of ambitious EU security related initiatives launched in 2016 can finally make space and security cooperation a tangible reality with positive effects on Europe's security, its economy and, perhaps even more important, on how citizens perceive Europe. This is why the partnership instated in 2011 between our two organisations through an Administrative Arrangement holds such strategic resonance. While the EDA is Europe's defence capability development actor, the ESA is Europe's uncontested

space agency, whose Convention, pursuant to its second article, scopes ESA's security initiatives: these must be provided for exclusively peaceful purposes, a provision which has been interpreted under international law as non-aggressive uses of outer space.

Synergies on dual-use amongst sectors make political, technological and budgetary sense. Such synergies have been called upon in most policy documents for over a decade, and again more recently in the European Commission's 2016 Space Strategy. But have we made real and genuine headway in fostering dual-use cooperation? Or have we perhaps not done enough to bring the two communities together and to build the confidence needed?

We need ambitious policy statements, no doubt about



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Johann-Dietrich Wörner, Director general, European Space Agency

that. But above all, we need action. Europe has never faced greater security challenges than today, be it at home, at its borders or in neighbouring countries. As EU leaders met in Rome on 25 March for the 60th anniversary of the Rome Treaties, in the midst of one of the most challenging and turbulent periods the Union has ever faced, security is put forward as an area through which the European project could be reinvigorated, acquire a new vision, a reactivated momentum. In this respect, we believe that space and security can be intertwined policy domains in which the European project can be reinvigorated.

Space, long before it was mentioned for the first time in the Lisbon Treaty, has been a formidable force of European cooperation, building trust among States and citizens, reaching for the impossible and providing humanity with a progress-oriented vision built on partnership. Space is a genuine model of European cooperation and integration. The ESA has over the past 50 years built Europe's capabilities in space and is today Europe's Space Agency active in all fields of space: telecommunication, navigation, Earth observation, launchers, science, exploration and integrated applications; for the benefit of the European citizens and mankind. Space and security activities could now join, complement and further enrich that successful model of European space cooperation. In fact, Europe's future security is unthinkable without state of the art, secure, reliable, competitive and accessible space-based technologies and services.

Indeed: no European country can today make clear and effective political decisions related to its security

without continuous and comprehensive space-based capabilities. All this is possible because European industry remains innovative and provides our Armed Forces with the required space-based solutions.

Thanks to the ESA's cooperation with the EU, space is now very well integrated in the EU system, predominantly through its civil applications. Progress in security cooperation has been more strenuous than in space. In the latter area, the excellence of the ESA's activities over a half century has created a momentum of trust and cooperative spirit that should inspire security related communities. This is one of the reasons why space and security cooperation could have immediate beneficial impact on Europe.

Moreover, the world is changing, modifying the role of public actors with respect to a market that's increasingly apt in providing forces with space-based services. In this context, ESA's recent Council at Ministerial level, held in Lucerne on December 2016, took place in an extremely challenging political, financial and social environment. European States took political steps to tackle these challenges through ambitious, progressive and concrete orientations: Space 4.0 and United Space in Europe. They build upon European cooperation's very roots, and reboots the core that brings Europeans together: disseminating and reaping the benefits of knowledge, assuring a seamless grid of innovation, strengthened exchanges with international →

"We believe that space and security can be intertwined policy domains in which the European project can be reinvigorated"

"For space and security to become a successful combination, ESA and EDA Member States need to further strengthen in partnerships and cooperation"



partners and inspiring Europeans through challenging endeavours and identity building. In the field of space and security, the ESA Director General has been invited to establish a strategy concerning ESA space security activities, in coordination with its Member States and other national and European actors.

We believe that security is a key component of this political message.

For space and security to become a successful combination, ESA and EDA Member States need to further strengthen in partnerships and cooperation. As said before, 2016 was a good start in this respect, with the European Defence Action Plan (EDAP), the increased security dimension of space highlighted in the Commission's Space Strategy, and the ESA-EC Joint Statement on Shared Vision and Goals for The Future of

Europe in Space through which the EU and ESA have called for "strengthening synergies between civilian and security activities in the fields of navigation, communication and observation" and to "ensure European autonomy in accessing and using space in a safe and secure environment... including against cyber threats."

The ESA and EDA have already successfully built a partnership, including with the European Commission in its areas

of interest and expertise, in domains such as Critical Space Technologies for European Non-Dependence, the command and control of RPAS, cyber security, CBRNe, and, of course, Governmental Satellite Communication (GOVSATCOM). Regarding the latter, the cooperation has led to a €30 million Precursor Programme in the ESA, which will be reinforced by potential programme segments from the EDA and European Commission, building in effect, the first ever cooperative dual-use space security initiative.

We believe that success in this multi-actor, satellite communication cooperation will trigger a positive momentum for two other critical space capabilities that are nowadays indispensable for any security related operation: space-based Earth observation and Positioning, Navigation and Timing. Regarding the latter, in a significant political move which shows that Member States are

serious about space and security, the EDA Steering Board on 23 March 2017 has adopted the first ever European Military Satellite Navigation policy, on which basis Member States have thus tasked the EDA to produce a military user needs document by early 2018. In fact, as regards imagery, the EDA is currently producing user needs, which will have a positive influence on its partnership with both the ESA and the Commission, for the benefit of European security communities.

These cooperative activities will finally have a positive effect on governance itself. Member States have been adamant in keeping control over security-related infrastructures. By successfully providing Member States and Forces on the ground with concrete space-based operational capabilities, we are in fact bringing together, around Member States, all the necessary actors: the ESA, the Commission and the EDA, in support of Member States themselves. Indeed, the aim of the ESA and the EDA is fundamentally to propose solutions to Member States and the Commission so that European programmes can respond to security needs and, in turn, provide effective and required services to ensure Europe's security at home and abroad.

Based on our tangible successes and experiences, we genuinely believe that space for security is not only a crucial ambition for Europe's security and future, but also a building block of Europe's very identity and vision of the future. ■

"Synergies on dual-use amongst sectors make political, technological and budgetary sense"



Jorge Domecq a senior Spanish diplomat, has been the EDA Chief Executive since February 2015. Previously, he served as an Ambassador of Spain to the OSCE and the Philippines and held several positions within the Spanish Ministries of Foreign Affairs and Defence as well as at NATO.

Johann-Dietrich "Jan" Woerner has been Director General of the European Space Agency (ESA) since 1 July 2015. Prior to that, Jan Woerner was head of the German delegation to ESA from 2007 to 2015 and served as Chairman of the ESA Council from 2012 to 2014.

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» "The Space Strategy reinforces Europe's role as a global player and is an asset for its security and defence"

As CEO of Thales Alenia Space (TAS) and current President of ASD-Eurospace (the European trade association whose member companies represent some 90% of the total turnover of the whole European space industry), **Jean-Loïc Galle** is the perfect interview partner for *European Defence Matters* as it looks to find out what Europe's space and defence industry thinks about the EU's new Space Strategy and how it sees its own future

EDM: What is the European space industry's overall assessment of the Commission's Space Strategy? Does it give enough attention to defence?

Jean-Loïc Galle: The Commission sent very positive messages, in particular, that space is of strategic importance for Europe and, therefore, deserves a dedicated, all-encompassing strategy. More generally, we welcome that the European Commission adopted a very inclusive stance during the public consultation process. It allowed a higher level of convergence and mutual understanding. Industry's key concerns are reflected in the Space Strategy, including support to competitiveness, ensuring non-dependence and promoting the utilisation of space at the service of growth and EU public policies at large.

Concerning "defence", European institutions have to address the fact that, in all other Space powers, space is considered as a strategic sector and therefore benefits from heavy public investments from the security and defence domains. This allows industry to cover most of the non-recurring cost and increases its know-how and competitiveness on the commercial markets. We support

of course the Commission's objective to propose an EU GOVSATCOM initiative. The proposed evolution of Copernicus and Galileo programmes to meet emerging needs in security and defence, such as border control and maritime surveillance, is also very positively welcomed by our community. We would perhaps have expected more emphasis on measures dedicated to 'security of supply' and on the fact that our ability to export products is jeopardised by a high dependence on non-European critical components and technologies.

What should be the next steps to make it work? What are industry's priorities for the Strategy's implementation?

To ensure an efficient delivery, adequate funds should be allocated in the next EU Multi-Annual Financial Framework, or MFF. The preparation of the 2021-2027 MFF, the new regulations for the Copernicus and EGNSS programmes and possible new initiatives as well as the preparation of the next and 9th Framework Programme for research are therefore important milestones regarding the credibility of the ambitions of Europe in space.

As far as industry is concerned, we have three main priorities for the Strategy's implementation. First, to increase efforts toward strengthening the competitiveness of the European satellite industry, in particular through a strong support to R&D and a greater freedom of action in procurements. Secondly, it is crucial to promote a better and increased use of the capacities of space to support and improve public policies (including security & defence policies) and to create growth. Thirdly, ensuring a non-dependent, reliable and cost-effective capacity in Europe to conceive, develop, launch, operate and exploit space systems is also of very high importance.

More specifically, with respect to defence, we consider that the EU should take into account the security & defence aspects of Earth observation and navigation in the framework of the planned evolution of the Copernicus and Galileo programmes. Besides, we also see opportunities for the development of new initiatives, where the EU can have a strong added-value, such as the GOVSATCOM proposal. As a first step, the Pooling & Sharing of capabilities will help achieve quick results, while limiting →

development risks and maximising the motivation of Member States to support this new initiative, leading then to the deployment of dedicated capabilities to cover the full spectrum of users' needs.

The Space Strategy and the EDAP both call for making greater synergies between civil and defence aspects of space developments. From an industry point of view, where do you see the main challenges and opportunities in this respect?

Given the increasing political and economic importance of space systems in general, but for defence in particular, ensuring the protection and resilience of critical European space infrastructure is essential. In this regard, echoing long-standing priorities in the EDA framework, the Commission's recent proposal to strengthen the security requirements of EU space programmes, to anticipate the emerging cybersecurity risks as well as to enhance the current activities in space surveillance opens encouraging perspectives. This reflects the 2013 and 2015 European Council meetings focused on defence, as well as the EDA's dedicated activities, a complex landscape which thus calls for an appropriate objective-driven coordination within the EU itself, taking also into account the existing initiatives between the EDA and the European Space Agency.

First, one should acknowledge that the EDA-Commission continuum, a new and effective partnership that is in part being built through the EDAP process, is a positive omen regarding how the EU is adapting to the increasingly pressing civil-military need. Indeed, from an industrial point of view, the stability and clarity with respect to each institutional actor's role in emerging instruments is essential. This is one of the bases of industry's strategic orientations.

Second, beyond the convergence in terms of geopolitical dimension of global space assets and the applications serving civil and military users (such as navigation, observation, meteorology), there are a broad range of technology areas exhibiting strong synergies between civil and defence systems. For instance, in telecommunications systems, the security of transmissions has

become a key feature, where various levels of cryptography enable to discriminate users up to the stronger protections required by military forces. High throughput and high data rate solutions, supported by massive data processing technologies (particularly radiation-hardened components such as deep submicron processors, application-specific integrated circuits field-programmable gate arrays and high speed converters) and emerging solution in the optical domain also provide high secure transmissions for civil and military users alike. They also serve the growing data needs of observation systems where very high resolution originally reserved to tactical missions is being made increasingly available to commercial customers, which creates massive needs for data transmission from orbit to ground and to mobile users, including UAVs. The technological synergies between civilian observation needs and defence tactical needs converge at payload and platform levels with requirements stemming from high in-orbit stability (sensors and actuators) to precise line of sight, and of course sensor and instrument technologies in the visible and infra-red domains.

Are you optimistic that the EU's Space Strategy will be instrumental in building the space-based defence capabilities Europe will need in the future?

The Space Strategy for Europe is a very good start, and it was indispensable: it reinforces Europe's role as a stronger global player and is an asset for its security and defence. It is now crucial that EU institutions align with priorities and ambitions laid down at EU level. The European Parliament report on space capabilities for European security and defence offers, in this regard, a solid working basis.

The key role played by the Parliament in defining operational and budgetary synergies should be highlighted as this will strengthen Europe's ambition in the security and defence field.

Only this high level of consensus and convergence between EU institutions, Member States and the space industry will help to build the space based defence capacities Europe will collectively need

in the future.

More specifically, GOVSATCOM is a very promising initiative, ensuring access to secure, efficient and cost-effective services for European institutional actors, and, at the same time, stimulating growth, competitiveness and innovation throughout the whole European SATCOM sector. It also represents both an opportunity and a prerequisite for the successful integration and exploitation of Remotely Piloted Aircraft Systems (RPAS).

In addition, the expansion of Copernicus and Galileo offers a great opportunity to increase the effectiveness of strategic decision-making and operations, including through CSDP. In the field of maritime surveillance for instance, the European Defence Action Plan lays out very interesting perspectives. Space can be an essential enabler since satellites can offer a global and permanent coverage, not dependent to weather and with a high potential of data dissemination. We know that, by 2018, the Commission plans to develop specific actions to support a coordinated civil military maritime security research agenda and interoperable maritime surveillance capabilities. Eurospace intends to work with both the Commission and the EDA to make sure that appropriate synergies are achieved.

How do you see the future of Europe's space industry in the longer run? Will it be able to compete with the U.S. and others on a global level?

The space sector worldwide is going through rapid evolutions and on top of that, space powers are developing offensive strategies that challenge Europe's positions in space. This is the reason why our sector definitely needs to remain at the top of the EU political agenda.

Let me give you a couple of examples to illustrate this trend. In the U.S. for instance, new private actors coming from the Silicon Valley target radical optimisation of their supply chain through a cost-killing policy while taking advantage of the radical redefinition of the U.S. public authorities' role, which ensures a greater degree of freedom to the private sector. Then additionally, the White Paper on China's space activities – published last December – made very clear that China had caught up with its technological weaknesses and is now determinedly targeting major frontier areas





The Galileo IOV (In-Orbit Validation) navigation satellite being integrated in Thales Alenia Space's clean rooms in Rome. All four Galileo IOV satellites were assembled, integrated and tested by Thales Alenia Space

of space science and technology, while also starting to look at commercial opportunities.

In this context, Europe has undeniable assets and unique capacities: we should not forget that all our competitors are envying the exceptional reliability of the European launchers, our expertise to deploy constellations or our Earth Observation and environment monitoring capabilities. Let's be proud of these European achievements! Reinforcing the European defence technological industrial base is now pivotal to maintain this level of excellence and innovation and strengthen European strategic autonomy in space. In this perspective, the development of new initiatives at EU level, such as GOVSATCOM, should contribute to this critical effort.

Drawing on this, it is vital to invest more, and more efficiently in R&D and to implement a European public procurement policy that takes into account the space strategies of our competitors, all of them aiming at independence or even domination, as well as the strategic aspects of space programmes that are by nature long-term and high risk. Promoting access to finance for space in

the context of the Investment Plan for Europe and EU funding programmes is also key to foster the emergence of new business opportunities and support the long-term investments our industry is making into long-term innovative projects.

On which space-related domain or activity would you like to see the EDA putting a stronger focus on in the future?

With the increased political interest at EU level for the defence-related aspects of space, I think the EDA has a clear role to play as coordinator and 'aggregator' of the defence-related needs and requirements for all European space programmes. This is in line with the Space Strategy, with the EDA's

increasingly present role in space cooperation, but also industry's interests insofar as defence requirements remain a clear and significant asset for our competitiveness. The first very concrete test case will be GOVSATCOM, a genuine dual-use, multi-actor capability programme with direct operational added value. In the future, we could even imagine an ambitious programme for permanent and global Earth observation capacities. Acting at EU level in this domain would probably be particularly relevant for what concerns maritime surveillance. Finally, the EDA's role in supporting Member States to identify user requirements in satellite navigation will be essential in developing Galileo Second Generation for security purposes. ■

Jean-Louis Galle became the General Manager of the Military Avionics Business Line of Thales Avionics in 1999. Between 2003 and 2007, he was the CEO of Thales Raytheon Systems France before taking charge of Surface Radars activities within the Air Systems Division of Thales. He was promoted to Senior Vice President of Air Operations in February 2010 and a member of the group's Executive Committee. Since September 2012, Mr Galle is President and Chief Executive Officer of Thales Alenia Space and Senior Vice-President of the Thales Group. He was elected President of Eurospace, the trade association of the European space manufacturing industry, in June 2016.

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"Europe will only be capable of defending itself if its defence industry consolidates"

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➤ "Too many manufacturers are producing too many systems in too many EU States"

In an exclusive interview with European Defence Matters, Frank Haun, the President & CEO of Krauss-Maffei Wegmann (KMW) and Co-CEO of KMW+Nexter Defense Systems (KNDS), makes a strong case for a further consolidation of the European defence sector, both on the buyer and provider side. He also calls for streamlining the processes: Europe, he says, needs harmonised procurement cycles and common defence standards and norms

What would you say are the main challenges – structural, technological, political – European defence producers are facing today and how are KMW and KNDS (your joint venture with Nexter) taking them on?

At the moment, people don't yet like to talk about a common European army. However, EU Commission President Jean-Claude Juncker said at the end of last year in Berlin that

the defence of Europe must be organised differently than in the past.

Europe's challenges in terms of security policy are almost impossible to overcome without interoperable armed forces and a fully integrated leadership.

That means consolidation: firstly, consolidation of the procurement system in Europe, because the procurement

requirements dictated to us by the current external and safety policy situation have become almost impossible to finance at a national level. Secondly, streamlining the processes because, while the sharpening of our external and security policy situation is continually accelerating, large arms projects need more and more time to move from design to fitness for operation. All across →

Europe we have to employ every means possible to close this gap once again. Thirdly, consolidation of the provider side, because the necessary cutting-edge technology can only be developed by a high-performance industry that is willing and able to cooperate. For KMW and Nexter, this was the reason for a partnership to make us competitive together at the international level in the long term. That is the first step in leading the arms industry away from overcapacity, fragmentation and non-transparent regulations.

Defence has gained momentum over the past year and is now very high on the EU's agenda. What does this political boost mean for the defence industry, now and in the future?

That is not yet clearly visible. At least the political public in Europe is again aware that peace, prosperity, democracy and safety do not guarantee themselves. We must be able to defend Europe and we have a duty to also protect others from wrongful violence. That includes appropriate financial provisions.

Just 30 years ago, Germany for example had some 2.8% of its gross domestic product available as a defence budget without its armed forces ever taking part in a single foreign deployment. Germany's current defence budget stands at 1.2% of GDP and the German army is part of large-scale deployments from the Hindu Kush to Mali. The voluntary agreement to achieve 2% of GDP again by 2024 is necessary; however, the most important issue is how the money is spent. At the moment, Germany's arms investment stands at 16%, while the target was 30% of the defence budget.

How will the European Commission's Defence Action Plan (EDAP) help your company and the defence industry in general to meet these challenges? What's your assessment of EDAP?

The Action Plan is raising hope for the first time. President Juncker declared in his State of the Union Speech that Europe must be able to defend itself internally and abroad and that this goal is not possible



without cooperation, innovation and investment. Otherwise it would not be possible for Europe to fulfil more voluntary strategic responsibilities. As regards establishing a European defence fund as envisaged in the Action Plan, I am as sceptical as I am about many other political interventions in market processes.

We don't need any new subsidies, but instead fair market conditions in the entire EU if we want the best competitors and technologies to triumph. More market also means: shake-out. This is urgently needed if we're going to be

globally competitive and if the aim within the EU is more standardisation and more interoperability. Nowadays, too many manufacturers are producing too many systems in too many EU Member States and they are then, unavoidably, too expensive.

As you know, the EDA is working to enhance and deepen the structured dialogue with industry. What would be your

recommendation to make the best of it?

Industry is already pretty involved in many studies in the capability and technology domains of the EDA. What should be enhanced is a dialogue between these CAPTECHs. We have to become better at converting documents into hardware. That would certainly be helped by an increased budget for the EDA.

Some analysts say that the creation of KNDS in late 2015 has set a trend for the future which more European defence producers will have to go if they want to remain competitive, namely one of cooperation and consolidation. Would you agree?

Absolutely. Europe will only be capable of defending itself if its defence industry consolidates. Consolidation means: shake-out and cooperation, flanked by denationalisation. That is the way chosen by the owners of KMW and Nexter when they founded KNDS. France made a particularly large contribution to that process. It requires a great deal of trust to place half of a 350-year-old state enterprise in the hands of 27 German families. Vice versa, the owners



of KMW also placed half of almost 180 years of exclusive family ownership in the hands of the French state.

That is what having the courage to face the future looks like, and we would bet anything that this nucleus of a European national system of consolidation will win more partners. It is also essential that the politicians play their role. A construct such as this will only be successful if work on sensitive technologies is permitted across national borders and if a unified export right applies to the products that result. I can see too little improvement on these issues.

It was said at the time that KNDS would serve as a 'platform' to integrate other manufacturers. How much has this project advanced and could it one day become the 'Airbus of the land systems sector' as some have suggested?

Our sector has to reorganise itself. The idea of a single leadership of European armed forces – without even talking about a single European army – can only be realised if Europe pulls more tightly together, including in the defence industry. It is no secret that the KNDS doors are open to other partners.

We are receiving reports from various sources that people would like to speak to us about common future prospects. Airbus has its own story – but just look at the highs and lows the company has gone through to be where it is today. It was worth every effort – and yet Europe still finances three different fighter jets.

The efficiency and interoperability of Member States' Armed Forces suffer from today's fragmentation of the EU defence market and the high variety of systems in operation. Is there anything the industry can and wants to do to change that situation?

We absolutely want that to change; we are suffering ourselves under the continued absence of the effects of scale and under

an immense number of development variants of many products, depending on which customer state they are delivered to. The consolidation on the provider side must therefore go hand in hand with a consolidation on the purchaser side: Europe needs a harmonised management of military needs and requirements, harmonised procurement cycles, uniform standards and norms.

The industry can contribute by using consolidation to limit options – but the arms trade is an interdependent system and therefore only performs optimally if all its subsystems are properly attuned to each other.

A McKinsey study found that European MoDs could save up to 30% of their annual defence spending through more pooling of procurement. Are you not worried that more pooling could mean less sales and margins for the industry?

Certainly not. Firstly, you have to acknowledge that we are lacking equipment: there is too little of everything. Therefore, before we can talk about pooling, we first have to set priorities and rebuild our military deterrent potential which we have now been phasing out for two decades. We at KMW know that significant cost advantages can be achieved if states work together: we can see this in the Leopard user association with 13 members in the EU alone.

Did that lead us to ruin? No, on the contrary. It saves us a great deal of useless effort. We are trying the same with the Boxer, a highly protected 8x8 vehicle. The Boxer is currently used by the Netherlands and Germany (soon to be joined by Lithuania) – everything under the umbrella of an OCCAR contractual framework. The British are very seriously considering signing on to this contract as well. Then four European nations can set a new standard and save a lot of money in doing so. ■

Frank Haun joined KMW in 2003 as Member of the Board. He became President and CEO of KMW in 2006 and is President of the Management Board of Wegmann Unternehmens-Holding since 2012. In 2015 he was appointed as Co-CEO of KNDS (KMW+Nexter Defense Systems N.V.). Frank Haun is also Vice President of the Federal Association of the German Security and Defence Industry and of the Association of the German Army. He is also Member of the Board of Directors of the Atlantic Council and Member of the Advisory Council of the Munich Security Conference.



"If we want more interoperability among Armed Forces, we need to decrease the number of systems"

> "The best argument for defence cooperation is not the money it saves but the political and military benefits"

The 2017 Munich Security Report*, which was published in mid-February ahead of the annual Munich Security Conference, made reference to a recent McKinsey & Company analysis by stating that "up to 30% of annual European defence investment could potentially be saved through the pooling of procurement". We sat down with **Wolff van Sintern**, who leads McKinsey's activities in the defence sector in Europe, the Middle East and Africa (EMEA), to discuss the enormous potential of deeper cooperation and the challenges and opportunities the European defence industry is facing

EDM: Since 2016, a new level of ambition matched by new policy initiatives has catapulted defence to the top of the EU's agenda. What will this mean for the European defence industry?

Wolff van Sintern: There is indeed more momentum in the industry than we have seen for decades, triggered by a range of very different political developments. Without any doubt, defence budgets in the majority of the European countries are about to grow in the medium term even without an explicit 2%-of-GDP target. For the European defence industry we will see over time a greater consolidation on both the demand and the supply side. In terms of demand, Ministries of Defence will increasingly need to align the requirements for their major procurement projects and weapon systems and define and procure new systems jointly with other nations. The supply side will react to this with structures that allow the industry to meet this more standardized and aligned demand. First indications of this new world can already be seen, for example the merger of a French and a German tank manufacturer merged just a few years ago. Another current example is the intention of

the German and Norwegian governments to procure identical submarines. This shows how the joint definition of requirements not only lowers procurement and lifecycle costs, but can also be the first and most important step towards deeper, more intense cooperation and interoperability between nations.

Compared to the US, Europe's defence industry and market remain fragmented which complicates efforts to make member states' armed forces more interoperable. Is such a situation sustainable and compatible with the EU's new ambitions on defence?

Detailed analyses on fragmentation conducted in 2013 and again in 2017 show that nearly six times as many systems are used in Europe than in the US. A few examples reveal the extent of this problem: While the US produces only one main battle tank, 17 different types are built in Europe. Correspondingly, the US has a single main battle tank manufacturer while Europe had 13 in 1986 and still 6 in 2016. The US build 4 different destroyers and frigates, while Europe builds 29 – and has twice as many shipyards to do so. From an economic point of view this is clearly not an

ideal situation. If we want more interoperability among the armed forces of different Member States, we need to decrease the number of systems and their variants. Nobody can really expect in-depth cooperation between different armed forces if – just to name one example – each frigate combat system looks very different. Greater standardization is important for another reason, too: It will enable States and governments to pool innovation effort funds so that they can develop new capabilities and remain competitive. Many new players are contributing to innovation in defence, and we in Europe should take this opportunity to team up and promote and push innovation.

One of your recent analyses of defence spending and productivity in Europe found that up to 30% of annual European defence investment could be saved through pooling of procurement. Could you think of a better argument for deeper defence cooperation?

The best argument for deeper defence cooperation and joint procurement is not the money it would save – though those →

* <https://www.securityconference.de/en/discussion/munich-security-report/>



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are important - but the political and military benefits it would bring: greater integration based on standardized requirements and equipment, a higher level of interoperability, expanded capabilities, and greater - and more stable - weapon system availability. In short, Europe would be more effective from an output perspective. All of these gains would strengthen Europe's defence capability, which would be a strong signal in itself.

The economic argument is secondary. It's clear that we could get more out of the existing system without spending even one more euro. Tackling these potential savings - which would indeed amount to 30% of spending - would free

up resources to build additional capabilities and increase operability.

There are also additional productivity gains possible after the joint purchase of capabilities, for instance in maintenance and other functions. Do you have estimates of how much could be saved there by doing these things together?

The savings logic that applies to procurement also holds true for maintenance and all other lifecycle costs. Massive potential exists to reallocate resources to new capabilities, because 30-60% of a weapon system's lifecycle costs are due to

maintenance. Globally, defense maintenance represents a roughly USD 200 billion market. In order to reduce maintenance cost the sequence is important. First are joint requirements among multiple European armed forces for a particular weapon system - leading to the procurement of identical products - as a prerequisite to realizing lifecycle costs savings. Without identical products, real maintenance cooperation just can't happen on a broader scale. Therefore one needs to also be realistic about the timing of such benefits.

Overall the focus should shift a bit more from input - or how much we pay - to output - what we get for our money. Cost-effective



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maintenance is necessary, but from an objective point of view, ensuring the availability of major weapon platforms or getting them operational at all are much bigger challenges at the moment for almost any nation. Reducing complexity by having fewer systems with an inherently better learning curve would help, as would more sharing of best practices among nations.

New approaches and tools for managing availability are essential, too. These can include incentive structures in industry contracts: Do suppliers get paid for spare parts, or the actual availability of weapon systems? Users and the industry also need to apply more sophisticated analysis methods, like predictive maintenance, to optimize maintenance schedules.

Despite the potential in productivity gains and cost-savings, Member States still remain reluctant to engage in joint procurement, often for sovereignty' reasons. How can this discrepancy be overcome?

In a world where a unilateral mission is an exception and joint European efforts are the 'new normal,' the question of whether joint procurement will impact nation States' sovereignty is the wrong one to ask. From the perspective of a German and European citizen, the biggest loss of 'sovereignty' is the loss of capabilities that has occurred in the last several decades. Increasing our capabilities and the availability of our weapon

systems thus needs to be a priority, and joint procurement and management are essential to do so.

The questions we need to ask concern industrial policy and the appropriate share of work for national industries. Where do we focus industrial capacities in Europe, where are national monopolies necessary, and which areas should be opened up for European competition? How can we structure a European defence industry that serves best our European needs? These are the questions that Europe's Member States need to answer.

Looking forward, the discussion comes down to whether a single nation has the funding and expertise to develop the next weapon platforms on its own. Given the growing complexity of defence products and the industrial consolidation that has already taken place, the answer will increasingly be "no."

According to your own findings, Europe deploys six times the number of different weapon systems than the US, even though it spends only 40% as much. How can this be changed?

As we have seen, fragmentation is very high. The reason for this lies within the industrial interests of the different nation states and a legacy of national monopolies, which grew from a political procurement process focused on supporting local defence players. To move towards joint European procurement, we have to talk about the elephant in the room: national industry workshare. As long as there is no joint European vision on what a consolidated defence industry could look like, national defence players will naturally continue to align closely with their national customers plus seek export opportunities.

The main question is how European governments and European institutions, such as the EDA, can organize such a dialog and, within the limits of European antitrust

and competition law, create a blueprint for a consolidated European defence industry. The German-Norwegian naval cooperation mentioned earlier is just one example, although the fact that Norway is not part of the EU makes this joint effort more flexible in some respects.


Reducing the number of different weapon systems in service takes time, as replacement cycles are long. It will even take decades to see the full effect. However the European supply side has already seen significant consolidation – for instance, the number of combat aircraft manufacturers fell from 16 in 1986 to 6 in 2016. There's simply less opportunity for fragmentation as a result.

One of the EDA's core missions is to facilitate defence cooperation and strengthen Europe's defence technological and industrial base. What could the Agency do more or perhaps differently in this respect?

I'm not in a position to comment on what the EDA could or should do; tasking and funding the agency is up to the EU Member States. However, I think it is very clear that we need a strong convener to organize the necessary dialog between the member states. We need transparency and early cooperation on planned procurement projects, but even

more importantly we need a serious dialog on Europe's future industrial landscape and the capabilities which are supposed to be supported and advanced within Europe.

This dialog should range from high-level decisions on the industry blueprint to the very detailed

technological questions involved in defining joint requirements. Given the importance of this discussion for the future integration of the European armed forces, we need someone fully dedicated to moderating this dialogue and who knows both the user and industry perspective. It comes down to talking "with each other" and not "about each other." 

 **"Nearly six times as many systems are used in Europe than in the US"**

Wolff van Sintern has worked predominantly in the Aerospace & Defense and industrial equipment space, since joining McKinsey in July 1999 in Atlanta (USA). He is a member of McKinsey's Advanced Industries Practice and leads McKinsey's activities in the defence sector in EMEA. Wolff van Sintern also coordinates McKinsey's collaboration with the Munich Security Conference (MSC) and contributed as Co-author to the McKinsey reports on "The Future of European Defence" as well as the McKinsey on Defense series.

➤ Productive EDA Defence Test & Evaluation Conference held in Vienna

CSDP missions and operations are teamwork by nature, involving troops from different contributing Member States, all of them bringing along and using their own specific equipment and outfit

Although the bulk of the material used in such multinational operations is traditionally of military nature and therefore well-known to all of the participating troops, serious issues can arise from civilian, commercially available off-the-shelf products and utensils which are increasingly used by the Armed Forces to complement their purely military toolbox. Such a patchwork of military, dual-use and civilian equipment used by troops from different Member States in a joint operation can entail considerable risks – from limiting interoperability, to hampering the mission's effectiveness, let alone putting at risk soldiers' lives.

Against this background, one crucial question arises: How to make sure that different troops coming from different Armed Forces using different types of technical equipment can nevertheless work together efficiently and safely? Ensuring proper testing and evaluation of critical equipment – be it military or civilian – is part of the answer. No wonder that Test and Evaluation is identified as a critical enabler for cooperation in the EU Global Strategy Implementation Plan on Security and Defence.

The European Defence Agency (EDA) has therefore taken the initiative to promote more systematic technical testing of CSDP equipment by Member States' Test Centres and to set up an EU-wide Test and Evaluation Network, the Defence Test and Evaluation Base (DTEB).

At the initiative of the EDA, the DTEB community meets at least every three years at a European Defence Test & Evaluation (T&E) Conference, the second edition of which took place from 25-27 April 2017 at the Austrian Landesverteidigungsakademie in Vienna.



Ammunition firing test

There was broad agreement among the more than 100 experts and delegates from 17 EDA Member States, the European Commission, the European defence industry and NATO, who attended the conference, that the existing European Network of T&E Centres should develop a capacity to respond quickly to CSDP missions' requirements and capability gaps through an integrated approach linking T&E to standardisation and harmonised certification requirements.

New ideas put forward

Conference participants also expressed the wish to see the EDA's DTEB plenary group focusing on three potential future work strands, namely:

- The establishment of a **Flight Test Centres Community**. The rationale behind this is that the development of European Military Airworthiness Requirements (EMAR) or related topics such as Air-to-Air Refuelling Qualification will also spark a demand for harmonising test procedures. Initiating a EU Flight Test Centres Community could therefore help to improve interoperability

and to promote mutual recognition and acceptance of test results by national airworthiness authorities.

- The establishment of a **"Landworthiness" Test Centres Community** through which relevant national test centres could take joint initiatives in view of preparing the testing of future technologies such as automotive systems and robotics;
- The launch of a **European Defence Experts Exchange Programme** which would support EDA Member States to increase the knowledge and skills of their respective defence experts. The DTEB Plenary Group was asked to 'explore possibilities' to initiate such an EU Exchange Programme.

Conference attendees also visited three Austrian test centres (ammunition & protection testing, automotive testing, science test laboratories) where they exchanged views with experts, witnessed live experiments and discussed potential future cooperation opportunities on topics such as automotive and robotic systems, IED-detection or harmonised EU certification requirements for ammunition. ■



> Fuelling European Tanker Capability

Joint training exercise enhances effectiveness and interoperability of European forces as Multinational Multi-Role Tanker Transport Fleet (MMF) takes shape



Air-to-Air Refuelling (AAR) is fundamental for effective air power projection and is required to sustain combat operations. AAR is a multidimensional domain, pilots can extend radius and flight time, thus allowing for more complex missions to be performed.

While of paramount importance to European armed forces, AAR is strategic asset where Member States have faced significant capability shortfalls, highlighted by operations in Mali, Libya and Kosovo. Europe's military tanker fleet is fragmented and currently stands at 42 tanker aircraft of 12

different types, compared to the 550 tankers of four types of the United States.

Back in 2013, facing a critical shortfall of a strategic asset, AAR was designated by EU leaders as one of the four key programmes on which the European Defence Agency (EDA) and its Member States should work together to overcome.

Since then, the EDA has developed a three work strand 'global approach' to alleviate AAR shortfall through; optimization of existing capabilities, introduction of the A400M fleet AAR capability, and increasing the strategic taker capability in European by 2020 (MMF). →



"The MMF project is simple in concept: let's bring together interested Member States and help them to acquire together, to operate together, and to maintain together a European multinational fleet of Air-to-Air refuelling aircraft"

Martin Konertz, Capability, Armament and Technology (CAT) Director, EDA

EART 2017: Putting existing assets to use

From March 26 to 7 April 2017, the 4th European Air-to-Air Refuelling Training (EART 2017) exercise took place at Eindhoven Airbase in the Netherlands. EART 2017 represents an important building block in the first process of optimizing existing capabilities. Four European nations (Germany, the Netherlands, Italy and France) took part in the exercise, organised by the European Air Transport Command (EATC).

Introduced in 2014 following the EDA's AAR initiative, the EART concept is dedicated AAR training focused on maintaining proficiency and enhancing knowledge of multinational tanker aircraft. These exercises allow air crews, planners, taskers and engineers to plan and execute missions in

a complex COMAO (composite air operation) environment. EART is an effective way for European forces to optimise the use of current tanker assets, while practising together increases standardisation and interoperability. Exercises are organised on a yearly basis and are pooled with the multinational Frisian Flag fighter exercise that operates from Leeuwarden Airbase.

The overall results (*see box above*) demonstrate the benefits of joint training for interoperability, while public interest in this domain grows (*see box right*).

MMF: The way ahead for European AAR

Optimization of current assets will only take European AAR capacity so far, ultimately current European tanker assets will be

EART 2017 in Numbers!**1.350.000**

Pounds of fuel offloaded

48

Missions

319

Receivers

130

Flying hours

14

Training days

4

Member State Aircraft

The Netherlands - KDC-10

Germany - A310 MRTT

France - C-135 R

Italy - KC-767 A

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replaced by the next generation of tanker aircraft. In this context, the EDA is working on increasing the strategic tanker capability in Europe by 2020 through the Multinational Multi-Role Tanker Transport Fleet (MMF).

Based on a pooled fleet of Airbus A330 Multi Role Tanker Transport (A330 MRTT) aircraft, the MMF aims to increase the overall European tanker capability in 2020. To date, the Netherlands and Luxembourg have signed a Memorandum of Understanding (MoU) and secured the contract for two A330s, while this year Ministers of Belgium, Germany and Norway signed a Declaration of Intent to sign this MoU soon.

The MMF project has the clear potential to enhance European AAR capability as the EDA's new Capability, Armament and

Technology (CAT) Director, Martin Konertz, explains: "The MMF project is simple in concept, let's bring together interested Member States and help them to acquire together, to operate together, and to maintain together a European multinational fleet of Air-to-Air refuelling aircraft.

In a nutshell: to do together what is out of reach for most countries individually – notably for budgetary reasons. It is a successful example of innovative and future-oriented cooperation between like-minded European countries – it is 'Pooling & Sharing' at its best. I believe the MMF can and should serve as a model and example for future similar cooperation in order to boost European defence capabilities in other domains." 

#EART 2017 - A social media hit!

The EDA works to bring the benefits of joint European training and defence cooperation to the widest possible audience. Our video from EART 2017 of a French fighter (Mirage 2000) refuelling from the Italian tanker (KC-767 A) has been viewed 20,000 times on-line! Check it out via the EDA twitter account or use #EART2017.



> European defence, 60 years after the Treaty of Rome

Daniel Fiott, Security and Defence Editor at the European Union Institute for Security Studies (EUISS), looks back at the history and developments of Europe's defence ambitions to find that "the EU has come some way in developing its common defence"



© AP, 2017 / Source: EC - Audiovisual Service
France, Germany, Italy, The Netherlands, Luxembourg and Belgium, signing the Treaty of Rome in 1957



© Source: EC - Audiovisual Service / Photo: Etienne Schaeffer
Signing of the Treaty of Amsterdam - working to develop a common foreign and security policy

The symbolism of the Capitoline Hill, where the Treaty of Rome was signed over sixty years ago, cannot have been lost on the original signatories of the treaty. As the former location of temples to the gods Saturn and his son Jupiter, the Capitoline Hill embodied wealth, renewal and liberation. Far from just mythology, however, European leaders back in 1957 laid the foundations for an economic and political union designed to avert future war and generate prosperity in Europe. These aims, just like the city of Rome itself, are eternal.

Sixty years after the signing of the treaty, however, Europe finds itself at an inflection point. As the EU Global Strategy warns, 'we live in times of existential crisis, within and beyond the EU. Our Union is under threat'. This word threat has not been used haphazardly, as security and defence is playing an increasingly integral role in protecting Europeans and ensuring European unity.

New level of ambition endorsed in 2016

Whether it is through reassurance measures in Eastern Europe or missions in the Mediterranean and Levant, European governments are rising to the mounting security

challenges facing Europe. EU institutions and member states have also recently developed a range of initiatives that are designed to enhance European defence.

On the eve of the 60th anniversary of the signing of the Treaties of Rome, in 2016, the European Council endorsed a new level of ambition for European defence including a Coordinated Annual Review on Defence, which is designed to lead to greater synchronisation of defence planning; a European Defence Fund, which will result in investments in defence research (a first for the EU) and joint capability development; and a permanent Military Planning and Conduct Capability to be used to streamline command and control for certain EU military missions. Rapid reaction, innovative capabilities and a stronger industrial base are the chief objectives of these measures. It is, however, worth reflecting on how the EU reached this point.

Few windows of opportunity

Historically, closer European defence cooperation has emerged at distinct points in time. While European defence has been both responsive to and a product of internal political dynamics (i.e. what European governments

want) and external factors (i.e. what European governments react to), history has only afforded a few 'windows of opportunity' through which to make progress. Followers of the Roman god Saturn would have been familiar with this.

Saturn was known, among many other things, as the god of patience. His followers prayed to him every December at Saturnalia to ensure that the next harvest would come. Followers of European defence, looking with reverence and hope to each December European Council meeting, have certainly had to be patient as well. Progress on European defence has not always resembled the annual cycle of harvests consistently expected by farmers.

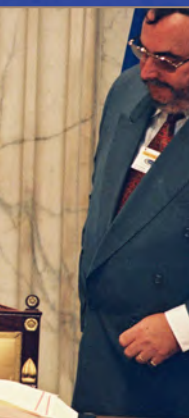
The failed European Defence Community (EDC)

The first window of opportunity for European defence emerged after the Second World War with Belgium, France, Luxembourg, the Netherlands and the United Kingdom signing the Treaty of Brussels in 1948 for collective defence.

In the face of Soviet aggression, a second window of opportunity opened up in the 1950s when the idea for a European Defence



Cologne European Council 1999. Heads of State and the Government of the European Union met to establish the prospects of a common defence policy



The fall of communism gave way to an immediate sense of euphoria



In 2004, a specialised agency for defence – the European Defence Agency – was put to work on capability programmes, R&T and defence industrial policy

Community (EDC) – known also as the 'Pleven Plan' – was put forward. The EDC strove to fully integrate the forces of Western European states into a 'European army'. However, a mixture of concerns about rearmament and supranational control of forces – plus the fact that NATO had been established in 1949 – contributed to the EDC's demise only four years later in 1954.

Today, the EDC is often held up as an example of the 'does' and 'don'ts' of European defence cooperation. It is certainly true that there are some striking similarities between the 1950s and the present day. Then, the Soviet Union pushed against an iron curtain that tore through Europe; now, Russia has rattled security in Eastern Europe and parts of the Mediterranean.

Then, the United Kingdom was formally outside of the European Steel and Coal Community and the EDC; now, it is leaving the EU.

Then, the Korean War showed Western Europeans that communism could be advanced militarily and this forced them to prepare for a potential Soviet invasion; now, North Korea is but one example of (in this case nuclear) international crisis that afflicts global

and European security.

Yet the old adage is surely right: history never repeats itself but it does rhyme. There are important differences between the 1950s and the present day. For example, successive US presidents since the 1950s have bought into American support for European security. Think of the Marshall Plan, the Truman Plan, the North Atlantic Treaty Organisation and support for European integration and one gets a flavour of how invested in European security successive US administrations have been.

In rhetorical terms at least, the incumbent holder of the presidential office has referred to institutions of European security as either 'obsolete' or past their sell-by date. In the 5th century the Vandals plundered the Temple of Jupiter on the Capitoline Hill causing sacrilege to the Roman virtues of wealth, renewal and liberation. Today, the American president is calling into question the fundamental basis for European and transatlantic security 60 years after the signing of the Treaties of Rome.

The hour of Europe?

Yet European defence cooperation has always been reactive to external and internal events. Take, for example, the early 1990s →



"The first window of opportunity for European defence emerged after the Second World War with Belgium, France, Luxembourg, the Netherlands and the United Kingdom signing the Treaty of Brussels in 1948 for collective defence" *Daniel Fiott*

after the fall of the Berlin Wall and the disintegration of Yugoslavia.

The fall of communism gave way to an immediate sense of euphoria – after all, Germany was reunited and Eastern Europe was freed from the shackles of the Soviet Union – but it also presented Europe with the challenge of ending conflict in the Balkans. Back in 1991, the tensions in the Balkans led one former foreign minister to gallantly proclaim that this was 'the hour of Europe... not of the Americans'. This was not to be the case, of course.

Yet Europe's experiences in the Balkans did lead to a renewed desire to enhance European defence cooperation. European inaction in the Balkans gave rise to frustration and another window of opportunity opened.

From Maastricht to Lisbon

To this end, the then members of the Western European Union agreed to the so-called 'Petersberg Tasks' in 1992. These tasks denoted a range of military operations that European countries should be prepared to undertake autonomously, if so required. In 1997, the signing of the Treaty of Amsterdam not only reaffirmed commitment to the Petersberg Tasks, but it also established the Common Foreign and Security Policy and the position of High Representative for EU foreign policy.

A year later, France and the United Kingdom organised a summit at St Malo on 3-4 December 1998 to specifically call for the EU to 'have the capacity for autonomous action, backed up by credible military forces, the means to decide to use them, and a readiness to do so'.

This objective was echoed by member

states at the Cologne European Council in 1999, which saw the establishment of a range of defence-relevant institutions such as the Political and Security Committee, the EU Military Committee and the EU Military Staff (plus a Satellite Centre and EU Institute for Security Studies) all designed to enhance the EU's ability to act autonomously on defence. In the same year, the Helsinki European Council agreed to a set of capability targets (called the 'Helsinki Headline Goals') designed to specify in greater detail what military capabilities the EU would require as a defence actor.

The momentum created by efforts during the 1990s would bleed into the perhaps aptly named noughties. In 2003, the EU was developing a 'European constitution' and it was preparing for the largest single enlargement of the Union in history.

The United States would also intervene in Iraq. The rift in Europe caused by this war may easily be forgotten, but at the time several European governments wanted to push European defence much further. 2003 was a year in which the first European Security Strategy was published. This document not only sought to emphasise the common challenges faced by the EU and the US, but it also made a case for the importance of multilateralism and the liberal international order. In this same year, the EU would deploy its first – admittedly civilian – common mission to Bosnia and Herzegovina.

This would be the first of 34 missions that would be deployed by the EU (16 of which are still ongoing today). In 2004, a specialised agency for defence – the European Defence Agency – would be put to work on capability programmes and defence industrial policy. This particular window of opportunity in

history was seized upon by European governments.

"Progressive framing of a common Union defence policy"

In 2007, with the signing of the Treaty of Lisbon, European governments jumped on another moment of opportunity. This treaty would reform the original Treaties of Rome by double-hatting the post of the High Representative with a Vice-Presidency of the European Commission and creating a European External Action Service.

More specifically for defence, the Treaty of Lisbon introduced a range of interesting mechanisms including mutual assistance (article 42.7) in case of terrorist attacks on EU territory and permanent structured cooperation (PeSCo) for those member states wishing to make more binding commitments to one another on defence (article 46).

The treaty also called for the 'progressive framing of a common Union defence policy'. In the context of a financial crisis that began in 2008, ministers met in Ghent in 2010 to explore the possibility of launching PeSCo and to enhance the Pooling & Sharing of defence capabilities.

Palpable desire to seize today's window of opportunity

Sixty years on from the signing of the Treaties of Rome, therefore, the EU has come some way in developing its common defence. The EU Global Strategy published in the summer of 2016 gave way to a much needed – albeit short – reflection on European defence and the year ended with two plans outlining some ambitious proposals. The Palazzo dei Conservatori – where the Treaties of Rome were signed and where European leaders met on 25 March 2017 – and its predecessor the Temple of Jupiter Optimus Maximus were places routinely accustomed to the sound of the rustling of paper.

The former edifice once housed Rome's urban administrators and magistrates and the latter structure at some point served as a Roman archive. European leaders and institutions are increasingly aware that the EU needs more than documents and paper if it is to meet the security challenges Europeans face.

On the sixtieth anniversary of the Treaties of Rome, the steps taken by the EU to enhance European defence show a desire to seize on this latest window of opportunity. ■



Celebration of 60 years of the Treaty of Rome



> Multinational Simulation –

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How the MALE RPAS ISR Training programme is shaping the future of training*

The European Air Group (EAG) and the European Defence Agency (EDA) are collaborating to introduce a multinational, networked synthetic training system that will promote interoperability in the use of Medium Altitude Long Endurance Remotely Piloted Air Systems (MALE RPAS)

On 19 November 2013, Germany, Greece, Spain, France, Italy, the Netherlands and Poland signed a Letter of Intent to establish a European MALE RPAS Community with the intent to facilitate information sharing, collaboration and to share operational experience in the MALE RPAS domain. With an initial focus on training, the Community was also charged with identifying areas for possible pooling and sharing in maintenance, logistics, doctrine and concepts, operated within the European Defence Agency's (EDA) 27-Member State framework.

The Agency is also active in several other areas of RPAS technical and policy development but developed very strong synergies with the European Air Group who maintained a unique focus on operator level interoperability improvement among the frontline users of its contributing Member States. In 2016, the collaboration was brought together in a joint approach in which the EDA develops

a simple networked RPAS procedural Training Technology Demonstrator (RTTD) to examine improved harmonisation of training approaches and EAG delivers a synergistic initiative of its own to improve the user experience of European MALE RPAS crews called the Interoperable MALE RPA ISR Training (IMRIT) project. Despite the mixed lexicon, the benefits to the Member States are clear and with the possible addition of UK and Belgium to the Lol project the combined effort can cater for up to 9 connected sites, with the possibility of others joining in due course.

MALE RPAS have without doubt caused a revolution in creating and maintaining situational awareness in recent operations. However, the distribution of air assets able to provide this capability in Europe is still limited and the same can be said of the level of interoperability and mutual cooperation between their users. But this situation is expected to improve considerably in the coming years, as the EAG's collaboration with the EDA and the →

MALE RPAS have without doubt caused a revolution in creating and maintaining situational awareness in recent operations



The European MALE RPAS Community Launched the new Simulator Training Programme

European MALE RPAS Community to develop this unique training solution reaches maturity and delivers the intended step change in operator level interoperability. With a delivery schedule of just two years, the MALE RPAS ISR Training programme will introduce the first multinational synthetic training capability that could become a template for other networked initiatives.

System Development

In early 2016, EAG visits to three Un-Manned Air System schools in Spain, France and Italy provided a baseline understanding of the challenges involved in training of MALE RPAS ISR crews that contributed to the programme development. The MALE RPAS ISR Training programme formally began in September 2016, following an exchange of letters between the EDA and EAG. In consultation with the EAG, the EDA MALE RPAS Community drew up the Tender Specification for the networked RPAS Training Technology Demonstrator (RTTD) that will be the technical equipment on which the programme is based. Following an acquisition process by the EDA of only three months, including submission of the tender and evaluation of industry proposals, the contract was awarded in January 2017 to a DCI/DIGINEXT consortium from France.

The RTTD programme is scheduled to run for four years, with the installation of the first two systems, in France and Italy, expected towards the end of 2017, providing an Initial Operational Capability before the end of this year. RTTD systems will then be delivered two at a time to the other nations plus Poland and Greece. Final deliveries are expected in the second half of 2018, after which the system will be at Full Operational Capability. The EAG will coordinate the delivery of the training objectives, syllabus and scenarios, to enable the training to begin at the earliest opportunity and EDA will continue to provide technical support to the system deployment and to initiate a MALE RPAS exercise programme.

In addition, further collaboration with the European Union Military Staff (EUMS) will generate realistic

operational scenarios to cover both over-land and maritime missions, and may even touch on training activities in support of the initiative in the context of Single European Sky to enable RPAS traffic insertion into non-segregated airspace.

Networked Training

Once the RTTD systems have been installed, they will be networked to provide collaborative training within a synchronised common environment. MALE RPAS operators will be able to operate within this environment at their own training station, while communicating multinationally to coordinate their mission.

The ability to collectively plan, execute and debrief common missions will significantly improve interoperability and foster a multi-national understanding of MALE RPAS ISR operations. In turn, this can translate into a more capable and effective MALE RPAS operational community and build a solid foundation for combined European MALE RPAS ventures in the future.

Future Potential

Perhaps the greatest significance of the programme lies in the fact that it will lead to the establishment of the first multinational synthetic training network in Europe. This will not only provide RPAS operators from different nations with a unique opportunity to improve their operational effectiveness, but also enable them to share best practices and collaborate in training and the development of common procedures.

If proven to be successful, it could turn out to be the first step in establishing comparable low cost solutions for multinational interoperability training of other operators, such as fighter and helicopter pilots, thereby filling a major gap in the training activities of the air forces of the future. ■



*This article was initially published in the EAG Annual Review 2017, with courtesy of EAG

The ability to collectively plan, execute and debrief common missions will significantly improve interoperability and foster a multi-national understanding of MALE RPAS ISR operations

Key Quotes

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"No European country can today make clear and effective political decisions related to its security without continuous and



comprehensive space-based capabilities"

Jorge Domecq, EDA
Chief Executive, and
Johann-Dietrich Wörner,
ESA Director General

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"Global space powers are developing offensive strategies that challenge Europe's positions in space. This is the reason why our sector definitely needs to remain at the top of the EU political agenda"

Jean-Loïc Galle, CEO of TAS



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"Europe will only be capable of defending itself if its defence industry consolidates"

Frank Haun, CEO of KMW



Thank You!

Dear readers,

Allow me for once to express a personal message. I am coming to the end of my 6 years contract at the European Defence Agency (EDA). As this is the moment to say good bye to my colleagues, I also would like to address my special thanks to you all, the readers of our flagship publication 'European Defence Matters'!



As the founding father of this magazine, I am particularly happy that this publication – a proud member of European Military Press Association – has just been nominated for 'Best Publication 2017' at the 'European Excellence Awards'. This shows – together with the regular feedback we receive from you – that this publication is reaching its goals: raising awareness of European defence matters, explaining the ins and outs of specific topics as well as giving the floor to very prominent defence decision makers. Moreover, as a publication of the EDA, it is our duty to present you with the results achieved through defence cooperation as well as emerging projects.

I am also addressing a special thanks to all the contributors to this magazine so far: more than 500 pages of rich content have been prepared with you and for you; many key interviews of CEOs, European politicians, Ministers, Chiefs of Defence, etc. We have always received a very warm welcome to all our requests which is also a sign that this publication is becoming a reference for many decisions makers.

At a time when information policy is increasingly formatted by the rule of 140 characters, I remain convinced that we need fora like this magazine and its webzine version which allow us to take a step back and spend more than a few seconds to read, learn and share in depth the challenges that we all face on European defence matters.

The EDA's communication team is eager to receive your input (info@eda.europa.eu) in order to fulfill your expectations for an ever improving magazine.

With my very best regards,

Eric Platteau

Head of Media & Communication,
Publishing Director - European Defence Agency

THE A400M. TURNS THE MIDDLE OF NOWHERE INTO SOMEWHERE.



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