



European Defence Matters

Sharing European skies



Opinion:
Federica Mogherini,
Head of the
European Defence
Agency

**Military
Aerospace
special issue**



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Contents

Welcome

- 5** Publishing Director Eric Platteau and
Editor-in-Chief Guillaume Steuer introduce this
edition of *European Defence Matters*

European Defence News

- 6** **EU Affairs**
New EU military operation launched in the
Mediterranean, EUCAP Nestor hands out medical
equipment to Djibouti authorities, Somalia training
mission extended, New advisory mission launched
in Central African Republic
- 8** **Industry News**
India, Qatar sign Rafale contracts, New helicopters,
air defence systems for Poland, Denmark opts for
Piranha 5 armoured vehicle, Franco-Italian military
satellite in orbit, Italy receives fourth FREMM frigate

Cover Story: Military Aerospace

- 10** **Introduction**
- 12** **Single European Sky**
A bridge between two worlds. Interviews with
Roland Van Reybroeck, *European Defence Agency
Cooperation, Planning & Support Director*, Florian
Guillemet, *SESAR JU Executive Director*, Massimo
Garbini, *Managing Director, SESAR Deployment
Manager*, Philippe Merlo, *Director ATM*,
EUROCONTROL, Luc Lalouette, *Head of SESAR Task
Force with the AeroSpace and Defence Industries
Association of Europe (ASD)*
- 18** **Remotely Piloted Aircraft Systems**
RPAS: the European Challenge. EDA Chief Executive
Jorge Domecq explains how cooperation in this
field could yield substantial capability improvement
- 22** **Air-to-air refuelling**
Tomorrow's tankers. We take a look at existing
capabilities and ongoing acquisition programmes

Cover Story continued

- 26** **EATF**
European Air Transport Fleet gives wings to
interoperability. The European Air Transport Fleet
initiative is entering a new phase
- 30** **Space**
Filling the gaps in space capabilities. Increasing
reliance on space for the conduct of military
operations raises important challenges for
European armed forces

Opinion

- 34** **"Now is the time to do more together"**
Further and deeper cooperation required to meet
Europe's defence and security challenges, says
Federica Mogherini
- 36** **"The future of this industry lies in European
multinational projects"**
Tassos Rozolis is President of SEKPY, the Hellenic
Manufacturers of Defence Material Association
- 38** **"We can all benefit from cooperation"**
Jānis Karlsbergs, the Undersecretary of State for
Logistics of the Ministry of Defence of the Republic
of Latvia

Publications

- 40** **Perspectives on the CSDP**
A recent essay collection published by European
Geostrategy seeks to shed light on national
approaches to the Common Security and Defence
Policy

Events

- 41** **Interface**
We review ongoing defence-related exhibitions
and cultural events around Europe

Key Quotes

- 42** Key quotes and facts, index to advertisers

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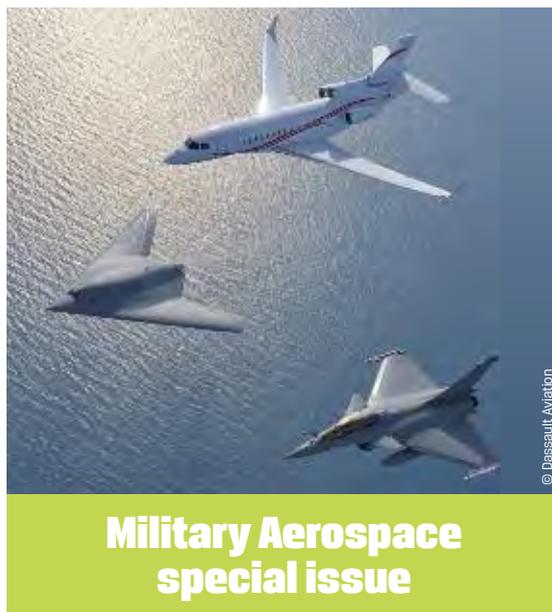
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Military Aerospace special issue

The European edge

Europe has always been at the forefront of technological developments in aerospace. The Paris airshow, which will open its doors in a few days for the 51st time, has long served as a showcase of European excellence in that domain. From Concorde to the Airbus A380, generations of cutting-edge European aeroplanes have amazed crowds and customers alike in Le Bourget

In the European defence realm, cooperation in aerospace systems has long been seen as a way to implement innovative designs while serving the needs of the armed forces. In fact, some of the earliest post-war attempts at European cooperation originated in the aerospace sector. In 1963, the Elysée Treaty kick-started the Euromissile initiative between Paris and Bonn, launching a new family of missile systems that would equip both nations' armed forces.

The Franco-German Transall transport aircraft, the Franco-British Sepecat Jaguar strike fighter or the multinational Panavia Tornado are but a few historical examples of cooperation efforts aimed at sharing development costs while generating economies of scale between like-minded European partners.

In recent times, cooperation in defence aerospace has also given birth to a wide spectrum of world-leading products, while maintaining industrial skills and know-how in this highly technological field. Although challenging, the development of complex systems such as the NH90 transport helicopter, the Eurofighter

Typhoon or the A400M has allowed European partners to strengthen their defence industrial base while procuring the capabilities required to meet their operational needs.

But more challenges lay ahead for the military aerospace community, as we report in this issue of *European Defence Matters*.

In areas such as remotely piloted aircraft systems, air-to-air refuelling, satellite communications or military airlift, European Member States are still lacking critical capabilities to ensure they retain their ability to act as security providers. Through a number of initiatives that we review in our special aerospace feature story, Member States are working to bridge these gaps, while the EDA is at their disposal to represent the armed forces' interests in wider European policies, such as the Single European Sky.

This will not only ensure that European allies are able to face the operational challenges of tomorrow – it will also help maintain technological excellence in an area of strategic importance for our defence industrial base. **K**

Eric Platteau Head of Media and Communication **Guillaume Steuer** Editor-in-Chief

EU Affairs



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New EU military operation launched in the Mediterranean

The Council has agreed on 18 May to establish a new EU military operation in order to break the business model of smugglers and traffickers of people in the Mediterranean. Called EUNAVFOR Med, the operation will be conducted in sequential phases and in accordance with the requirements of international law.

The decision was taken during a joint meeting of Foreign and Defence Ministers chaired by EU High Representative Federica Mogherini. She went on to say that "the decision to create the naval force was part of a comprehensive approach to solving the

migration crisis in the Mediterranean". She added that "the EU would work with its Africa and Arab partners and help tackle the root causes – namely poverty, crisis and war".

Planning of the operation and the initial phase of surveillance and assessment of human smuggling and trafficking networks in the Southern Central Mediterranean has started shortly after the 18 May announcement. The second and third phases of the operation would work to search, seize and disrupt the assets of smugglers, based on international law and in partnership with Libyan authorities.

The operational headquarters of EUNAVFOR Med will be in Rome with Rear Admiral Enrico Credendino (Italy) appointed as Operation Commander. The common costs of the operation are estimated at €11.82 million for a two-months startup phase, plus an initial mandate of 12 months.

This EU Common Security and Defence Policy (CSDP) operation is part of a set of comprehensive measures aimed at responding to the immediate need to save lives, address emergency situations but also tackle the root causes of irregular migration as requested by the European Council on 23 April 2015. 

EUCAP Nestor hands out medical equipment to Djibouti authorities

On Monday, 30 March, the EUCAP Nestor mission officially handed 25 medical equipment kits to the Djibouti Coast Guards and the Djibouti Navy. This medical equipment will enable the local authorities to treat injuries that might occur due to bad weather or accidents.

The kit is comprised of all the necessary tools needed for a medical emergency situation onboard a vessel where medical treatment in regular hospitals is hours or even days away. One objective of EUCAP Nestor – in close cooperation with the Djibouti Coast Guard and Navy, is to improve their effectiveness in terms of medical

assistance at sea. A training course on the use and handling of the medical equipment will also be provided.

Established in July 2012, EUCAP Nestor aims to strengthen the maritime capabilities of five countries in the Horn of Africa and the Western Indian Ocean: Djibouti, Kenya, Somalia, Seychelles and Tanzania. 



Somalia training mission extended

Launched in December 2010 and based in Mogadishu since 2014, the EU training mission in Somalia (EUTM Somalia) has recently been extended until 31 December 2016 by the Council. Since its creation the mission has been providing basic, leadership and specialised military training and advice on a Somali-owned military training system.

EUTM Somalia has also provided strategic advice to the Somali Ministry of Defence and National Armed Forces on security sector development, including on personnel management, strategic planning

and defence-related laws.

Brigadier General Antonio Maggi, from Italy, has been appointed Mission Commander as of 8 March 2015, heading a team of 125 staff.

Commenting on the extension, EU High Representative for Foreign Affairs and Security Policy Federica Mogherini said: "The EU training mission has already made a real difference in Somalia by training around 5000 Somali troops.

It will gradually shift towards mentoring Somali trainers, enabling the Somali National Army to progressively take over their own

training. This will contribute to supporting Somalia's efforts to bring security and stability to the country."

During the renewed mandate, the mission's advisory pillar will further be strengthened. EUTM's efforts have contributed to the development of civilian control over the armed forces and to the management of the Ministry of Defence, as well as to the preparation of a Defence Plan within the overall context of public service. The mission's move from Uganda to Mogadishu in early 2014 greatly facilitated this work. **█**

New advisory mission launched in Central African Republic

The Council has launched the EU's military advisory mission in the Central African Republic (EUMAM RCA), which it established on 19 January 2015. It sets out to support the Central African authorities in preparing a reform of the security sector with respect to the armed forces of the Central African Republic (FACA).

EUMAM RCA is located in the country's capital Bangui. Brigadier General Dominique Laugel from France has been appointed EU Mission Commander for a team of up to 60 staff. The common costs of the operation

are estimated at €7.9 million for 12 months.

In close cooperation with the United Nations Multidimensional Integrated Stabilization Mission in the Central African Republic (MINUSCA), this mission will play a critical role in strengthening the security sector. Concurrently, EUMAM RCA will advise the military authorities of the Central African Republic (CAR) on the reforms necessary to transform the CAR armed forces into a professional, democratically controlled and ethnically representative army. EUMAM RCA will also support the

MINUSCA in achieving its mandate in the area of security sector reform and the vetting process.

The mission is part of the EU's comprehensive support for CAR's return to stability. It comes in the wake of the EU's military operation contributing to security in Bangui, EUFOR RCA.

That operation has completed its mandate on 15 March 2015, handing over to the UN's multidimensional integrated stabilization mission in the Central African Republic (MINUSCA). **█**

Industry News

India, Qatar sign Rafale contracts

Following Egypt's decision earlier this year to purchase 24 Rafale combat aircraft, Dassault Aviation secured two additional export orders for its twin-engine fighter in the first semester of 2015.

On 10 April, during an official visit of Prime Minister Narendra Modi in Paris, the Indian chief of government announced its intention to close a deal for 36 Rafales to be assembled in France and delivered quickly in order "to meet rapidly the security needs of India", according to a Dassault Aviation statement.

The number of aircraft to be delivered under the terms of this new government-to-government contract would double the initial batch of 18 Rafales that were expected to be built in France as part of the



© Dassault Aviation

Medium Multi-Role Combat Aircraft (MMRCA) competition which Dassault Aviation won in 2012 but for which no final agreement has yet been reached. Of the total planned order of 126 fighters, 108 were expected to be built in India by state-owned aircraft manufacturer Hindustan Aeronautics Limited (HAL). The exact status of the MMRCA negotiations following the new contract for 36 off-the-shelf Rafales remains unknown.

On 30 April, it was Qatar's turn to

announce its intent to procure 24 Rafales to equip its air force. A contract was signed on 4 May in Doha in the presence of French president François Hollande. These aircraft will also be delivered 'off-the-shelf' from France, along with air-launched weapons provided by European missile manufacturer MBDA.

With Egypt and Qatar's orders, and pending confirmation from India, Rafale's export backlog has now reached 84 units. France has 180 aircraft on order. **K**

New helicopters, air defence systems for Poland

As part of its effort to modernise its armed forces with new equipment, the Polish Ministry of Defence recently announced two major moves aimed to upgrade its helicopter fleet as well as its ground-based air defence capabilities.

This Spring, Warsaw announced Airbus Helicopters had won a tender to replace Soviet-era aircraft with at least 50 new Airbus Helicopters H225M Caracal multirole transport helicopters. The total value of the



© Airbus Helicopters

contract is estimated at €2.5 billion, with all helicopters to be assembled in Poland. The European helicopter won a tender against the Sikorsky S-70 Black Hawk and the AgustaWestland AW149. A formal contract for these helicopters should be signed after a period of flight trials and technical evaluations that will be held in Poland.

Meanwhile, Poland announced on the same day that it had selected the US-designed Patriot system in order to upgrade its air defence capabilities. The US system built by Raytheon was chosen over the Aster 30 surface-to-air missile which was offered by European missile manufacturer MBDA and Thales. **K**

Denmark opts for Piranha 5 armoured vehicle



© General Dynamics Land Systems

The Danish Ministry of Defence recently announced the selection of the MOWAG Piranha 5 armoured personnel carrier (APC) built by General Dynamics European Land Systems, effectively putting an end to the largest armoured vehicle competition in Europe.

The Piranha 5 will replace the M113 APC in Royal Danish Army service, with a minimum of 206 new vehicles to be purchased, with potential numbers going up to 450 units over

the life of the programme. "The exact number will be determined at a later date", Danish Defence Minister Nicolai Wammen said in an official statement.

"We will work with the Danish Ministry of Defense, our local industry partner Falck Schmidt Defense Systems and other Danish industry to provide the best solution and to meet our customer's requirements on turn-around time, on-time delivery, cost-effective

support and best value", Alfonso Ramonet, president of General Dynamics European Land Systems added after Denmark's announcement.

The Danish competition saw the Piranha 5 pitched against four other designs: the Nexter VBCI, the FFG Flensburger, the BAE Systems Armadillo and General Dynamics ASCOD 2. While the VBCI was also an 8x8 wheeled design, the other contenders were tracked vehicles. **◀**

Franco-Italian military satellite in orbit

This April, the European Ariane 5 heavy-lift rocket was launched from Kourou (French Guiana) and successfully placed a new military telecommunications satellite into geostationary transfer orbit. The SICRAL 2 (satellite2) is a joint programme carried out by the Ministry of Defence in Italy and the DGA (Direction Générale de l'Armement) in France for the benefit of Italian and French armed forces, with respective stakes of 62% and 38%.

The project is conducted by Thales Alenia Space and Telespazio, the two companies of the space alliance created

by Finmeccanica and Thales.

As part of the Sicral 2 programme, France and Italy provided separate payloads but shared the construction of the satellite itself, which carries UHF- and SHF- telecom-munications payloads.

Both nations also share another military communications satellite, Athena-Fidus, which was launched in 2014.

SICRAL 2 will have a service life exceeding 15 years, according to Thales. It will enhance the satellite communications capabilities



© Telespazio

already provided for Italy by Sicral 1 and Sicral 1B (launched in 2001 and 2009) and for France by Syracuse 3A and 3B (launched in 2005 and 2006). All of these satellites were designed and developed by Thales Alenia Space and Telespazio. **◀**

Italy receives fourth FREMM frigate

The Italian Navy took delivery of its fourth FREMM multi-mission frigate on 28 April. Named 'Carabiniere' to celebrate the 200th anniversary of the foundation of the Italian Carabinieri Force, the ship was the fourth FREMM unit built by Fincantieri at its Muggiano/La Spezia shipyard, and the third equipped with an Anti-Submarine Warfare sensor suite.

Coordinated by OCCAR, the FREMM

programme currently plans for 10 ships to be delivered to the Italian Navy. Meanwhile, the French plans to operate a total of 11 FREMMs, to be built by DCNS in France. However, only one such ship is currently in active service with the French Navy. A recent export contract placed by Cairo earlier in 2015 has seen the second FREMM destined for the French Navy ('Normandie') diverted to the Egyptian Navy, which

wanted the vessel delivered as quickly as possible. The Royal Moroccan Navy also operates one FREMM frigate in antisubmarine warfare configuration.

Launched in the early 2000s, the Franco-Italian FREMM programme builds on previous cooperation efforts in the naval field between the two countries, who were already partners in the development of the Horizon-class air defence frigates. **◀**



Military Aerospace special issue

> European





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How to do more with less will be a major theme for European military planners attending this year's Paris Le Bourget Air Show.

In the following pages, *European Defence Matters'* aerospace supplement reports on how the European Defence Agency has been able to forge a single collaborative defence input into the European Commission's Single European Sky programme, work towards a common approach towards introducing Remotely Piloted Aircraft Systems into operational airspace, optimise and increase Europe's scarce air-to-air refuelling resources, assist in developing a core multi-national air transport capability and increase Member States' access to vital space-based communications facilities

Aerospace in the spotlight



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Index

- 12** Single European Sky
A bridge between two worlds
- 18** Remotely Piloted Aircraft Systems
RPAS: the European Challenge
- 22** Air-to-air refuelling
Tomorrow's tankers
- 26** EATF
European Air Transport Fleet gives wings to interoperability
- 30** Space
Filling the gaps in space capabilities

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> A bridge between two worlds

The implementation of the Single European Sky is a topic of utmost importance for all airspace users in Europe. Coordination between the military and civil communities is a critical enabler in that process, as we explain in this interview with subject matter experts

Military Aerospace special issue



Roland Van Reybroeck,
European Defence Agency Cooperation,
Planning & Support Director
www.eda.europa.eu



What is the EDA's added value when it comes to gathering military views on SESAR?

Since 2010, the European Defence Agency has been tasked to support Member States' armed forces in the identification of the operational and financial risks associated with the implementation of the Single European Sky air traffic management research programme (SESAR). This is no small feat: as is often pointed out, military fleets with some 9,500 diverse aircraft form the single biggest 'airline' operating in European airspace, with

more than 150,000 flights each year.

The unique structure of the EDA, whose experts interact on a daily basis with Ministries of Defence, allows us to gather inputs and requirements very early on. A dedicated 'SESAR Cell' set up within the EDA early last year provides us with a strong platform for interaction with all parties involved in the implementation of SESAR.

As an Agency of the European Union, we're also in the best position to ensure smooth interactions with other EU actors, especially the Commission which needs a consolidated view of the defence community's specific needs regarding the Single European Sky.

But the EDA is also closely coordinating with the EU Military Committee and EU Military Staff, especially with regard to operational implications and requirements, as well as training aspects. This is all the more important now that SESAR has entered its Deployment Phase and new air traffic management functionalities will be introduced, some of which might have an adverse impact on military operations.



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Armed forces: the biggest airline in Europe

State aircraft fleet* - ECAC



Combat aircraft
3365



Large aircraft
949



Light aircraft
1390



Helicopters
3733

Civil and military general air traffic (GAT) flights in 2013

Month	Civil	Military	Total	Military as % of totals
January	647973	11701	659674	1.77
February	614095	11771	625866	1.88
March	708212	12413	720625	1.72
April	761869	13507	775376	1.74
May	832570	13552	846122	1.60
June	864394	14269	878663	1.62
July	905973	13353	919326	1.45
August	899113	11394	910507	1.25
September	870432	14562	884994	1.65
October	826533	14949	841482	1.78
November	687636	13441	701077	1.92
December	654602	10356	664958	1.56
Total	9273402	155268	9428670	1.65

*44 ECAC countries including 28 EU Member States

All data courtesy of Eurocontrol

What process will you put in place to ensure a smooth interaction with Member States?

The EDA is facilitating the coordination of military views on SES and SESAR. The idea is to analyse the technological projects submitted by other Single European Sky stakeholders ahead of their actual implementation, and to identify those who can impact the military community, from a financial or operational point of view.

In support of this process a three step consultation mechanism was established with the aim of involving NATO and EUROCONTROL, who include military airspace users and navigation service providers beyond those of the European Union. The mechanism entails staff-to-staff coordination and access to relevant expertise available in all three organisations, in order to develop joint military impact assessments of the SESAR deployment programme. These assessments are subsequently submitted to States for comments. The

outcome of the mechanism is a consolidated opinion exported by the EDA as a collective view of the military. We have used this process for several initiatives: the adoption of EU Regulations, the development of the ATM Master Plan and now SESAR deployment.

The work with Member States also involves identifying potential mitigation actions as and when required. This involves avoiding duplication of effort and reducing potential investment burdens, by recognizing that certain military systems are sufficient and robust enough to face SESAR requirements, based on equivalent level of performance. On the other hand it may include effectively ensuring the incorporation of military requirements in future SES development and SESAR deployment and ensuring access to EU-funding for related military projects which are already part of defence ministry investment plans or newly planned. In the regulatory domain it may include obtaining exemptions for the military, but only when absolutely →

necessary. The military indeed strive to be 'as civil as possible' but also need to remain 'as military as required'.

In which areas do EU air forces have specific requirements that need to be addressed?

The defence community has always emphasized the prerequisite for air forces to have free and safe access to European airspace for training purposes, air-policing and air defence missions. There is also the need to safeguard their ability to deploy to external operation theatres from within the European airspace, as and when required. Let me clarify that by elaborating on a few examples.

Preserving the capacity of the military to train properly means that military pilots need to reach dedicated manoeuvring areas that are often contiguous with airspace used by civil traffic. Access to these areas needs to be ensured in the context of a new SESAR environment which might induce some changes to current procedures or routes for military pilots.

Safely operating across national and European airspace, including in the most dense and complex areas involves both operational and general air traffic, and ranges from logistic air transport to urgent military interventions in case of contingency situations. And, in the not so distant future, it may also involve safe and efficient integration of Remotely Piloted Aircraft Systems (RPAS), on a routine basis.

The specific needs of state actors flying public-service missions such as search and rescue,

airborne surveillance or firefighting also have to be taken into account.

With all these requirements in mind, adverse impacts on both military and civil stakeholders should be avoided through systematic and enhanced civil-military dialogue at the earliest possible stage, first at national levels and then at a European level. Both parties should, side-by-side, willingly engage in the cooperative development of harmonised solutions and common mitigation actions.

Looking ahead, what do you expect will be the long-term benefits of this approach?

The European Defence Agency clearly recognizes and acknowledges the crucial importance of the Single European Sky initiative of the European Commission, which aims at achieving, in the foreseeable future, improved efficiency, increased capacity, enhanced aviation safety, diminished environmental impact of flights and reduced costs of air traffic services. It is after all in the mutual interest of all airspace users, private and public, commercial and governmental, civil and military,

to reach these objectives which will contribute to increased efficiency, flexibility and safety, for all. It is a shared vision.

The highest priority for all stakeholders is clearly the safe operation of aircraft. The military fully support this objective and anything that can be done to make the airspace safer should be duly considered.

Another major benefit shall be the harmonization of procedures and interoperability of systems across Member States to ensure appropriate access to airspace for all, civil and military alike. This implies the development of harmonised and coordinated civil-military implementation roadmaps governing the introduction of new technology or organisational and structural change, to ensure sustained compatibility if not interoperability.

Furthermore, developing air traffic insertion solutions for RPAS, with a view to exploiting all potential synergies and developing common standards. But also, considering common education and training solutions for basic RPAS operations in non-segregated airspace, relying on existing experience and expertise from various operational environments.

The EDA is ideally placed to facilitate cooperation in all of these areas with relevant military stakeholders and to provide access to a number of existing cooperation platforms for the development of harmonised civil/military solutions. The Military Airworthiness Authorities Forum, the Material Standardisation Group and the Defence Test and Evaluation Base are just a few examples of such cooperation platforms.

The necessity to put into practice the legislative framework for the Single European Sky in a coherent and consistent way is fully shared, taking full account of economic necessities, but also of the requirements resulting from common and national security and defence policies. The shared vision of a Single European Airspace, delivering the benefits which are envisaged, can be achieved through constructive cooperation between civil and military stakeholders, based on the collective willingness to achieve the SES performance objectives, while at the same time enhancing military mission effectiveness. This endeavour should start at national levels between civil and military airspace users, service providers and operators, through joint deployment projects that concretely will help building the Single European Sky piece by piece. It is clear that aviation industry as well can play a key contributing role in this perspective.

The European Defence Agency is reaching out and ramping-up its coordination with all relevant stakeholders, in order to be a strong and reliable partner for civil-military cooperation and harmonisation, with a view to jointly building a Single European Sky in which the views and needs of the defence community are duly taken into account.

 "The unique structure of the EDA, whose experts interact on a daily basis with Ministries of Defence, allows us to gather inputs and requirements very early on"



"Airspace is a single resource"



Florian Guillermet,
SESAR JU Executive Director
www.sesarju.eu



What is the timeline for the implementation of SESAR?

Thanks to a strong collaboration between its members, the SESAR Joint Undertaking is already delivering the needed operational and technological improvements ('SESAR Solutions') for industrialisation and deployment. Over the course of 2015 and 2016, our goal is to add many more to this catalogue of SESAR Solutions. In parallel, an extended programme (SESAR 2020) will address new challenges and evolutions in ATM and aviation necessary to reach the next level of performance. These activities will be fully aligned with the next edition of the ATM Master Plan, which will be finalised by the end of 2015.

What are the specific requirements of the armed forces and how are they taken into account?

SESAR is founded on the principle that European airspace is a single resource shared by all airspace users, whose diverse needs are fully recognised and answered. Thanks to a very sound cooperation with our military partners from States and military organisations, we have been able to integrate and respond to the needs of the armed forces through a number of dedicated projects.

One area of focus has been the exchange of air-ground data messages between military aircraft and ATM systems. In response to concerns that SESAR Solutions could bring into the cockpit an assembly of costly avionics, SESAR members recently demonstrated how civil-military interoperability is possible on the principle of equivalence, using existing military capabilities thereby reducing implementation costs.

What have been the most recent deliverables of the SESAR JU?

A number of recently-delivered SESAR Solutions have

already been implemented, such as the world's first Remote Tower Services (RTS) in Sweden supporting mobility and thereby economic sustainability for remote regions in Europe. Another significant milestone is the world's first 4D flights, which allows for more efficient flightpaths and traffic flows, and ultimately more predictable flights. But perhaps, the most convincing proof of SESAR's readiness is the EU decision to deploy the first set of SESAR Solutions into the Pilot Common Project (PCP). This will allow for the crucial synchronised deployment across Europe (2015-2020).

"SESAR... is a powerful catalyst"



Massimo Garbini, Managing Director,
SESAR Deployment Manager
www.sesardeploymentmanager.eu



What is the role of the deployment manager?

The SESAR project is a powerful catalyst to transforming Europe's ATM network into a modern, cohesive and performance-based operational system. Proof of the readiness of SESAR research is the decision by the European Commission (EC) to package a first set of SESAR solutions into a Pilot Common Project (PCP), that are considered mature enough for synchronised deployment across Europe (2015-2020). This will be managed by the recently established SESAR Deployment Manager (SDM), an alliance of European ATM actors collaborating under a framework partnership agreement with the EC, who will ensure that new technologies and solutions that have already been tested and validated through the SESAR JU are delivered into everyday operations across Europe, delivering significant benefits to airspace users and the environment. This means that Europe now has all the blocks necessary to build the ATM system that it needs to increase the performance and sustainability of its aviation sector. →

How is the coordination of military and civil views organised in that context?

The military is a very important stakeholders of the SESAR Deployment Manager (SDM). SDM will conclude a cooperative arrangement with EDA to formalise the exchange of information crucial for drawing up the Deployment Programme (DP). Also input from the operational military stakeholders shall be taken into account, through representation by the EDA, in the Stakeholder Consultation Platform.

What will be the main milestones of the SESAR deployment programme?

The Deployment Programme (DP) is not just another plan. The DP is direct input for the subsequent INEA-calls (Innovation & Networks Executive Agency) aimed at investing the CEF-funds (Connection Europe Facility). So there will be a sequence between the INEA-calls and the versions of the Deployment Programme. For now the first version of the DP should be delivered to DG Move by end of June 2015, as input for INEA-call expected by the end of 2015. Another INEA-call is expected by end 2016, so a second version (DP v2) is expected by mid-2016.

certain times. They also have to be able to transit through airspace that is also being used by civilian traffic. There is today a much greater focus on performance – safety, capacity, cost efficiency and the environment. At the same time, civilian traffic is starting to increase again, with the latest forecast showing that 2021 will see nearly 1.8 million more flights than in 2014 – an increase of over 18%. So ATM has to evolve in order to maintain and even improve its performance. This will have implications both for how airspace is shared and also or for military aircraft flying in civilian-controlled airspace.



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"Much greater focus on performance"



Philippe Merlo,
Director ATM, EUROCONTROL
www.eurocontrol.int



What impact does the military community have on European ATM – and vice versa?

Europe has a single airspace shared between civilian and military airspace users. The military have a vital role to play, with specific needs for reserved airspace as

How does EUROCONTROL take the specific needs of the armed forces into account?

EUROCONTROL is a civil-military organisation and has a long and unique record of fostering civil-military and even military-military cooperation. One good example of this is the fact that one of the first of our new Centralised Services (CS4) is the Advanced Flexible Use of Airspace service, which is being developed to help ensure that military missions can be carried out effectively while maximising the availability of airspace for civil users.

Just as important is the work done to ensure that the needs of the armed forces are considered when developing new ATM technologies and procedures. Here we can see the focus on developing ground infrastructure, rather than more aircraft equipment and on performance-based regulation. So rather than specifying what equipment aircraft should carry, the emphasis is more on what that equipment should be able to do.

How do you interact with SESAR in that domain?

We are a founding member of the SESAR Joint Undertaking, as well as being involved in a significant number of the SESAR projects including, in particular, the European ATM Master Plan. We are also developing our working relationship with bodies such as the European Commission, EASA, the new SESAR Deployment Manager as well as, of course, the EDA with whom we have a joint work programme.

"Higher civil / military interoperability"



Luc Lalouette,
Head of SESAR Task Force with
the AeroSpace and Defence
Industries Association of
Europe (ASD)
www.asd-europe.org



How are the industry's interests represented within the SESAR endeavour?

The industry's interests are both directly and indirectly represented within the SESAR endeavour. Directly, through the pro-active contribution of the key air traffic management (ATM) industrial stakeholders in the SESAR Joint Undertaking structure on the ground and in the air, more than 30% of the funding of the SESAR JU is provided by industry. Indirectly, and in a larger manner than the SESAR JU members, the industry's interests are represented through its active involvement in SESAR deployment preparation in support of discussions with European bodies and, as recognized by the European bodies, at a later stage through the support of the Deployment Manager. The AeroSpace and Defence Industries Association of Europe is involved in the SESAR deployment phase in governance and financing and in the synchronization and interoperability between SESAR and NextGen deployment.

What is the technological spillover effect of SESAR on the global ATC/ATM industry?

As the technical evolutions in the ATM market are

strongly dependent on standardization and norms, SESAR is, in Europe, the key driver to facilitate and accelerate such evolutions due to its large scope and its consensus approach to functional and technical contents.

Potential benefits also exist outside Europe, pending SESAR capabilities to disseminate its outcomes and to be synchronized - both in term of planning and content - with NextGen. SESAR coordinates ATM research and development (R&D) activities in Europe, however the human and financial resources that SESAR asks of companies leads to questions about its remaining capability to create technological differentiators amongst them.

Do you see potential specific developments linked to the military needs regarding the Single European Sky?

The Single European Sky, due to its nature, calls for higher ATM civil/military coordination and interoperability in order to increase the ATM performance while maintaining the military's freedom to operate its various missions assigned by its national authorities. The degree of coordination will depend of the situation (peace/war), the nature of the fleet (transport/combat fighter/rotorcraft) and the operational concepts in place within European nations.

However, we can already foresee the need for specific developments - both at the technical and procedural level - in the following areas:

- Command and control (C2) and military ATC systems to allow interoperability with civilian ATC systems (trajectory management, airspace management, etc)
- Non-radar surveillance due to its impact on military and governmental flight security (automatic dependent surveillance - broadcast [ADS-B], multilateration [MLAT] etc)
- Remotely Piloted Aircraft Systems (RPAS) integration into non-segregated airspace (sense and avoid capability)
- Military fleet equipment to limit the need for exemptions

Those needs require fast progress in military cooperation within the framework of the SES. This could be achieved through a deep analysis of potential achievements through performance equivalence and experiments to validate the technological and procedural enhancements needed to fill the gaps.

All of us have to keep in mind that Europe's air forces operate the largest fleets of aircraft and own the largest number of airport so they have a key role to play in SES developments. SES benefits for Europe's citizens will not be achieved without the active role of Europe's air forces.

"All of us have to keep in mind that the European Air Forces are the biggest fleet operators and airports owners and as such have a key role to play in the SES developments"



> RPAS: the European Challenge

Remotely Piloted Aircraft Systems (RPAS) have become a capability of choice in recent operations, but they remain a scarce resource in European inventories. Cooperation in this field could yield substantial capability improvement, as EDA Chief Executive Jorge Domecq explains in this article

Over the sands of Mali or the waves of the Indian Ocean, European Remotely Piloted Aircraft Systems (RPAS) keep proving their operational value in the hands of our Member States. Medium altitude long endurance (MALE) systems have become essential tools of the trade for modern engagements, providing commanders with an 'unblinking eye' over the battlefield that forever changed the way they plan, execute and assess the results of their operations. In the meantime, new civil applications seem to emerge every day for this category of aircraft, with potential missions ranging from fire-fighting to border control, disaster monitoring or infrastructure surveillance.

Bluntly: drones are here to stay, and we Europeans should get our act together.

When they met in December 2013, Heads of State and Government made it clear that MALE RPAS should be considered a priority for cooperative development in an EU framework. So far, and in order to meet urgent operational requirements, most of our Member States had to procure their MALE drones off-the-shelf on the international market.

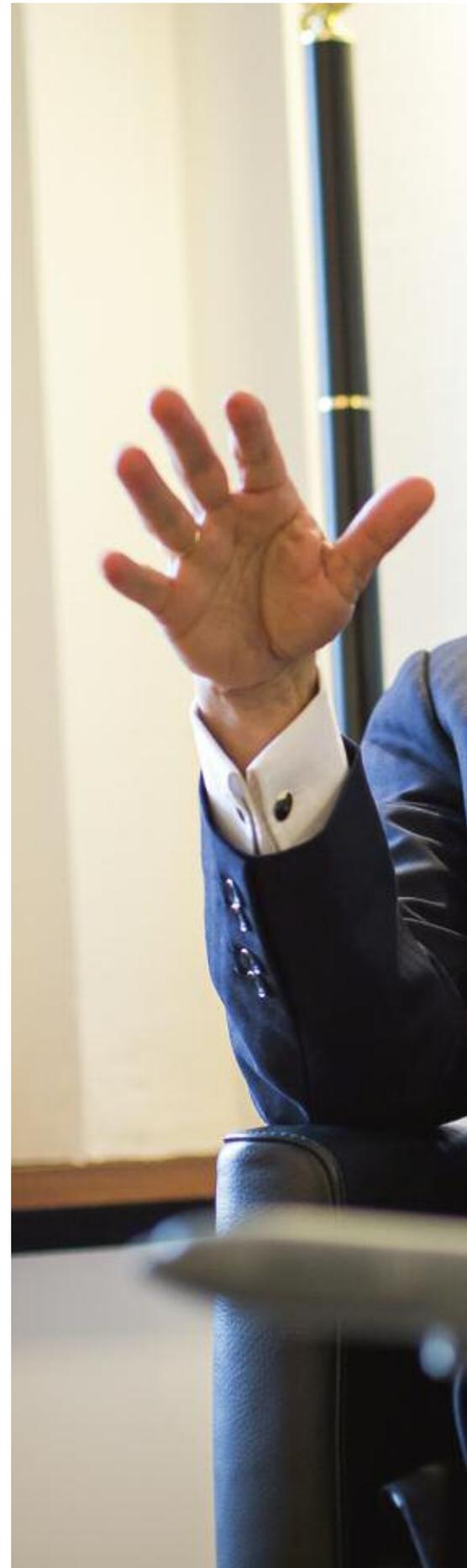
While this approach allowed them to effectively conduct their missions and refine their requirements, it also raised concerns

because of the sovereignty issues associated with the intelligence, surveillance and reconnaissance aspects of the missions flown by these drones. In the meantime, it also highlighted the lack of a major programme in Europe to structure our highly-skilled aerospace and defence industrial base in that domain.

Last year, France, Germany and Italy agreed to get together and take the lead for the establishment of a future MALE RPAS programme that could become operational in 2020-2025 timeframe. By doing so, they signaled their intent to move forward and lay the groundwork of an initiative which other EU countries might join at a later stage.

We already have a pretty good idea of the basic capabilities that would be required for such a system at the European level. As early as 2013, Member States gathered around the table in the framework of the European Defence Agency to exchange views on what a future European MALE RPAS could and should look like. Together they endorsed an initial set of commonly-agreed requirements to draw the portrait of this upcoming European drone.

Cooperation on RPAS is not an option anymore: it has become a necessity for a number of reasons. The first and perhaps most acute is that no individual EU country can afford to develop such a system alone →





Enter the 'Eurodrone'

An important milestone was reached on 18 May when the Defence Ministers of France, Germany and Italy agreed to launch a two-year study laying the groundwork for a future European MALE RPAS system – or 'Eurodrone'.

The three signatories expect that this work should pave the way for a full-scale development programme that could lead to the new drone being operational in 2025. Capable of conducting the full spectrum of military missions (from crisis response to coercive operations), this new system should also be able to meet the need of the civil community, for missions ranging from homeland security to border control or firefighting.

The expertise of the European Defence Agency will be called upon as part of this project. The EDA is expected to support the initiative in the fields of air traffic integration, airworthiness and certification, building on the work already achieved and on the institutional framework in place.

Meanwhile, the Agency is expected to facilitate the entry of other European partners into the programme at a later stage. Poland and Spain are already among the countries that have shown an interest in joining the project, according to a statement from French Minister of Defence Jean-Yves Le Drian.



MIDCAS breaks new ground in Detect & Avoid technology

Six years after they kick-started the project at the 2009 Paris airshow, partners of the European MIDCAS (Mid Air Collision Avoidance System) project announced on 30 April the completion of successful flight-test and simulation campaigns which laid the groundwork for future developments in the field of RPAS air traffic integration.

Launched by five contributing Member States (France, Germany, Italy and Spain under the lead of Sweden) under the framework of the European Defence Agency and with a total budget of €50 million, the MIDCAS project was carried out by an industrial consortium composed of 11 partners: Saab (project leader) from Sweden, Sagem and Thales from France, Airbus D&S, Diehl BGT Defence, DLR and ESG from Germany, Alenia Aermacchi, Selex ES, CIRA from Italy and Indra from Spain.

Flights with a demonstrator Detect & Avoid (D&A) system integrated in the Alenia Aermacchi Sky-Y RPAS test bed started in December 2014 at Grazzanise Air Force Base in Italy. During a series of tests, using cooperative as well as non-cooperative detection systems, the RPAS was able to

automatically avoid a manned aircraft flying on a collision course. The Detect and Avoid system installed on the Sky-Y RPAS fused data coming from a variety of sensors and equipment including ADS-B, IFF, electro-optical or radar systems. A variety of scenarios and sensor combinations were tested during the flight tests, effectively bringing RPAS air traffic integration a step closer to reality.

"We are pleased with the outcome of the simulations where the involved air traffic controllers concluded that they were confident to control RPAS within their airspace and did not get any additional workload from the RPAS, whose behaviour was fully in line with manned aviation", MIDCAS project leader Johan Pellebergs commented on the successful flight-test phase. "The project has produced tangible results in the field of air traffic integration, which is a critical enabler for the use of RPAS in European skies", Peter Round, EDA Capability, Armament & Technology Director, added. "In order to improve Member States' RPAS capabilities, technological and regulatory issues need to be taken into account as early as possible", he underlined.

any more. The sharp decline in national defence research and equipment budgets is here to remind us that we should spend more and better together if we want to retain the capabilities we need to act as a security provider.

By working together on this issue, EU countries will also provide their aerospace and defence companies with a clear, tangible roadmap on which they will be able to organise their industrial cooperation in the leanest and most effective way. The current lack of major programmes in the military aerospace domain means that this future RPAS has the potential to structure our industrial base for the long-haul, maintaining European excellence in areas

as diverse as airborne platforms, sensor technologies, advanced communications or data exploitation solutions.

With initiatives such as MIDCAS or DeSIRE (*see above and facing page*), both supported by the European Defence Agency, Europe already makes sure it maintains its technological edge to enable RPAS operations in tomorrow's connected, non-segregated airspace. Because the demand from commercial users is likely to grow, we need to ensure that Europe's future MALE drones will be able to fly safely over our cities and homes, and not just over a battlefield. Meanwhile, we need to strengthen our cooperation with the European Commission and the European

Space Agency (ESA) in order to fully exploit synergies where a 'dual-use' dimension exists. In the short term, this could be true of RPAS subsystems such as SATCOM links or payload. But in the future, variants of a similar MALE system could serve both the military and the civil worlds.

There's no arguing that the development of Europe's future RPAS will be a great financial, technological and industrial challenge. But I'd rather see it as a great opportunity to provide our countries with a purely European and cutting-edge system that will contribute to our citizens' safety for many years to come, while allowing us to maintain European excellence in key activities of our defence industrial base. **K**



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Safe satellite links for future RPAS

The European Defence Agency (EDA) and the European Space Agency (ESA) agreed to kick-off on 9 April 2015 a new project in accordance with their demonstration roadmap to support the development of governmental, institutional and commercial services provided by Remotely Piloted Aircraft Systems (RPAS) flying in non-segregated airspace.

The DeSIRE II demonstration is expected to run for 18 months with a total budget of €2.6 million. An industrial consortium led by Telespazio, one of the world's leading company in space applications and end-to-end satellite communications services, will act as prime contractor and system integrator. The main results and recommendations coming out of the project will be disseminated to support European standardisation and regulatory activities, especially for the definition of future satellite-based command & control datalinks.

As part of the DeSIRE II project, a Piaggio Aero P.1HH HammerHead will be used as a flying testbed for the development, integration and testing of a set of capabilities designed to allow safe RPAS operation in civilian airspace in support of missions such as environment monitoring, maritime surveillance or crisis management. The joint EDA-ESA project will also aim at characterising Satcom command and control datalinks in different frequency bands through simulation, emulation and flight demonstration campaigns. Meanwhile, DeSIRE II will be also supported by end users (Italian Coast Guard, Italian Civil Protection Department, Guardia di Finanza,

European Fisheries Control Agency, Ceren and Armasuisse) who will consolidate their operational and regulatory requirements to operate RPAS in non-segregated airspace.

This new project is a follow-on to the first DeSIRE demonstration, an EDA-ESA project led by Spanish company Indra which ran from 2011 to 2013. It culminated with a series of successful test flights demonstrating the ability of a RPAS using a satellite link to safely share the sky with other airspace users.

Out of the €2,6 million project budget, €1,2 million will be invested by ESA, €600.000 by the EDA on its operational budget and €800.000 by the industrial consortium composed of Telespazio, e-GEOS, Selex ES, Piaggio Aero, ViaSat, Skyguide and AEdel Aerospace GmbH.



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> Tomorrow's tankers

As European nations start modernising their fleets of air-to-air refuelling aircraft, we take a look at existing capabilities and ongoing acquisition programmes

armed forces since the early decades of the Cold War: air-to-air refuelling (AAR) aircraft, which are a critical enabler for power projection, have taken part in every major air campaign since they have been inducted into service. Today, approximately 40 tanker aircraft are operational within European air forces – a number far too low to meet Member States' operational commitments in times of crisis. Official figures have shown that during the 2011 air campaign over Libya, 80% of all AAR missions conducted by the coalition were flown by US aircraft.

Since the early 2000s, several countries have successfully modernised their AAR capabilities by introducing new aircraft in their inventories. Although France, UK and the Netherlands have operated for decades 'first-generation' tankers with a transport capability, Germany was one of the first countries to field a capability branded as a 'Multi Role Tanker Transport' or MRTT solution, a concept that has now become widespread among AAR operators and manufacturers. In 2001, Berlin decided to modify four of its existing Airbus A310 twin-engine jet airliners in order to give them a refuelling capability. Operated by the Luftwaffe's Special Mission Air Wing, these aircraft can be reconfigured as strategic troop/passenger transport and medical evacuation capabilities when needed, making them multirole assets.

In 2002, Italy signed a contract with Boeing to acquire new AAR aircraft: the country became the launch customer for the KC-767A, of which four units were purchased. These new-generation aircraft reached operational status in May 2011 and took part in operations in Afghanistan, Libya

as well as in Mali. Flown by the 14th Wing of the Italian Air Mobility Command and based in Pratica di Mare, these new generation tanker aircraft replaced ageing Boeing 707s which had been operating for more than 15 years under Italian colours. Meanwhile, Italy also boosted its AAR capabilities during the previous decade with the introduction of the KC-130J, a tanker version of the Super Hercules tactical transport aircraft which allows the refuelling of slow- and low-flying aircraft, such as helicopters.

Both aircraft offer multirole capabilities – a versatility that is now becoming the new norm by bridging the gap between two worlds: air transport, and air-to-air refuelling. Most multirole transport/tanker aircraft now fall into two main categories: tactical aircraft, such as the A400M, KC-130J or KC-390; and strategic aircraft, such as the A330, KC-46 or KC-767 – the latter offer a full set of refuelling capabilities with both 'probe and drogue' and boom capabilities.

United Kingdom and French programmes

Throughout the Cold War, France and the UK were by far the largest European operators of air-to-air refuelling aircraft. However, at the turn of the millennium, both countries were faced with a pressing need to replace ageing airframes with a new generation of tanker aircraft, in order to maintain their overall AAR capabilities while improving the availability of their assets.

Through an innovative PFI, or private finance initiative, the Royal Air Force chose to pay for aerial refuelling and air transport missions as required, with a private contractor retaining legal ownership of the tankers themselves. This service-based contract aims to offer a cost-effective solution to the AAR/transport paradigm:



while there is always enough capacity during peacetime, there is never enough in times of crisis.

In 2008, the Ministry of Defence signed a £10 billion, 27-year service contract with the Air Tanker consortium in order to replace its existing fleet of VC10s and Tristar air-to-air refuelling aircraft. The agreement aimed to provide a fleet of 14 A330 MRTTs, a derivative of the proven A330-200 airliner with a fuel capacity of 111 tonnes, probe and drogue AAR capacity, a cargo capacity of 43 tonnes and a cabin that can accommodate up to 291 passengers. All 14 aircraft – named 'Voyager' in RAF service – are expected to be delivered



*Three questions to Général d'Armée Aérienne
Denis Mercier, French Chief of the Air Staff*

"Enhancing our power and force projection capabilities"

Like other European countries, France is faced with an ageing fleet of air-to-air refuelling tankers. What is your strategy to replace this capability?



In its modernization plan, the French Air Force has decided, beyond replacing its aging C135s, to order MultiRole Tanker Transport (MRTT) aircraft. The A330 MRTT Phoenix that will enter service in 2018 in the French Air Force will replace not only the tankers but also our strategic transport fleets. The 12 'Phoenix' aircraft will therefore replace both in quality and quantity the 11 C-135FRs, the three KC-135 RG, the three A310s and the two A340s. And we have already planned an evolution focused on advanced command and control capabilities. One Phoenix was already ordered in 2014, eight will be contracted this year and we expect to order the three remaining ones before the end of the current financial law for defence.

How does the FAF plan to operate its A330 MRTTs? What kind of performance improvement do you expect over the existing fleet of KC-135s?

The A330MRTT is a game changer. With longer ranges, larger deployment capabilities, it will offer us the possibility to enhance both our power and force projection capabilities. As a true multirole aircraft, it will also offer more flexibility. Furthermore, with the standard two, we also expect this aircraft to be a major player in the field of Command and Control.

Could there be synergies with other European air forces in the field of support or training?

We are already working with different countries, mainly but not only European (the United Kingdom, Australia, the United Arab Emirates, for example), in order to increase our operational efficiency through cooperation. We plan for example to create hubs or be able to share spare parts which will allow us optimizing both technical and logistical resources. Beyond the French specificity and the use of the A330 MRTT for the nuclear deterrence mission, we are already working on the integration of this aircraft in the European Air Transport Command.

by the end of 2016, and the first operational missions were flown in May 2013. The largest portion of the fleet, also known as the 'core fleet', will be used to meet the RAF's daily AAR and air transport tasks. The remaining aircraft ('shoulder fleet') will be operated commercially by the contractor, unless the RAF calls them back.

On the other side of the Channel, French military aviators made a similar choice for their future AAR platform. In 2014, France announced it had signed an initial contract with Airbus Defence & Space to procure the first of a batch of 12 A330 MRTTs, to be called 'Phoenix' in Armée de l'Air service. Eight →



Tankers together

The 2015 edition of the European Air-to-Air Refuelling Training (EART), which was hosted by the Netherlands from 13 to 24 April in the Eindhoven airbase, has allowed tanker crews from four European nations to benefit from a dedicated training event in a realistic environment.



Initiated by the European Defence Agency and run by the European Air Transport Command (EATC), EART15 gathered AAR aircraft from France, Germany, Italy and the Netherlands. Over the course of the event, 56 sorties were flown by the tankers which conducted over 240 contacts with receiver aircraft. These included F-16s, F/A-18s, F-15s and Eurofighters – all involved in the multinational fighter exercise "Frisian Flag" on the back of which EART15 had been set up.

"This exercise is about increasing interoperability by working together", Peter Round, EDA Capabilities, Armament and Technology Director, stressed during the exercise. "AAR is a critical enabler for all operations, and only through cooperation will we be able to increase European capabilities in this domain", he added. Brigadier General Pascal Chiffolleau, EATC Chief of Staff and Deputy Commander, also provided comments on the successful event: "EART15 is the result of a fruitful cooperation between EDA and EATC working together to develop common knowledge", he said. "We must continue staging exercises such as this one to further develop AAR but also air transport capabilities in Europe", he added. and strategic minerals.

additional aircraft should be contracted in 2015, with the three remaining airframes to be purchased before the end of the current military budget law (see interview page 23). However, France decided to opt for a national buy instead of the PFI solution retained by the Royal Air Force. These fully-multirole aircraft (probe and drogue, boom, passenger/cargo transport, medical evacuation and so on) will replace a fleet of 11 Boeing C-135FRs (the first of which were delivered to France as early as 1964), three ex-United States Air Force KC-135Rs procured in the late 1990s, as well as three A310 and two A340s currently used for passenger transport.

Newcomers

New players are about to step in the European AAR game. Initiated by the European Defence Agency, a multinational initiative has allowed three countries (the Netherlands, leading the project, as well as Norway and Poland) to enter negotiations with Airbus Defence & Space for the purchase of four A330 MRTTs to be operated as a pooled fleet – thus generating a true end-to-end 'Pooling & Sharing' solution. This Multinational MRTT Fleet (MMF) programme has now reached the contractual stage, with a request for



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proposals sent to industry in May.

This programme, which is also supported by OCCAR and the NATO Support Agency (NSPA), could lead to a contract award early in 2016, with a first delivery in May 2019 and a full operational capability in 2021. "This initiative will provide access to a cost-effective MRTT capability in support of EU, NATO and national operations", Colonel Johan Van Soest, Eindhoven base commander and chairman of the MMF Steering Group, explained during a recent AAR exercise organised in the Netherlands (see page 26). Eindhoven airbase will become this fleet's main operating base, with the aircraft put under the operational control of EATC – as is already the case for almost 200 strategic and tactical transport aircraft of six European air forces.

While the Netherlands will take advantage of this acquisition to replace its two ageing KDC-10 tanker aircraft, these European aircraft will also allow Poland and Norway to acquire an AAR capability they don't possess so far. "This is definitely good news to see more European countries joining the AAR club as capability providers", Peter Round, EDA Capabilities, Armament & Technology Director, stresses. "The initiative also remains open to other nations who might wish to join it at a later stage", he adds. 



*Three questions to Fernando Alonso,
Airbus Defence & Space Head of Military Aircraft*

"Pooled resources are the way ahead"

**How do you assess the market for AAR aircraft in Europe?
Is it important for your company?**



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It is pretty widely accepted now that Europe's relative lack of AAR capacity has been a serious weakness in coalition military operations over the last few years, resulting in an excessive reliance on US assets. That has driven tanker aircraft up the acquisition agenda both in countries that need to modernise ageing fleets as well as in some nations that see a role in deploying tankers for the first time. And of course EDA and OCCAR are playing key enabling roles in that process. So Europe is an important market for the A330 MRTT but we already have contracts in UK and France, and have been initially selected by the EDA sponsored grouping of Norway, Netherlands and Poland. As a result I think it's a fairly mature market in Europe now, but we do still see other interesting possibilities to come.

How does the A330 MRTT differ from its main competitor, the Boeing KC-46?

The fundamental difference is that the A330 MRTT is flying, certified and combat-proven today. And the customers who performed that AAR combat-proving are giving it outstanding reviews. Furthermore they have a superb transport aircraft for the same money. Now that's because the A330 MRTT is simply a more efficient design. It carries more fuel than any other tanker without requiring additional fuel tanks in the fuselage – so both the passenger and freight decks are available to be used as intended, plus it has an excellent medevac capability. This enables the operator to change the role of the aircraft from one mission to the next without reconfiguration, or even perform all the three roles simultaneously in the same flight. The A330 MRTT can deliver 25% more fuel than the KC-46, as well as carrying 50% more payload or transporting three times more passengers. I think there can be a tendency to think of tanker/transporters as just support aircraft – but having the right tanker fleet can be a matter of life and death in combat. That's why countries like Australia, UK and Singapore – who take their defence needs extremely seriously and are renowned for running rigorous and open procurement competitions – selected A330 MRTT after a competitive process comparing it with a 767-based tanker.

Which synergies do you think could be found by Pooling & Sharing European AAR assets?

You only have to look at the reality of military operations in the last few years to see the importance of this. It's very rare nowadays that nations undertake major military operations unilaterally – in a complex world it's virtually always the case that coalitions are required. Moreover, in Europe many nations can only access tanker assets through pool-and-share efforts or multinational fleets. So both in actual operations and at the support level it is very clear that harmonised aircraft tasking and pooled resources are the way ahead.

A330 MRTT has now refuelled all the typical frontline fighters in service and is qualified with most of them – so, for example, during operations in Middle East since last summer, A330 MRTTs of different nations refuelled a wide range of fighters: Rafale, Typhoon, US Navy F-18, AV-8B, F-16, F-15 and so on. That demonstrates that it is very practicable for a unified command to task the tankers from different nations.

But there are also opportunities in training and support. Although there are plenty of civil A330 simulators available for pilot type-ratings, the military training for the AAR mission is critical and I'm sure there is potential to develop common solutions for that. It is expensive to support small cadres of aircrew otherwise. And it's a similar situation with maintenance and engineering – there are enormous savings and efficiency-gains to be had from spares pools and shared or multi-national engineering bases.

> European Air Transport Fleet gives wings to interoperability

Four years ago, 20 European nations joined forces to enhance their military air transport capabilities. Now delivering results, the European Air Transport Fleet initiative is entering a new phase, as we explain in this article

Plovdiv International Airport, located 150 km southeast of the Bulgarian capital city Sofia, is not necessarily the first place that springs to mind when discussing European defence matters. However, during two weeks this Spring, the location was in the spotlights as a major rendezvous point for the European military air transport community when it hosted the first 2015 edition of the European Advanced Airlift Tactics Training Course, or EAATTC.

From 22 March to 3 April, aircraft and crews from four different countries gathered for academic training and live-flying missions all aimed at achieving a simple yet challenging objective: the development of common tactics and procedures to ensure the best possible interoperability between European nations in today's and tomorrow's operations.

"The main objective of EAATTC is to provide a robust airlift tactics training syllabus to enhance interoperability between aircrews", Michele Rega, EDA Project Officer, Fixed-Wing Aircraft and EAATTC exercise director, explains. "We take qualified crews into a theatre deployment mindset and we make them fly air-land and air-drop missions in a tactically-challenging environment, including surface-to-air and air-to-air threats".

Initiated by the European Defence Agency and run by the European Air Transport Command (EATC), the EAATTC series of courses was initially designed as a European alternative to the US AATTC initiative, a rendezvous that is been attended for decades by airlift crews from the US and allied nations. With Member States seeking more slots as

well as different and cheaper ways to provide their crews with this much-needed training, the European initiative was seen as the best answer to that rising challenge, with air forces now able to benefit from high-level training closer to their home bases and saving the cost of a return trip across the Atlantic.

The success of EAATTC events has gathered interest from an ever-growing number of participants and three sessions of the course will take place in 2015. In May this year, EAATTC15-2 took place on Orléans airbase, marking the first time France hosted an air transport exercise

organised under the framework of the European Defence Agency. As the initiative gains momentum and attracts more participants, it is expected that as many as four EAATTC courses could take place every year in Europe.

Addressing shortages, developing interoperability, increasing the overall military airlift capabilities in Europe: these were a few of the ambitious objectives set in 2011 when 20 European nations agreed to join forces and sign the European Air Transport Fleet, or EATF, partnership. "The EATF partnership is really about developing cost-effective solutions to optimise the use of existing and future national fleets of military airlift aircraft in Europe", EDA Project Manager Airlift and Air-to-Air Refuelling Laurent Donnet says.

At the launch of the programme, a three-phase strategy was agreed upon to achieve this. "The first phase of the EATF strategy, which ran from 2012 to 2014", Laurent Donnet stresses. "Together with the EATC and supporting air forces, it allowed us to lay out



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the partnership's foundations with a number of tangible deliverables and activities such as the harmonisation of diplomatic clearances mechanisms and procedures, but also live exercises and training events", he adds.

As such, the EAATTC series of courses are only part of a much wider ecosystem of EATF events and initiatives that all converge towards the same objective (*see infographic on page 29*). This includes the annual European Air Transport Training (EATT) exercise, the first edition of which took place in 2012. A testimony to the success of EATF Phase One, the attendance to this event has kept growing, with around 15 European air transport aircraft and 30 crews joining the 2015 edition taking place in Beja, Portugal, in June.

But from the EATF cradle also emerged →



Three questions to General del Aire Francisco Javier García Arnáiz, Spanish Air Force Chief of Staff

"Spreading knowledge in airlift training"

When will the new European Tactical Airlift Centre (ETAC) be fully operational in Zaragoza? What are the milestones ahead?

As you know, the European Tactical Airlift Centre was an EDA initiative, promoted by the EATF programme, to fill the gap in advanced military airlift training in Europe. Initially, the intention was to create an equivalent to the US 'Advanced Airlift Tactics Training Course'. To achieve this goal, the 'European Air Transport Training' program was created, and annually, tactical airlift symposiums were developed. Finally, 15 European nations decided to commit financial and human resources to create a 'Centre' with the aim of delivering advanced tactical airlift training in Europe.

The goal is that the 'Centre' begins to operate in September 2016 so the full operational capability can be reached before 2019. Additionally, a Project Management Group (PMG) was created to bring this project into reality. The concept has been set and tested, and a group of international experts are working in the legal framework and in the financial model. The final document has to be signed by December this year, for the personnel selection process to be finished in due time to be able to have available a core team of about 10 experts posted at Zaragoza by July 2016.

What is Spain's contribution to this initiative?

Spain believed in this project from the very beginning and offered Zaragoza Airbase facilities

and the expertise of the Spanish Air Mobility Command to run the first ever 'European Air Transport Training (EATT)' in 2012. We also hosted the EATT13 and the first 'European Advanced Airlift Tactics Training Course (EAATTC)' in 2014. Then, other nations such as Bulgaria, France and Portugal, have also contributed to run these events. Italy has additionally offered to deliver a specific course for Tactical Instructor Pilots.

Zaragoza Air Base is one of the most important bases in the Spanish Air Force (SAF), with two long runways and three aprons. The base is home for the 31st airlift Wing, equipped with C-130s and also future home for all the Spanish Air Force A400Ms, and its Full Flight Simulator. Also based there is the SAF 15th Fighter Wing, which has provided the F-18 fighters in the aforementioned events for the dissimilar combat/fighter evasion practices. Its presence there is very useful, as it allows face to face briefings

and debriefings among the participating crews.

Zaragoza AB also hosts the Spanish Air Deployment Support Squadron (EADA), supplying parachutists, loads for air-drops, either containers, platforms or training bundles, as well as palletized cargo for training of combat offloads. In a few words, almost everything that is needed for tactical airlift training. To have all them immediately available is obviously a big advantage. Moreover, Zaragoza AB is very close to the Bardenas Range, Dropping and Landing Zone and there are also available in the vicinity dedicated airspace areas for practicing dissimilar combat tactics against fighters.

For these reasons, Zaragoza was selected to host the permanent Centre. Now Spain is leading the PMG meetings and will also lead the Advanced Party until the inauguration of the Centre in September 2016, which will be created when the legal framework is ready. The aim of this Advanced Party is to capture the great



experience of two key actors in this project, the EDA and the EATC, to contribute to the success of this venture.

What benefits will it bring to the European air transport community?

First of all, we will reduce costs. Air crew deployments to the United States cost more money than the course itself. Secondly,

Europe will keep the expertise in advanced tactical airlift training following the path initiated by the Tactical Leadership Program (TLP) for fighter pilots many years ago. Zaragoza and Albacete (TLP Base) are very close, therefore I'm sure that some synergies will be found between both training projects.

It is important to note that having the Centre in Zaragoza doesn't mean that all the training activities will necessarily be carried out in Spain. Some training and courses could be executed in other European countries, but with the guidance and support of the Centre. This approach is being thought this way for the benefit of the interoperability among European nations.

This Centre, with the support of the EATC as an Air Transport Centre of Expertise, is a way to spread EATC knowledge in airlift training to non-EATC nations, which is exactly the EDA's EATF initiative.



other projects that are equally as important, if less visible than the live-flying courses and exercises. The European Advanced Tactical Instructor Courses (EATIC) as well as the annual European Air Transport Symposium (EATS) all contribute to increasing military air transport capabilities by promoting dialogue, interoperability and building a strong European air transport community.

Meanwhile, important work has also been carried as part of the Diplomatic Clearance Mechanism, aimed to facilitate the overflight and landing of military transport aircraft in EU airspace. A Technical Arrangement has been signed and implemented in 2013 by 14 nations and is expected to grow, since any EU Member State or Schengen nation can access it. Another tangible outcome of the

start-up phase of EATF is the creation of a working group gathering European users of the C-27J Spartan tactical transport aircraft, who agreed to join forces to find cost-effective solutions for their aircraft as well as to share best practices and experiences.

"EATF Phase Two, expected to run for three years, will see a strengthening of these different activities through several initiatives", Laurent Donnet stresses. For instance, a new European Tactical Airlift Centre, or ETAC, will be set up in Zaragoza (Spain) and is expected to reach its initial operational capability by mid-2016 (see interview page 27). Meanwhile, harmonisation of rules, regulations, tactics, techniques and procedures will continue. User groups developed around aircraft such as the A400M, A330 Multi Role Tanker Transport

(MRTT), CN295 or KC-390 will also be explored, based on the model currently being tested with the European C-27J Spartan community of users. All these efforts will be pursued in close cooperation with the European Air Transport Command (EATC) in Eindhoven.

Ultimately, a third EATF phase is expected to run from 2017 to 2021. It will seek deeper cooperation between participating nations with regards to new capabilities, as well as increased support for the creation and implementation of innovative solutions. As the ongoing operations carried out by EU Member States worldwide keep demonstrating the need of modern and interoperable air transport capabilities, cooperation is likely to remain the way forward for the years and decades to come. 



Three questions to Major General Christian Badia, Commander of the European Air Transport Command

"Reaching a higher level of mission effectiveness"

Since its creation in 2010 the EATC has kept growing. How many nations are now part of the Command?

Nowadays the European Air Transport Command (EATC) is composed of seven nations. The founding nations of the EATC are: the Netherlands, Belgium, France and Germany. In 2012 Luxembourg joined the Command and in 2014 Spain and Italy finalised their accession process. As a result the EATC fleet will represent beginning 2016 approximately 75% of Europe's military air transport capacity.

What are your responsibilities in the organisation of EATF live-flying exercises?

The EATC is running two major EATF live-flying events: the European Air Transport Training (EATT) and the European Advanced Airlift Tactics Training Course (EAATTC), which allow many nations to work together as participating nations (PNs) or observers.

Initiated by the EDA, run by EATC and supported by a host nation, EATT and EAATTC are conducted to enhance interoperability between PNs. The EATC, as a centre of expertise in all air transport-related matters, is to develop common procedures in order to enhance interoperability in the fields of air transport, aerial delivery and air-to-air refuelling to ultimately reach a higher level of mission effectiveness and efficiency.

The EATT provides crews with the opportunity to train predefined and specific training objectives, set for crews as well as for intelligence (multinational Intel Cell) and maintenance (multinational cross-servicing team) personnel. While EATT is a training event,

EAATTC is a course in which crews can qualify for tactical qualifications for single ship, multiple ship and night vision operations.

Subject matter experts from the EATC Functional Division are responsible for developing the in respect to the syllabus of these events which is also being used to test and evaluate the outcome of interoperability studies that EATC is conducting.

How are you preparing for the entry into service of the A400M in European air forces?

As the biggest future user of the A400M, the entry into service of the A400M is made one of the top objectives of the EATC. Right from the start the EATC has worked in close cooperation with the Multinational Entry into Service Team (MEST) in Orléans, France, to prepare for the arrival of the A400M in France and to facilitate the information exchange concerning the identified obstacles. The EATC is actively involved in regard to the A400M employment, the work on the interoperability framework, employment concepts, aeromedical evacuation solutions and airworthiness harmonisation. Today common policies and standards are developed in coordination with the A400M-user nations in the domains of operations, training and logistical support. The EATC is also chairing the A400M Operational Users Group (A400M OUG), which has been designed to enhance communication between actual and future A400M-users. This has set the pace for an effective multinational cooperation regarding the successful entry into service of the aircraft in the respective European air forces.





The European Air Transport Fleet partnership was signed in 2011 by 20 participating nations.

Its main objective is to increase the European Union's airlift capabilities by addressing shortages and increasing interoperability.

FACTS & FIGURES

A THREE-PHASE STRATEGY

PHASE 1 2012-2014 PHASE 2 2015-2017 PHASE 3 2017-2021



20 PARTICIPATING NATIONS

- Participating Nation
- Non-Participating Nation
- Diplomatic Clearances Technical Arrangement Signatories

EATC Headquarters in Eindhoven

A multinational airlift training centre will become operational in 2016 in Zaragoza, Spain.

EATT

European Air Transport Training

DELIVERABLES

EAATTC

European Advanced Airlift Tactics Training Course



EATS

European Air Transport Symposium



EATIC

European Advanced Tactical Instructor Course

EATF IN NUMBERS

629 hours flown

64 aircrews trained

42 European transport aircraft involved

in EATF live-flying events since 2012.

EUROPEAN AIR TRANSPORT COMMAND

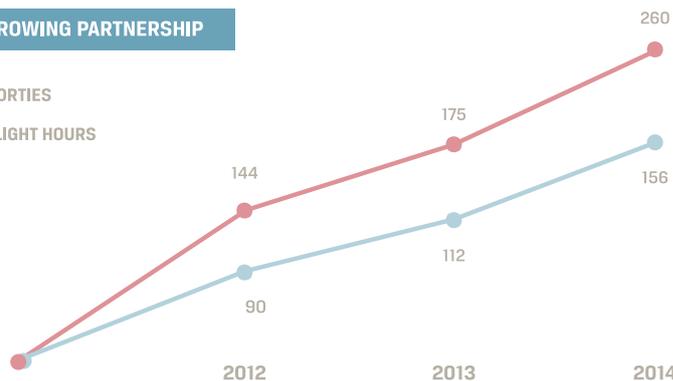


EATC NATIONS

Belgium, France, Germany, Italy, Luxembourg, the Netherlands, Spain.

A GROWING PARTNERSHIP

- SORTIES
- FLIGHT HOURS



All figures up-to date as of 1 May 2015.



> Filling the gaps in space capabilities

Increasing reliance on space for the conduct of military operations raises important challenges for European armed forces. These can be tackled through increased cooperation with other Member States as well as the civil community, as we explain in this story

Military Aerospace special issue

Humanitarian relief, strategic communications, automated navigation, precision strikes, emergency response... The contributions of satellites to the defence and security of European citizens are so numerous that it would probably take more than a page of this magazine to list them all. But while space has become a key enabler for civil and military missions over the past decades, it remains a domain where European Member States are facing a number of capability gaps. This is especially true in the field of satellite communications, or Satcom, which have proven absolutely essential to the success of modern operations.

The increasing dependence on those satellite links, which can be crucial to control a remotely piloted air system flying several thousand kilometers from its base or to access highly sensitive information during the planning and execution of military operations, has created a boom in demand from governmental users. While some of this demand can be addressed by state-owned satellites, whose acquisition and

exploitation comes at a significant national public investment, other ways exist to provide troops on the ground or other customers with this crucial capability.

Signals from space

This is precisely what the European Defence Agency has been doing for a number of years as part of its core mission, which is to help Member States improve their defence capabilities through increased cooperation. In November 2011, the Agency steering board held at ministerial level identified Satcom as a Pooling & Sharing priority, thus paving the way for concrete achievements in that work strand.

The world of Satcom is usually split into three categories. The term Comsatcom is used to define satellite communications procured on the commercial market on an as-needed basis. A second segment, known as Govsatcom, aims to offer secured and guaranteed access to a large variety of users, both civil

and military. A third segment is related to heavily-protected and resilient satellite communications; known as Milsatcom, it is most of the time provided by sovereign systems owned and/or operated by military agencies.

The European Defence Agency's first concrete task was to put in place a 'ready-to-use' cell in order to improve Member States' access to Comsatcom capabilities.



"We are helping to prepare the next generation of Govsatcom satellites that could become operational in the 2020-2025 timeframe"

Gerard Lapiere
Programme Manager, EDA

"The original idea was to offer a 'one-stop shop' for Satcom procurement", Jure Bauer, EDA Project Officer, recalls. "The added value was to allow countries without such capabilities to benefit from a pooled procurement of commercial satellite communications services", he adds.



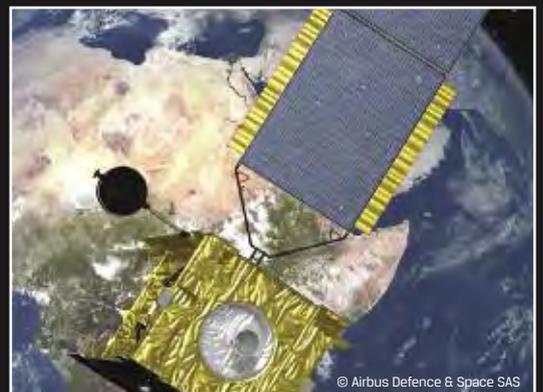
Athena Fidus



Vatican heights detected by satellite radar. data from Italy's Cosmo-SkyMed mission were processed using 'persistent scatterer pair interferometry', a technique that can pinpoint surface deformations and heights over wide areas, with millimetre and metre precision, respectively



The Tesat Spacecom laser communication terminal - integrated on the Eutelsat-9B satellite at Airbus Defence and Space, Toulouse



SkyNet-5

The European Satellite Communication Procurement Cell, or ESCPC, was born. Declared fully operational in May 2013 and renamed 'EU Satcom Market' in 2014 to better reflect its mission, it has since been joined by 13 Member States and is on a steady path to gradual growth. Through this cell, participating countries are able to lease bandwidth to commercial operators such as SES, Intelsat, Eutelsat or others. As of today, around €3 million worth of orders have been passed through this procurement cell, and many more countries have shown their interest to join the club. Thanks to the framework agreement in place, contributing Member States can benefit from an easier access to Comsatcom capabilities in order to fulfill their national needs or to enhance their contribution to CSDP missions.

Maximizing synergies

Beyond this successful Pooling & Sharing initiative, EDA is also working on ways to significantly improve Member States' capabilities in the field of Govsatcom. This work is conducted in close cooperation with other entities, particularly the European

Commission, in order to maximize potential synergies with the civil domain and the European Space Agency – whose active role over the past 50 years has been crucial in making Europe the world-class space player it is today

What is this exactly about? "We are helping to prepare the next generation of Govsatcom satellites that could become operational in the 2020-2025 timeframe",

EDA Programme Manager Gérard Lapierre explains. Along with ESA and the European Commission, the European Defence Agency has been tasked with a clear roadmap to achieve this.

This work-strand is now well on track, under the lead of Spain. A Common Staff Target harmonising the requirements of military users was adopted by Member States in 2014. Based on this commonly →

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EUROPEAN DEFENCE MATTERS is a magazine that matters – and has reach. The official journal of the European Defence Agency, it is circulated to key decision makers across Europe involved in all aspects of defence planning, policy, capability development, research and technology and operations.

The journal supports the Agency's four main tasks:

- developing defence capabilities;
- promoting defence research and technology (R&T);
- promoting armaments co-operation;
- creating a competitive European defence equipment market and strengthening the European defence, technological and industrial base

As a vehicle for marketing communications to the European defence community, EUROPEAN DEFENCE MATTERS has unrivalled reach. The professional readership is in excess of 10,000 and the demographics of the audience ensure that the message arrives directly on the desk of the people who most matter – whether military officers, politicians or professional managers in governmental institutions and industry.

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Our typical readership, featuring appropriate individuals in every nation of the EU, breaks down into the following categories:

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Prime ministers, ministers, deputy ministers, state secretaries, chefs de cabinet, senior advisors - defence departments, foreign affairs, economic development and EU affairs

Other political readers (11%)

National parliamentarians, departmental managers, analysts, institutional officials

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Institutional readers (18%)

EU, EC, European parliament, EUMS, EEAS, ESA, EUMC, Eurocontrol, NATO, NATO ACT, NSPA, NC3A, OCCAR, Permanent representatives, defence attachés

Industrial readers (15%)

CEO/President, senior sales and marketing, business development, government affairs and communications

Academic readers (2%)

Think tanks, universities, R&T organisations

75% of the total circulation is delivered to specifically addressed individuals or direct to EU Member States defence and security institutions.



Ariane 5 lift-off



30 satellite Galileo constellation



Irkutsk and Lake Baikal from Sentinel-1A

agreed document, a new preparation phase started ahead of the launch of a potential cooperative project gathering all EDA participating Member States. By the end of 2016, a business case including more detailed technical requirements as well as a through-life management plan should allow Member States to assess various options in terms of cooperation models and system architectures.

To support this decision the EDA is about to launch a feasibility study in 2015. Since Govsatcom is by nature a dual-use system, the main objectives of this work will be to identify synergies with the Commission and to initiate discussions about the future governance of the system. "Joint solutions are needed, because Govsatcom will not function with a civil or military-only outlook", EDA Space Policy Officer Florent Mazurelle points out. "We will need to clarify and perhaps invent ways to cooperate in a sensitive, complex institutional setting", he adds. ESA will provide its technical expertise concerning the system architecture per se.

With over 35,000 direct jobs in Europe, the space industry is also a key enabler for future developments in that domain. A collaborative approach to future space and defence programmes is therefore paramount in order to secure these high-skilled jobs through

concrete innovation and R&D projects. That is why the EDA also collaborates closely with industry representatives to try and anticipate a balanced and appropriate industrial outlook for its Govsatcom initiatives, making sure that industrial stakes will not hamper future cooperative efforts.

More than just satellites

The Agency's work in the space domain extends beyond the area of satellite communications. Global navigation satellite systems (GNSS) are also a key enabler of civil and military missions, allowing real-time accurate positioning of adequately-equipped receivers on the ground. These systems have effectively replaced the map and compass used a few decades ago, and Europe is on the verge of having its own operational solution in the form of the Galileo constellation of GNSS satellites.

As the governmental service (Public Regulated Service) of Galileo is being deployed, there is a growing interest from the EU military community towards this key service in conjunction with US interest for military use. In order to prepare the deployment of PRS within Member States defence communities there is an interest to define in which situations and on which systems the Galileo services may be used in

coordination with other GNSS solutions. In close coordination with the European External Action Service (EEAS), the Commission, the European Global Navigation Satellite Systems Agency and ESA, there is a need to engage in discussion with Member States to explore how the military and defence sectors can benefit from EU satellite navigations programmes.

Other space capabilities are also being considered. Satellite imagery is one of them: "In that domain, the EU, through the EU Satellite Center (EUSC) depends on national governmental capabilities, and to a great extent, on the commercial market", EDA Project Officer Davide Domizio points out. "Today, the Copernicus EU-led earth observation programme provides some limited capabilities to the EUSC but there is no genuine dual-use rationale behind Copernicus capability developments", he stresses.

In July 2013 its intention to start work related to the development of new high-resolution imaging capabilities. There is therefore a potential benefit for the military community to engage early in the process in order to maximise dual-use opportunities and to relay its security concerns and specific needs. The European Defence Agency aims to facilitate this interaction by identifying future requirements for the 2028-2030 timeframe. **■**

› "Now is the time to do more together"

Further and deeper cooperation required to meet Europe's defence and security challenges, says Federica Mogherini, High Representative of the Union for Foreign Affairs and Security Policy/Vice-President of the Commission and Head of the European Defence Agency

Time and again, paradigm shifts emerge and challenge the very understanding of our security environment. The events which unfolded recently at our Eastern borders, coupled with the deteriorating security situation in the Sahel-Sahara, Northern Africa and the Middle East as well as the rise of armed extremism at home and abroad, all have a serious impact on our common assessment of global security for European citizens.

If Europe is to adapt to this rapidly-changing environment with a revised and more comprehensive foreign policy and security strategy, there are some basic facts we should not lose sight of. First, any security policy would be worthless without the means to back it up – that is, without the capabilities needed to play our role as a security provider contributing to peace and stability in Europe, its immediate neighbourhood, and beyond. But even more importantly, we have to ensure that we retain the key skills and know-how needed to develop the capabilities of tomorrow.

The meeting of EU leaders this June in Brussels signals that defence is high on Member States' agenda. Heads of State and Government will have the opportunity to provide guidance from the highest level and set a course of action. Instruments are at their disposal: the European Defence Agency, which has entered its second decade of existence, is one. Created to facilitate defence cooperation in Europe, it has proven its added value in turning Member States'

requirements into tangible results.

During the December 2013 European Council, Heads of State and Government highlighted the need to address, through cooperative approaches, key capabilities required for military operations: air-to-air refuelling, remotely piloted air systems, cyber defence or satellite communications. And in the present security environment, more shortfalls will certainly have to be addressed.

Over the last 50 years, Europe has been the cradle of some of the most innovative technologies in the world. Sustained investment in research, coupled with high levels of defence spending, helped European industry to become the global – and sometimes lead – player in areas as strategic as space systems, communications, submarines, advanced electronic components or military aircraft.

But these European champions are now operating in a very different environment.

Today, defence in Europe accounts for hundreds of thousands of high-skilled jobs; the political and economic importance of this sector simply cannot be overlooked. Neither can the strategic role of the thousands of small and

medium enterprisers whose position in the supply chain is of critical importance. Without a strong and competitive defence industry in Europe, we would simply lose our strategic autonomy.

However, in recent years, total defence expenditure by EU Member States has dropped by more than €20 billion, while spending in

research & technology has decreased by almost 30%. There are no new major defence programmes in the pipeline to ensure that Europe will retain the key skills and technological resources needed to build and maintain the complex defence and security systems we will need in the years to come.

What can we do to reverse this trend? One immediate challenge is to halt the decline in research spending if we want to maintain the technological excellence of EU Member States. There are several tools at our disposal to achieve this, and we have to make the best use of all the instruments already available. Investment in dual-use research is one of them: to avoid paying twice for capabilities that could serve both the civil and military worlds, better coordination should be ensured between both communities.

Additionally, we should not underestimate the 'spillover' effect of defence research spending which can be critical for the emergence of innovative, breakthrough technologies which will then benefit the civil world in areas as diverse as commercial aviation, materials, electronics or shipbuilding.

Meanwhile, the European Commission and the European Defence Agency are working on ways to fund defence research through the next EU framework programme, starting in 2021. To that end, a 'Preparatory Action' will be launched soon. By breathing new life into declining research budgets, this initiative could prove to be a real game-changer for the European defence sector.

Of course, our efforts to safeguard this set of skills and know-how in the European Union are only worthwhile if we intend to develop and build the capabilities of tomorrow together. The equipment entering service today in European armed forces – such as the A400M military transport aircraft – are the results of cooperative programmes launched decades



"By doing more together, we will also clarify priorities for our defence industry and reduce the fragmentation of supply and demand, thus increasing the efficiency of our defence spending. European taxpayers expect no less of us"



"Cooperation needs to be incentivised. We must make the best use of all EU instruments and policies already at our disposal, in support of an integrated and sustainable industrial base which will help increase Europe's strategic autonomy and ability to act with partners."



ago. Capability gaps need to be addressed cooperatively, and not only because our armed forces are faced with the same operational requirements and challenges. By doing more together, we will also clarify priorities for our defence industry and reduce the fragmentation of supply and demand, thus increasing the efficiency of our defence spending. European taxpayers expect no less of us.

Facing a sharp economic downturn, European countries are often tempted to preserve 'jobs at home', with a real risk of making their defence industry more isolated, divided and substantially weak rather than more interconnected and European. On the other hand, the temptation to buy off-the-shelf abroad – to meet urgent operational requirements or to avoid paying for

development costs upfront – can also be detrimental to the health of our defence sector in the long-term.

Cooperation needs to be incentivised. We must make the best use of all EU instruments and policies already at our disposal, in support of an integrated and sustainable industrial base which will help increase Europe's strategic autonomy and ability to act with partners. At the same time, we need to encourage innovative financial mechanisms. Defining common standards and certification processes could also help facilitate the development of tomorrow's multinational programmes.

Historically, defence has been considered as a strategic activity by Member States, with strong ties between government and industry

ensuring a long-term vision. It should be considered strategic now more than ever before. Today we're facing a real risk of divergence between governments and their capability providers, with a potential 'desertification' of the European defence sector. This would have a catastrophic impact on our strategic autonomy, and on our capability to act as a global security provider.

Now is the time to do more, and to do it together. We need to increase our investment in defence research, and we need to draw a clear path for the programmes of tomorrow. This will not only ensure that we preserve critical skills and know-how for the 21st century, but it will also allow us to retain the capabilities to protect our values and our citizens for decades to come. ■



SEKPY at a glance

SEKPY is the non-profit association of Hellenic Defence Manufacturers. Established in 1982, its mission is to support and promote the interests of its members on the national and international markets while advising Hellenic authorities on defence industrial and research & technology policy. It gathers over 100 companies, mainly SMEs, accounting for more than 12 000 employees in total

Greek defence industry – facts and figures

- More than 100 defence companies, with a large majority of SMEs
- Three major state-owned defence companies
- Total estimated workforce: 15 000+
- Total estimated turnover: €400 million

› The future of this industry lies in European multinational projects

Tassos Rozolis is President of SEKPY, the Hellenic Manufacturers of Defence Material Association

What are the main challenges faced by the Greek defence industry in 2015?

Several points need to be taken into account when analysing the current situation of our defence industry. First, I believe it is still in the process of evolving from a purely 'defence' to a 'security and defence industry'. If we want to take advantage of the growing market for security and dual-use products, while getting access to the associated EU instruments and supporting tools, this should be really considered as the way forward. However, the Greek industry should of course ensure it retains the means to play a leading role in the maintenance and support of the Hellenic Defence Forces. Supporting our companies on the international security and defence market is also a priority – a handful of private small and medium enterprises (SMEs) are already active in this domain, with very promising results.

We need to increase our participation in joint venture projects under leading European defence companies. To achieve this, we have to convince leading defence manufacturers that investing and awarding subcontracting work to Greek companies is not only an obligation in case of a sale contract, but that it could be a mutually beneficial opportunity in the long-term. This is also true of European defence and security research and development programmes, in which we should get more involved.

How could the Greek defence industry benefit from more cooperation at the European level?

Greece's severe economic crisis has resulted in consequent cuts in the defence



budget. A crucial question is, therefore, how to revitalize the defence industry sector in an environment of financial constraints. The keyword here is cooperation. By promoting synergies between Member States, for example, through the framework of the European Defence Agency, we should be able to fulfill our operational needs with European equipment, and at the same time we could boost research and development by funding products that are tailored to the market. The Greek defence industry is eager for investments and transfer of technology, and it offers competitiveness and flexibility through a high-skilled, less costly workforce.

What in your opinion are the most urgent measures needed to strengthen the European defence industrial base?

Common European defence cannot exist if it is not supported by the products of the European security and defence industry. We strongly believe that the future of this industry lies in European multinational projects, and the

EDA's role in that regard is crucial. European countries should cover their needs mainly from European internal market synergies. The competent European authorities should take all necessary measures by following a 'carrot and stick' approach to promote these synergies. From an industrial point of view, they are vital for the SMEs. The leading European manufacturers should be encouraged to spread subcontracting work to SMEs from various Member States. Small and medium enterprises must not be left aside, since they are the heart of EU defence innovation and they form the bulk of the industrial base of smaller Member States.

It is also time to set the stage for European funding of common defence R&D projects. The ongoing work regarding the Preparatory Action for Common Security and Defence Policy (CSDP)-related research, which I hope will be clearly defence-oriented, could become a real game-changer. But to do so, its content and governance should really consider the specifics of defence. ❏



> "We can all benefit from cooperation"



Jānis Karlsbergs, the Undersecretary of State for Logistics of the Ministry of Defence of the Republic of Latvia outlines his country's defence equipment priorities

What are Latvia's current priorities in terms of defence procurement?

Latvia has had to change its development policies and programmes to face Europe's current and future security challenges. The financial crisis hit Latvia hard and the 2008 defence budget was a learning experience for us, underlining the importance of cooperation and efficiency.

Over the last two years we have worked to reverse the trend of cutting expenditure. We will increase the defence budget to reach 2% of gross domestic product (GDP) before the 2020 benchmark; the government has pledged to reach the target in 2018.

But an increase in the defence budget is not an end in itself. These resources will increase the combat readiness and capabilities of our National Armed Forces (NAF) and the

National Guard, modernize equipment, mechanize NAF units, strengthen the early warning system and improve the air defence system.

Could you share a few lessons learned from your country's participation in EDA projects?

Last year Latvia, Estonia, Lithuania, the Czech Republic and Poland entered into an agreement with the EDA to purchase Carl Gustav ammunition. This is the first project which has been managed by the EDA and I believe that there can be more in the future. The EDA can be an excellent tool for consolidating demands of Member States, harmonising requirements and ensuring the link between Member States and the suppliers. And for smaller countries there is the relief from the administrative burden that forms a part of large procurements. Carl Gustav ammunition procurement is a test case and all sides can benefit from the lessons learned.

With Pooling & Sharing our priority has been to work on projects that correspond with the development priorities of the NAF and provide clear financial benefits or valuable information and knowledge sharing.

I would like to suggest closer cooperation with OCCAR and NATO in procurement and research. I am also looking forward to the EDA increasing its capability to manage cooperative projects.

Latvia's defence and dual-use industry is characterized by the prevalence of small and medium enterprises (SMEs). How can the EDA framework assist SMEs in developing and becoming more competitive?

Europe needs a strong defence industrial and technologic base. There is considerable potential for synergies between civil and military research as technologies and innovations become increasingly dual-use. This is particularly significant for Latvia as our industry is mainly dual-use and the synergies between civil and military research are developing. I also believe that SMEs are a source for innovation and are significant contributors to the competitiveness of European industry, while providing solutions to face tomorrow's threats.

But Latvia's SMEs are confronted with time consuming rules and regulations when applying for financing. The EDA can help ease the administrative burden by developing support mechanisms and providing advice.

The pilot project for selecting dual-use technology projects to benefit from European Structural and Investment Funds (ESIF) co-financing is an excellent way of supporting these enterprises and promoting innovation. I am looking forward to the development of this project as a way of increasing Europe's future capabilities and improving our economies. The EU's Competitiveness of Enterprises and Small



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and Medium-sized Enterprises (SMEs) (COSME) Programme is a great interest to Latvia, because it could help to extend the EU's support for defence related SMEs.

In January, Latvia successfully held discussions with the EDA and representatives of the Baltic national defence industries associations on opportunities to promote industrial development within the EU defence market. We also welcome the continued close cooperation with the EDA in Latvia's hosting an ESIF seminar in June.

In March this year you hosted the EDA national armaments directors (NADs) meeting and organized a back-to-back event with the participation the transatlantic partners – NATO and the USA. What are the main issues for transatlantic cooperation?

Interoperability between our armed forces relies on a high level of standardization of processes and procedures. We face the challenge of harmonizing standards among a number of stakeholders – the EU and NATO, Member States, allies and partners – to avoid competing and duplicating standards.

The demand for military standards will fall increasingly outside the traditional military domain and they will need to be applied to the civilian sector – and vice versa. During the meeting we acknowledged that the EDA can play an important part in bringing together

military and civilian sectors and has already made progress via its work on the development of hybrid standards. I believe that the development of new military standards needs to be based on the strong foundations already established within NATO.

Government-to-government sales are an integral part of strategic partnerships, ensuring we have the right capabilities, and are a particularly important part of transatlantic cooperation. They are also important aspects for our industry's business, for cooperation and competitiveness within non-EU and non-NATO markets.

▣ *//////*
"The EDA can be an excellent tool for consolidating demands of Member States, harmonising requirements and ensuring the link between Member States and the suppliers"

//////
 The rise of asymmetric threats requires closer cooperation – from facilitating joint research to procurement procedures and training – while respecting the missions,

decision-making procedures and autonomy of the parties involved.

What are the most important lessons learnt from defence cooperation in Latvia so far? What are the lessons learnt that could be useful for other EDA member states?

Cooperation with Lithuania and Estonia is vital for our security and for the whole region and we have cooperated on issues ranging from defence policy to training, joint exercises, operations and resources. The greatest lesson is that we can all benefit from cooperation even if our countries choose different development paths. We continue to work together well on projects such as the BALTNET (Baltic Air Surveillance Network), the BALTRON (Baltic States Naval Squadron) and the BALTDEFCOL (Baltic Defence College). We are always looking for new collaborative engagements.

This has been a significant year for Latvia with Latvia's presidency of the European Council. I hope that the progress that has been made during these months will serve as a good foundation for the EU's future support of Europe's industry, increasing European defence capabilities and bring closer EU and NATO cooperation! **▣**



> Perspectives on the CSDP

A recent essay collection published by European Geostrategy seeks to shed light on national approaches to the Common Security and Defence Policy, as editor Daniel Fiott explains

Given the turmoil in Europe's eastern and southern neighbourhoods, there has never been a better time to debate European defence. How is the Common Security and Defence Policy evolving in light of the strategic flux being witnessed globally and in Europe's neighbourhood? What more can the European Union

Member States do to further strengthen military capability development within the Common Security and Defence Policy (CSDP)? What financial room for manoeuvre do the Member States have to further commit to defence? What are the main drivers and obstacles behind a more effective CSDP? How do the individual EU Member States view the CSDP and how does the Policy relate to their national interests? These were just some of the questions addressed in a recent essay collection bearing the title: *The Common Security and Defence Policy: National Perspectives*.

Bringing together a host of emerging and established academic researchers, think tankers, a number of policy-makers and retired military personnel, the collection was jointly published by European Geostrategy, the Egmont – Royal Institute for International Relations and the Institute for European Studies at the Vrije Universiteit Brussel. Originally published over a five-month period as individual essays on the online magazine www.europeangeostrategy.org, the consolidated version

of the essays – which was kindly published by the Egmont Institute – serves as a useful go-to guide on the CSDP. The collection is an undoubtedly invaluable contribution to the important and ongoing debate about European defence and each national perspective offers a fresh and unique assessment. A number of essays also depart from a purely national perspective to discuss broader issues such as Europe's strategic environment, defence spending, regional and bilateral defence cooperation, etc.

The chief motivation of the essay contributors was to inform the June 2015 European Council on defence. Following a foreword by the former Executive Secretary-General of the European External Action Service, Pierre Vimont, 37 essays covering 16 Member States look at the present state of the CSDP and the room for future progress. Among the essay contributors are Nick Witney, the first Chief Executive of the EDA, Dr. Hilmar Linnenkamp, the EDA's Deputy Chief Executive, Dick Zandee, former Head of the EDA's Planning & Policy Unit, and Lt. Gen. Ton van Osch, former Director General of the European Union Military Staff.

The essay collection was commissioned and edited by Daniel Fiott, Researcher at the Institute for European Studies and Senior Editor of European geostrategy. 



European Geostrategy
Editor, Daniel Fiott

You can read the collection at:
www.europeangeostrategy.org/2015/05/the-common-security-and-defence-policy-national-perspectives/
Or flash this QR code.



> Interface

In this new section of *European Defence Matters* we review ongoing defence-related exhibitions and cultural events around Europe

Visions of War

Exhibition details

Visions of War Above and Below

2 April 2015 – 25 September 2016

Imperial War Museum, London

www.iwm.org.uk

The advent of manned powered flight completely changed the face of warfare – and it also inspired generations of artists who reflected on this technological change to portray war from a brand new perspective. In a new exhibition called 'Visions of War

Above and Below', which opened its doors this April in London, the Imperial War Museum (IWM) explores a range of artistic perspectives on conflict, from the First World War to the present day.

From the London Blitz to the modern Predator drone, the exhibition brings the best from the IWM's collections, which now cover a century of war in the air. From surreal portrayals of aircraft as creatures, to abstract views of bombing raids and detailed drawings of life in submarines, Visions of War Above and Below features some of IWM's most intriguing artworks, with different viewpoints showing the dynamics of power and vulnerability between those above and those below.



Courtesy of Imperial War Museum

"These artists' visions of war use dreamlike and nightmarish imagery to depict machines that fly or swim underwater, threat from the skies, or scenes from below ground. This exhibition shows the exciting variety, strength and depth of IWM's modern and contemporary art collection", Claire Brenard, IWM Art Curator for the exhibition, comments.

Visions of War Above and Below has been designed to show bold, thought-provoking and personal responses to modern war from IWM's art collection. Making connections between modern and contemporary artworks, the exhibition shows the symbols and motifs that artists use to represent and question the complexities of conflict. **K**



Churchill – De Gaulle

Exhibition details

Churchill – De Gaulle

10 April – 26 July 2015

Musée de l'Armée – Hôtel des Invalides, Paris

www.churchill-degaulle.com

Commemorating the 70th anniversary of the victory over Nazism and the 50th anniversary of the death of Winston Churchill, the Musée de l'Armée is staging an exhibition meant as a tribute to two major characters of the Second World War.

The intersecting paths of De Gaulle and Churchill are explored through objects, paintings, uniforms and archives, some of which are put on display for the very first time. A set of multimedia devices designed for the exhibition will also help recreate the military and historical context.

In order to set up the event the organisers have benefitted from the backing of many partners, such as the Churchill Archives Centre in Cambridge and the Musée de l'Ordre de la Libération.

The exhibition, produced jointly by the Musée de l'Armée and the Fondation Charles de Gaulle, is under the patronage of Mr François Hollande, President of the French Republic, and Her Majesty Queen Elizabeth II. **K**

Key Quotes

Page 12

"Since 2010, the European Defence Agency has been tasked to support Member States' armed forces in the identification of the operational and financial risks associated with the implementation of the Single European Sky air traffic management research programme (SESAR). This is no small feat."

Roland Van Reybroeck, EDA Cooperation, Planning & Support Director



Page 39

"We have cooperated on issues ranging from defence policy to training, joint exercises, operations and resources. The greatest lesson is that we can all benefit from cooperation even if our countries choose different development paths."

Jānis Karlsbergs, the Undersecretary of State for Logistics of the Ministry of Defence of the Republic of Latvia



Page 16

"The military is a very important stakeholder of the SESAR Deployment Manager (SDM). SDM will



conclude a cooperative arrangement with the EDA to formalise the exchange of information crucial for drawing up the Deployment Programme."

Massimo Garbini, Managing Director, SESAR Deployment Manager

Page 12

Military fleets with some 9,500 diverse aircraft form the single biggest 'airline' operating in European airspace, with more than 150,000 flights each year

Page 24

EART15 gathered AAR aircraft from France, Germany, Italy and the Netherlands. Over the course of the event, **56 sorties were flown** by the tankers which conducted **over 240 contacts** with receiver aircraft. These included F-16s, F/A-18s, F-15s and Eurofighters

Page 18

"As early as 2013, Member States gathered around the table in the framework of the European Defence Agency to exchange views on what a future European Medium Altitude Long Endurance remotely piloted aircraft system could and should look like. Together they endorsed an initial set of commonly-agreed requirements to draw the portrait of this upcoming European drone."

Jorge Domecq, EDA Chief Executive



Page 35

"By promoting synergies between Member States, for example, through the framework of the European Defence Agency, we should be able to fulfill our operational needs with European equipment"

Tassos Rozolis, President of SEKPY the Hellenic Manufacturers of Defence Material Association



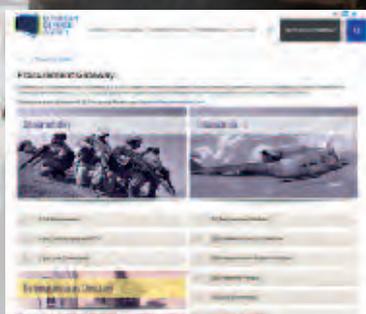
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