



European Defence Matters

Research & Technology: the European option



► Interview: VADM
Matthieu Borsboom,
Defence Material
Organisation Director,
the Netherlands

► The benefits
of maritime
surveillance
data sharing

► "Enhancing
cooperation" –
Raimonds Vējonis,
Latvia's Minister
of Defence

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



**ATBM PROVEN
06TH MARCH 2013**

**ATBM PROVEN
14TH NOVEMBER 2011**

**ATBM PROVEN
18TH OCTOBER 2010**



eurosam

Innovative air defense



Publishing Director
Eric Platteau

Editor-in-Chief
Guillaume Steuer

Editorial Contributor
Philip Butterworth-Hayes

Design
Simon Smith Associates

Printing
Drukkerij Hendrix NV
Kiezel Kleine-Brogel 55,
B-3990 Peer
Belgium

This document is published on behalf of the EDA by PMI Media Ltd in the interests of exchange of information

Front cover image: © Airbus
Other images: EDA

Contacts

Eric Platteau
Head of Media and Communication

Guillaume Steuer
Media and Communication Officer

European Defence Agency
Rue des Drapiers 17-23
B-1050 Brussels
www.eda.europa.eu
Contact : info@eda.europa.eu

Advertising

Diana Scogna, Commercial Manager
145 bis, Blvd. Voltaire, Bâtiment 9
75011 Paris, France
T: +336 62 52 25 47
dscogna@dsmedia.com.fr



EDA is a member of the
European Military Press
Association

Catalogue number QU-AC-15-001-EN-C
ISSN (1977-5059)



Contents

Welcome

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

European Defence News

- 6** **News**
New EDA Chief Executive Jorge Domecq takes office
- 7** **EU Affairs**
Successful RPAS deployment in support of Operation Atalanta, EUFOR RCA brings 'Unity Bridge' to Bangui, Joint anti-piracy exercise carried out in the Seychelles
- 8** **Industry News**
Thales and Rheinmetall to upgrade Tiger helicopter flight simulators, Complex live-firing test for European surface-to-air missile, France signs first Rafale export contract with Egypt, Saab teams up with Damen to address submarine market

Cover Story: Research and Technology

- 10** **Preparing the future: European research at a crossroads**
Experts from the European Commission and the European Defence Agency sit down with *European Defence Matters* to provide their viewpoint on the way ahead
- 13** **"EU-funded research must lead to concrete procurement projects"**
Eric Trappier, Chairman of the Defence Business Unit of the Aerospace and Defence Industries Association of Europe
- 14** **Challenging times for the defence industry**
Fabio Liberti, EDA Project Officer in charge of defence and industry analysis
- 16** **Trends in European defence spending**
In times of constant pressure on defence budgets in the European Union, the European Defence Agency has taken a close look at spending trends among Member States to produce its annual Defence Data booklet

Programmes and Industry

- 18** **New wings for Europe's strategic tanker fleet**
Three European nations have agreed to move forward and enter negotiations with Airbus
- 20** **Future capabilities: a long-term vision**
The EDA recently updated its Capability Development Plan, a reference document for defence planners in Europe
- 22** **Demand grows for non-lethal capabilities**
A ten-nation EDA project team is developing a new range of non-lethal capabilities

In the Spotlight

- 24** **"We need to look at an increased interdependence with our EU allies"**
The Netherlands has been at the forefront of European Pooling & Sharing initiatives

Operations and projects

- 26** **Maritime surveillance: a European challenge**
Surveillance of Europe's vast maritime areas is a key element of the Maritime Security Strategy
- 28** **A greener future for Europe's armed forces?**
Through a wide portfolio of projects, European countries are trying to expand the use of renewable energy in their armed forces

Opinion

- 30** **"The prerequisite for improving our security will be enhancement of cooperation"**
Latvia holds the presidency of the European Union for the first six months of 2015
- 34** **"Shepherding Europe's defence establishments towards more effective programmes"**
Nick Witney, Senior Policy Fellow at the European Council on Foreign Relations
- 36** **"Collaboration in defence investment should be the default option"**
Airbus Group Chief Executive Tom Enders shares its long-term vision for European defence

Key Quotes

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

© The European Defence Agency (EDA) February 2015. All rights reserved. The entire contents of this publication are protected by copyright. No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means: electronic, mechanical, photocopying, recording or otherwise, without the prior permission of the EDA. The reproduction of advertisements in this publication does not in any way imply endorsement of their content by PMI Media Ltd or the EDA. The views expressed in the articles are those of the authors and do not necessarily reflect the official position or policy of the EDA.

Make this page work for you

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.

For further information, contact

Diana Scogna

Media Marketing Services International

T: +33 662 522 547

dscogna@dsmmedia.com.fr



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

Senior political readers (9%)

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

Senior military readers (13%)

Chiefs of defence, chiefs of staff, service chiefs, intelligence, budget, capability, research and technology

Middle ranking military readers (18%)

Capability managers, requirements, planning, procurement, operations and intelligence officers

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.



European defence matters now - more than ever

European defence is at a turning point. With a rapidly changing security environment and a constant pressure on defence budgets in the European Union, the need for cooperation has never been more pressing

The tasks issued to the European Defence Agency by Heads of State and Government in December 2013 provided a robust roadmap for the implementation of key capability-development programmes. Progress has been made on most of them, and the recent decision by three countries to move forward with the procurement of a pooled fleet of A330 MRTT air-to-air refuelling and transport aircraft (*see our article page 18*) is only one example of the Agency's achievements since then.

Only a few months from now, during the next European Council, European Union leaders will meet once again to discuss defence matters, acknowledging the fact that the topic remains one of paramount importance for Member States. This is a promising sign for European defence, and a rendezvous that should not be missed. Ahead of this important milestone, the Agency will be active and fully supportive of its shareholders and stakeholders, working out ways to kick-start new cooperative programmes and to find new synergies with existing projects and initiatives.

In any case, new programmes will require a robust European defence technological and industrial base. It has become urgent to halt the decrease in defence research and technology spending – and cooperation might be very

well be the best way to achieve this. Ongoing work on a Preparatory Action for research programmes related to the Common Security and Defence Policy is meant to unlock the financial potential of the EU in that regard. In this magazine, experts from the European Commission, industry and the EDA share their views on this topic of critical importance for the future of European defence.

Nominations at the top of the European defence ecosystem also promise to bring a renewed impetus for cooperation. Federica Mogherini, appointed High Representative/Vice-President and Head of Agency late last year, will now work hand-in-hand with the new EDA Chief Executive Jorge Domecq, who took office in February. Under this new governance, the Agency will look at strengthening existing relations with Member States on defence issues in order to take cooperation to the next level, and to provide their shareholders with new options for cooperation.

The European Defence Agency has now entered its second decade of existence and it will keep doing what it does best: supporting all Member States, irrespective of size, in the development of their defence capabilities. But if we want to succeed, we need to do even more – starting today. **K**

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

News

New EDA Chief Executive Jorge Domecq takes office

Jorge Domecq joined the Agency on 2 February 2015 from his previous position as Ambassador, Permanent Representative of Spain to the Organisation of Security and Cooperation in Europe (OSCE). Here he shares his very first impressions of the European Defence Agency and outlines some of its main priorities for the months ahead.

Mr Domecq, what have been your initial impressions upon joining the Agency?

It is an honour and privilege to have been appointed Chief Executive of the EDA. I am also delighted to be working once again on defence – something in which I was deeply involved earlier in my diplomatic career. I have met the staff individually: like me, they are totally committed to delivering tangible output and dealing with the challenges ahead. The EDA is now into its second decade. I want to congratulate my predecessors for the tremendous amount they have achieved. The EDA is a reference body at the disposal of Member States. We are there to support their efforts to improve capabilities in a pragmatic and flexible manner. European security and defence are at the top of the political agenda. Under the authority of the Head of Agency and High Representative Federica Mogherini, I am committed to delivering and taking European defence cooperation to the next level.

What are your priorities?

The initial contacts I have had with our shareholders have confirmed that the EDA's expertise and operational output is not only recognised but also deeply appreciated. The level of engagement from Member States is positive. But we cannot rest on our laurels. I am determined further to strengthen our relations with and support to them. In the coming weeks, I intend to visit each and every Member State in order to gather their views first hand and hear their priorities. We all need to be on the same wavelength. This is all the more important because defence expenditure



in the EU is under continuing pressure: the case for increased cooperation has never been so compelling.

What are your expectations for the upcoming 2015 European Council?

The December 2013 European Council provided us with many tasks, all of which have either been fulfilled or are well on-track. We have seen progress in the four main capability priorities: air-to-air refuelling, governmental satellite communications, remotely piloted aircraft systems and cyber defence. In terms of fiscal incentives to make cooperation more attractive, projects run in the framework of the Agency are now exempt from VAT. And we will present further proposals on incentives, specifically a pooled procurement mechanism. New projects are vital, not just because they will fill current capability gaps, but also because they will boost the European defence industry. So we will be making some proposals, perhaps in areas such as maritime, missile defence or space observation. Research and

technology, including in dual-use projects, is also a key part of what we do, not only to ensure that we invest today in the capabilities of tomorrow, but also to support a strong, technologically advanced and innovative European defence industrial and technological base.

The June European Council will provide Heads of State and Government with an opportunity to confirm their willingness to see act together on defence matters. Public opinion is expecting a renewed impulse in defence cooperation in the face of the present security environment. We need to exploit all available EU instruments and exploit synergies with the civil security sector: after all, the line between security and defence is becoming increasingly blurred, as Hybrid warfare has demonstrated beyond any doubt. Under the guidance of the Head of Agency, Federica Mogherini, and in close cooperation with our Member States and the European Commission, we will prepare a set of substantive proposals for this key rendezvous. **K**

EU Affairs

Successful RPAS deployment in support of Operation Atalanta

From 4 September 2014 to 5 February 2015, an Italian MQ-1 Predator remotely piloted aircraft system (RPAS) operated from Djibouti in support of the European Union (EU) mission. This was a first for Operation Atalanta, led by the European Union Naval Force (EUNAVFOR) off the coast of Somalia to fight piracy in the India Ocean.

The objective was to provide real-time video surveillance of areas where pirates have

been known to operate and to give an early warning of a possible attack.

During the five-month deployment, 28 missions were conducted for a total of more than 300 hours flown over areas such as the northern coast of Somalia, the Bab-el-Mandeb strait and the Gulf of Aden. The MQ-1 Predator was controlled from Chabelley

airbase in Djibouti as well as from Amendola airbase in Italy through a satellite link.

This marked the first time a medium altitude long endurance (MALE) RPAS was deployed in direct support of Operation Atalanta. ◀



EUFOR RCA brings 'Unity Bridge' to Bangui

As part of its mandate to improve the security situation in Central African Republic, EU mission EUFOR RCA recently contributed to the installation of a temporary bridge in the country to facilitate communication between three different districts of the capital city Bangui.

The initiative was launched as part of the European Union's Comprehensive Approach and was meant to provide a temporary alternative to the concrete bridge that is being

built by the EU and should be ready later this year.

Several European countries took part in this truly multinational initiative: the Czech Republic donated the 24-metre bridge upon EUFOR RCA request, Sweden chartered a cargo flight to bring it on-site while Italy's engineers stationed in Bangui assembled it under Czech technical supervision and with the assistance of German-led engineers. Over 1.000 metal parts

were assembled in less than 48 hours.

Dubbed the 'Unity Bridge', the construction was formally inaugurated in January 2015. During the ceremony, EUFOR RCA Operation Commander Major General Philippe Pontières stressed that the bridge "highly symbolizes the importance of the European Union commitment in Central African Republic". ◀



Joint anti-piracy exercise carried out in the Seychelles

A joint counter-piracy exercise was staged earlier this year in the Seychelles involving EU Naval Force Somalia (Operation Atalanta), the EU's civilian maritime security capacity building mission EUCAP Nestor as well as local Coast Guard, Air Force and Police units to practice cooperation between maritime security

entities. The exercise was also designed to test common procedures and tactics for the effective processing of suspected pirates as well as evidence-handling at sea. The exercise involved Italian destroyer ITS Andrea Doria working closely with the Seychelles Coast Guard and maritime police patrol units.

Over the past few years, EUCAP Nestor has provided training to local forces on evidence-handling and investigation techniques related to the anti-piracy mission. Even if the number of pirate attacks has decreased in the region, lack of evidence often remains an obstacle when it comes to prosecution of the pirates. ◀

Industry News

Thales and Rheinmetall to upgrade Tiger helicopter flight simulators

The Organisation for Joint Armament Cooperation (OCCAR) recently awarded Thales and Rheinmetall Defence Electronics (RDE) an upgrade contract for 18 Tiger helicopter simulation systems.

The agreement covers the upgrade of eight full mission simulators (FMS), ten cockpit procedures trainer (CPT) as well as the purchase of two new CPTs to be provided by Thales. These systems will be used by France and Germany for aircrew training.



The simulators will be installed in the Franco-German Tiger training school located in Luc-en-Provence and Phalsbourg in France, as well as Fritzlar in Germany. They will provide the French and German Army with new training capabilities in line with the latest versions of the Tiger helicopter,

namely the Tigre HAD (Hélicoptère Appui Destruction) in France and the Tiger UHT (Unterstützungshubschrauber Tiger) in Germany. These will notably include upgraded communication and datalink systems as well as a compatibility with the Tiger's helmet-mounted sight TopOwl. ❏

Complex live-firing test for European surface-to-air missile

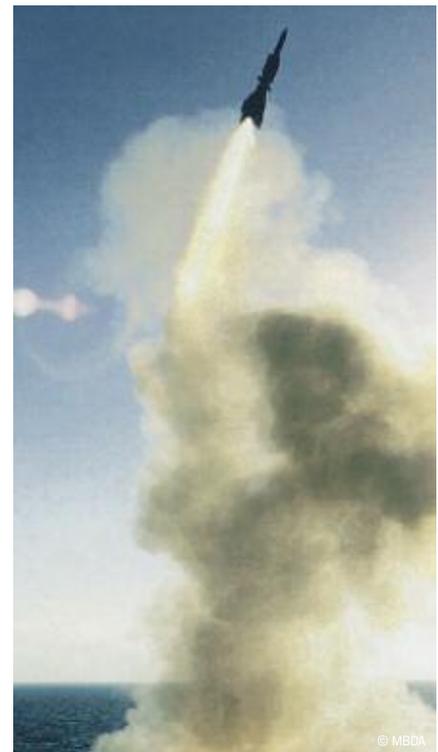
Earlier this year, the missile test division of the French defence procurement agency (DGA) and the French navy carried out a complex test firing of the Aster 30 air defence missile. Launched from the 'Chevalier Paul' air defence frigate, the missile successfully engaged an air target which was pursuing a friendly aircraft.

The objective was to demonstrate the missile's capability to discriminate between two radar tracks in close proximity.

The scenario proved the effectiveness of the PAAMS (Principal Anti-Air Missile

System), a naval air defence system funded by France, Italy and the United Kingdom and developed by European company MBDA for the missile element. It also includes a multi-functional radar, a surveillance radar as well as the associated command and control system.

The ammunition procurement programme is managed by OCCAR on behalf of the participating states in order to achieve economies of scale. The PAAMS is currently operational with the French and Italian Horizon-class frigates as well as with the UK's Type 45 destroyers. ❏



France signs first Rafale export contract with Egypt

On 16 February 2015, French Minister of Defence Jean-Yves Le Drian travelled to Cairo to sign the first Rafale export contract with Egyptian President Abdel Fattah el-Sisi. The contract, part of a larger arms deal with Egypt, includes the purchase of 24 Rafale combat aircraft to be built in France by Dassault Aviation and its industrial partners such as Safran and Thales.

The first aircraft are expected to be delivered to the Egyptian Air Force over the course of 2015. The Rafale deal also includes the purchase of air-launched weapons as well as support and training services for the new aircraft.

"Dassault Aviation is greatly honoured by the Arab Republic of Egypt's decision to



equip its air force with the Rafale," the French manufacturer stated in an official release, adding: "This decision is a continuation of our cooperation that dates back to the 1970s."

Egypt has indeed been a long-time operator of French combat aircraft, starting with the Mirage 5. The country also became the first export customer of the Dassault Mirage 2000 in the early 1980s. "Our two

countries are pursuing a common struggle against terrorism", French Minister of Defence Jean-Yves Le Drian said during the signing ceremony.

The Rafale deal was part of a larger arms package, including a DCNS-built FREMM multi-mission frigate and missiles provided by MBDA, for a total value estimated at €5.2 billion. Half of the amount will be financed by French bank loans. ❏

Saab teams up with Damen to address submarine market

Swedish defence company Saab and Dutch shipbuilder Damen Shipyards Group (DSG) recently signed a partnership agreement aimed at exploring future opportunities in the international market.

More specifically, this teaming agreement seeks to address the future replacement programme for the Dutch Walrus-class submarines, which would have to be phased out during the next decade.

In July last year, Saab acquired ThyssenKrupp Marine Systems (TKMS), which has since been renamed Saab Kockums. The move allowed the Swedish

company to broaden its expertise in the design and manufacture of submarines as well as surface vessels and to increase its global competitiveness on the international market.

According to an official release, DSG currently delivers about 160 vessels annually, ranging in size from 7m to over 200m. The teaming agreement with Saab will allow both companies to work on a successor to the current Walrus-class of diesel-electric attack submarines, four of



which are in service with the Royal Netherlands Navy.

The two companies also stressed that this partnership could lead to "a successful cooperation in more submarine programmes worldwide". ❏

› Preparing the future: European research at a crossroads

At a time when national defence research & technology budgets are declining, several initiatives are on-going to try and tackle this important issue through increased cooperation at the European Union level. Experts from the European Commission and the European Defence Agency sit down with *European Defence Matters* to provide their viewpoint on the way ahead

A 'Preparatory Action for Common Security and Defence Policy (CSDP)-related research' is currently being explored at European level. What is the end objective?

Philippe Brunet, Director of Aerospace, Maritime, Security and Defence Industries within the European Commission's Directorate General Enterprise and Industry



Philippe Brunet, Director of Aerospace, Maritime, Security and Defence Industries within the European Commission's Directorate General Enterprise and Industry

Maybe first a word of explanation. In the Commission's budgetary jargon a Preparatory Action is a generic budgetary term used to describe the testing of a new policy approach requiring financial resources, outside the existing legal base. Accordingly, in the case of CSDP-related research, the novelty is the link to defence, as the current EU Research Framework Programme (Horizon 2020) has an exclusive civil focus. And the end objective of the Preparatory Action would be to prove that it makes sense to have CSDP related research as a fully-fledged component of the next EU Framework Programme, starting in 2021.

This link between the success of the Preparatory Action and the inclusion of CSDP-related research in the next EU budget (2021-2027) seems crucial to me. The Preparatory Action itself will have limited funding (possibly €30-40 million) and, accordingly, limited impact on on-going research activities or on the competitiveness of our defence industry. But its real importance would be to produce successful research cases that could underpin our CSDP and that normally would not be conducted by Member States acting alone. Similarly, we would expect to make a similar case on the side of the defence industry, whereby research projects would foster EU-wide collaboration and consolidate the European Defence Technological and Industrial Base (EDTIB). If this is indeed what will happen, the discussions on the future EU CSDP related research programme can start.

When could the Preparatory Action be launched, and what could be the next milestones?

Philippe Brunet

Our intention is to launch the Preparatory Action in 2017. This means that the work shall start with the drafting of the 2017 European Union budget, which begins early in 2016 and which will include the funding and a first proposal for the Preparatory Action, approved by the Council and European Parliament. The next step would be to prepare and adopt the Commission's decision and communication on the launch of the Preparatory Action, and to draft a work programme, so that first calls can be launched already in the beginning of 2017. As Preparatory Action can last up to three years, the last calls would be announced in 2019.

The last milestone would be the start of the discussions on the next EU budget and the adoption of the next research Framework Programme, the successor of

Horizon 2020, which will take place somewhere in 2021.

In the whole process I see also a very important role for the forthcoming June European Council and its potential support for the work done so far on the Preparatory Action and, more generally speaking, for the idea of future EU funded CSDP related research.

What role will the group of personalities play? What should be the governance of a CSDP-related Preparatory Action?

Philippe Brunet

Commissioner Bieńkowska has created the group of personalities which will be asked to give strategic advice on the set-up and on the governance of the Preparatory Action but also with a view to provide more political legitimacy to the idea of an EU research programme related to the CSDP. Accordingly, the group's members represent all the potential stakeholders interested in such research – chief executive officers from the industry, research institutes, European

Parliament, politicians known for their interest in the CSDP, European External Action Service (EEAS) and representatives of small and medium sized enterprises. We expect the group of personalities to present their final report by early next year. How the governance for the Preparatory Action should look like is also a matter for a more technical dialogue with Member States, carried currently jointly by the Commission and the EDA under the form of dedicated seminars. It is too early to draw more specific conclusions; however, I believe the governance should follow the model of Horizon 2020, albeit with some adaptations to the nature of defence research, in particular in the area of Intellectual Property Rights. We also think that the role played by the EDA in defence research will be properly reflected in this governance mechanism, in particular in the area of the implementation.

What is the current state-of-play of defence-oriented research in Europe?

Denis Roger, EDA European Synergies and Innovation Director

Research in support of the Common Security and Defence Policy is currently conducted by Member States within an EDA framework. It covers a wide variety of domains such as air or naval systems, electronic components, materials or sensor technologies to name but a few. These research activities are driven by innovation and are based on the Strategic Research Agendas established in each technology area. They also link to the Capability Development Plan (*see page 22*) which could be compared to a catalogue of operational priorities for EU armed forces, in particular for CSDP operations. However, the research done in the EDA suffers from the cuts in Member States' defence research budgets. It is clear that a significant budget for CSDP-related research can have a strong impact, especially for topics with EU-added value such →



Denis Roger, EDA European Synergies and Innovation Director



Inge Ceuppens, EDA Project Officer



David Chinn, EDA R&T coordinator



Gerlof de Wilde, EDA Innovative Research Head of Unit

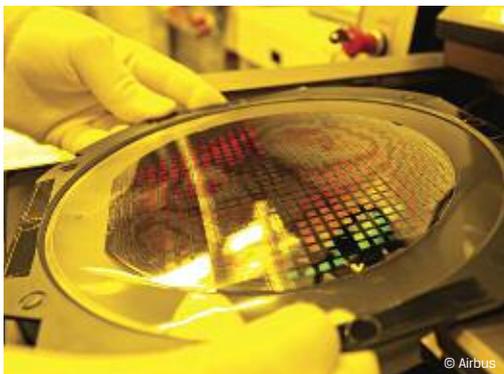


as capabilities needed for CSDP operations in the mid- and long-term future.

How could the specificities of the defence community be best taken into account?

Inge Ceuppens, EDA Project Officer

It is important to remember that research related to defence and CSDP is different from most civil research. There



is no 'normal' commercial market for the research results to be taken up; the only buyers are governments. Therefore, defence companies need to have an idea of a government's needs and procurement plans before it engages in research for defence systems. As a consequence, CSDP-

research differs significantly from civil research. Modalities for the Preparatory Action are discussed in dedicated workshops with the Member States. Important issues to address are how a work programme will be established, which selection criteria will apply, who can participate in the research projects, how the research will be funded and last but not least IPR for industry and user rights for governments.

How differentiated or coordinated with existing security and dual-use research should a future CSDP-related Research Programme covering defence-oriented research be?

Inge Ceuppens

Horizon 2020, the seven-year research programme of the European Commission, already funds some research related to CSDP. The programme foresees, within the Secure Societies challenge, research funding to support the Union's external security policies, including conflict prevention and peace-building. This research is mainly focused on civilian CSDP missions and their needs. In a workshop organised by the EDA and the Commission, Member States have clearly pointed to the need for something new, namely defence-oriented research designed to avoid overlap with the existing Horizon 2020 research scope. It cannot be stressed enough that this defence-oriented research needs to go along with specific rules reflecting the sensitivity of the topic. It also needs to foresee better exploitation of synergies with dual-use technologies.

The EDA supports the development of defence capabilities in the long term, in particular through research projects. What would be the synergies between the Agency's current activities and a new research programme?

Gerlof de Wilde, EDA Innovative Research Head of Unit

The EDA has a long experience of bringing together

national experts who take into account both the military needs as well as the research communities' capacities. This is unique and in fact predates the EDA, which inherited the work achieved in the Western European Armament Group. The EDA promotes, facilitates and manages defence research and is fully aware of its specificities. It is very logical to use this core of experience, which can bring together the necessary knowledge of developing a balanced research programme both for near term research – aiming at new systems and finally capabilities – as well activities for which more innovative thinking is required. A new centrally-funded programme could support core key activities with an EU added-value; meanwhile, Member States could still decide to provide additional funding through an EDA framework (co-funding), leveraging activities and ensuring complementarity with existing research.

How should the Preparatory Action be coordinated with national research programmes?

David Chinn, EDA R&T coordinator

There clearly needs to be a collaborative effort based on the experience outlined above. Some activities will remain national for good strategic reasons, but the Preparatory Action can provide the stimulus for looking at areas of common interest. Centralised funding will clearly help, but Member States will be keen to ensure that EU activities complement national ones. For instance, some activities cannot logically be done at national level or demand a critical mass that can only be reached through joint funding. EU CSDP-related research must be a complement and not a substitute for national research.

The Preparatory Action will clearly need to be connected to national research programmes, as ultimately capabilities are owned at a nation level. Establishing the best mechanisms for complementarity between the national programmes and the Preparatory Action is one of the areas that needs to be tested.

How could the European Defence Technological and Industrial Base benefit from a dedicated defence-oriented EU research programme?

Denis Roger

Over the years the EDA has acquired a strong and solid experience in establishing priorities in the various domains of defence research, elaborating a capability development plan and launching and managing complex research projects involving governments and industry. The missing link is a central budget: the quality of EDA's processes in selecting and managing defence projects is much higher than its capacity to attract funding for them! A centrally-funded defence-oriented research programme will give long-term predictability on research and capability priorities. This is essential for industry since the market is totally dependent on future acquisition from Ministries of Defence. And this will also help it develop its competitiveness in areas critical for future defence systems and for Europe's strategic autonomy. 

> "EU-funded research must lead to concrete procurement projects"



In this opinion piece Eric Trappier, Chairman of the Defence Business Unit of the Aerospace and Defence Industries Association of Europe (ASD), shares his views on the potential benefits of the Preparatory Action for Common Security and Defence Policy (CSDP)-related research

ASD, representing European defence and aerospace industries, welcomes the European Commission's intention to establish a Preparatory Action ('PA') for CSDP-related research, and views as the strategic goal of the PA the preparation of a fully-fledged CSDP-related defence research programme as part of the next Multi-Annual Financial Framework (2021 – 2027).

Key attributes for success of the PA are to demonstrate European Union (EU)-added value, and related to this, complementarity with existing funding mechanisms (national programmes, the European Defence Agency and Horizon 2020). Equally important is to take into account the specificities of the defence sector, especially as concerns funding levels, Intellectual Property Rights aspects, rules of operation, terms and conditions.

There are some specificities in the defence sector, which impact on defence research:

- The defence market is monopsonic in nature, with only one public customer per member state;
- National Ministers of Defence (as final customers, and in charge of providing the necessary technologies to the final users) determine the capability requirements;
- Very long time scales are involved in the development and life cycle of complex defense systems;
- Defence activities are by nature sensitive and therefore subject to specific national rules for handling classified information and export control.

Any EU defence research programme must take these specificities into account. To achieve this, the experience accumulated with the EDA over the past 10 years, together with the previous EUROPA memorandum of understanding, should be taken into account in the definition of the scope

and of the governance to be put in place for the PA and its follow-on defence research programme. Consequently, the conditions of the current Framework Programme, as laid out in EU Regulation 1290/2013, need to be modified for CSDP-related defence research.

Activities under the PA can have various CSDP-related objectives: support of military CSDP missions, interoperability and common standards, security of supply at European level for key defence technologies and capabilities, and new technologies (emerging, disruptive, or coming from other sectors) with major defence potential. In principle, all these objectives will offer EU-added-value, but each of them implies a different approach for identifying and managing research projects.

Hence we recommend using the PA to test how these approaches can best support defence research at EU level. Consequently, the PA should foresee at least one project for each of these objectives; the experience gained from these exercises should then be used to establish a method for the definition of the content of the follow-on programme.

Finally, market uptake is crucial in order to ensure that EU-funded defence research generates new capabilities for armed forces in Europe and business opportunities for the European Defence Technological and Industrial Base (EDTIB).

Most important for industry in this context is market uptake: to generate new capabilities and strengthen the EDTIB, EU-funded research must lead to concrete procurement projects. This is politically and institutionally challenging, since the final customers will be national defence ministries.

Therefore, the PA must explore ways to bridge this gap between EU-funded research and national procurement. This issue should be discussed in the Group of Personalities which will be set up by the European Commission. 





The United States defence industry continues to compete effectively on a global scale

› Challenging times for the defence industry

Fabio Liberti, EDA Project Officer in charge of defence and industry analysis, provides us with an assessment of Europe's defence and technological industrial base

The European Council in December 2013 highlighted the need for a more integrated, sustainable, innovative and competitive defence technological and industrial base, to develop and sustain defence capabilities. In order to do so, it is important for Member States to have a shared assessment of the current trends affecting the European defence technological and industrial base (EDTIB). To assist them in this exercise, the European Defence Agency recently carried out an analysis of the state of this EDTIB.

Several scientific articles focusing on the subject have been published over the last decade, sometimes questioning the definition of a 'European' defence industry, calling for industrial consolidation or comparing the state of the sector with third countries. EDA's analysis is meant to contribute to this debate at a time when new threats emerge on the international stage and when European armed forces are called to contribute to international security and the defence of European borders.

World-class, highly-skilled

The defence industry develops equipment tailored to the needs of European Union (EU) armed forces. Without a strong defence industrial sector, the freedom of action of

EU countries can be seriously compromised.

The European defence sector is today composed of world-class, highly-skilled companies, thanks to decades of strong public investment in the sector and to the technological excellence of EU Member States. The sector is extremely competent and competitive, while being financially healthy. But not everything can be read and analysed through rose-coloured glasses. Several negative trends are affecting the sector, forcing European defence industries to operate in a very difficult environment – and the analysis carried out by the Agency sought to identify them.

First of all, defence investment spending in Europe is constantly decreasing (in real terms, total defence expenditure has decreased by 15% since 2006), while increasing elsewhere in the world (such as in the so-called BRIC countries – Brazil, Russia, India and China).

A lack of programmes

Secondly, there are no new major defence programmes in the pipeline, a situation that will potentially affect Europe's ability to design and manufacture complex weapon systems in the future. Without new programmes, it is increasingly complicated to retain on European soil the key skills and industrial capacities needed to manufacture and maintain complex defence systems. Also, around one-third of the European defence industrial workforce is aged



"Industries are getting more national and more international, but not more European"





Projects, such as the Elizabeth class aircraft carrier are seen as National rather than European

over 50, with the industry facing a risk for a substantial loss of expertise when these individuals reach retirement age. Finally, without new programmes, there is a very serious risk that the defence industry will lose most of its attractiveness for young engineers, who might want to choose a career in the commercial sector.

It should also be underlined that EDTIB players are becoming more and more dependent on the export market, against a backdrop of aggressive global competition (third countries are investing heavily in the defence sector, and promoting actively the development of 'national champions') and increasing demand for technology transfer. Meanwhile, American companies are becoming more and more competitive on the global stage (even if they sometimes remain absent in some specific sectors and markets), thanks inter alia to the International Traffic in Arms Regulations (ITAR) regulation reform.

Need to adapt

In order to adapt to this changing environment, European defence companies are diversifying their activities, increasing the share of their turnover generated from the civilian market and their role as service providers. There also seems to be a growing tendency to see military activities as a problem for a company rather than an opportunity.

Eventually, in a sector historically characterised by strong ties between governments and defence contractors (governments funding research & technology and research & development, granting export licences, acting as prime and often sole customer as well as key shareholder), a loosening of these ties is visible. The risk is a 'divorce' between Europe and its defence industry, with a consequent industrial desertification in the European defence sector and serious impact in terms of security of supply and strategic autonomy/freedom of action.

Again, in the absence of major programmes, the defence industry tried to penetrate third country markets, and had to diversify its supply chain (to cut its costs but



"The sector is extremely competent and competitive, while being financially healthy. But not everything can be read and analysed through rose-coloured glasses"

also to meet the demand for 'local content' mandated by the export market). At the same time, EU countries affected by the economic downturn tried to preserve 'jobs at home'. In the end, European defence industries are getting more national and more international, but not more European.

Against all these backdrops, the European Defence Agency is offering its expertise to help its Member States to develop a shared assessment of the defence industry landscape and status. In these times of critical importance for Europe's defence industry, dedicated actions must be taken to strengthen the European defence technological and industrial base. Europe's ability to launch the programmes of the 2030s and beyond is at stake. 

R&T

Preparing
the future

› Trends in European defence spending

In times of constant pressure on defence budgets in the European Union, the European Defence Agency has taken a close look at spending trends among Member States to produce its annual Defence Data booklet. Here we review some of the document's key findings

For the eighth year in a row, the European Defence Agency has published a comprehensive document gathering data on Europe's defence expenditure. Part of the Agency's mission to monitor and strengthen the European defence technological and industrial base, this extensive work aims to provide the defence community with an overview of defence spending in the EU, both from a macroeconomic and a collaborative point of view. The latest issue of the Defence Data booklet focused on 2013 aggregated figures – the most recent ones available for participating Member States who voluntarily provide the data to the Agency.



Silvija Guzelyte,
EDA Project
Officer Defence
& Industry
Analysis

Trends

"Generally speaking, 2013 didn't contradict the trend we have been witnessing in recent years", Silvija Guzelyte, EDA Project Officer Defence & Industry Analysis, underlines. "Despite the fact that the number of EDA participating Member States increased in 2013 from 26 to 27, the total defence expenditure decreased by €1.7 billion", she adds. In real terms, the total defence expenditure has been declining steadily since 2006. "It has dropped by over €32 billion or about 15% from 2006 to 2013", the officer in charge of the Defence Data study points out. Overall, EU Member States spent €186 billion on defence in 2013. As a comparison, the United States – which remains the world's biggest defence spender – dedicated approximately €600 billion to its military budget in 2013.

The situation is slightly different when it comes to research and development (R&D) as well as research and technology (R&T) spending. Breaking a downward trend that had been observed since 2006, defence R&D expenditure increased slightly in 2013 to €7.5 billion, amounting to 4% of the total defence expenditure. R&T, which is considered a subset of R&D, followed a similar path, increasing by just over 3% from 2012 to 2013 and reaching €2.1 billion.

However, these figures need to be analysed against a set of collective benchmarks for investments agreed

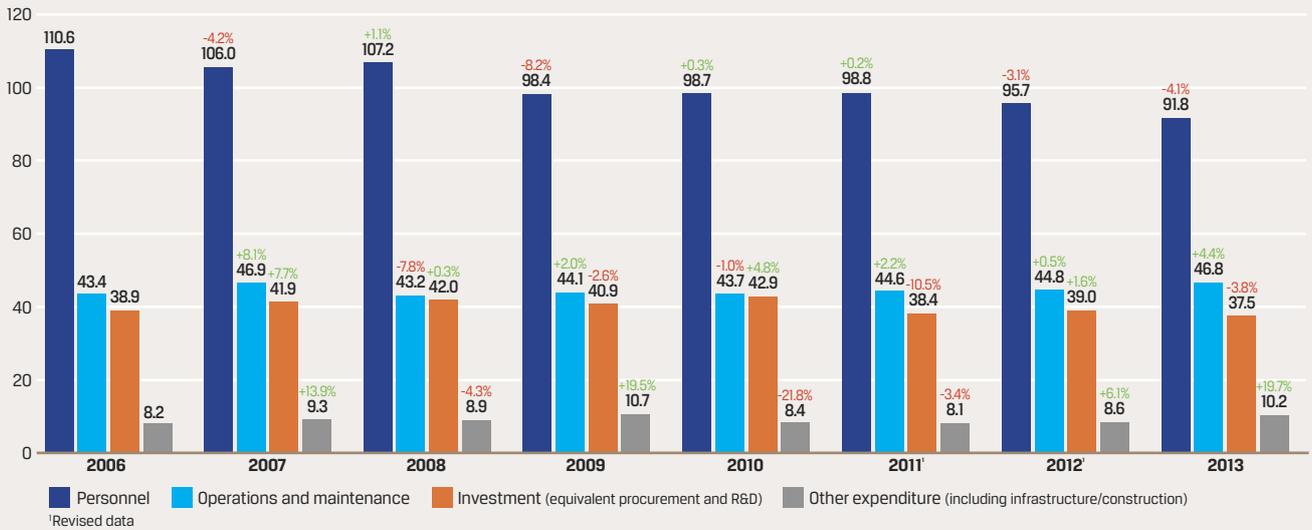
upon by EDA Member States in 2007. According to one of these benchmarks, defence R&T expenditure should amount to 2% of total defence spending. The figures for 2013 fall short of this objective: defence R&T spending only amount to 1.12% of total expenditure. "The steady reduction in R&T spending as a percentage of total defence expenditure is still on-going", Silvija Guzelyte explains, "even if we have witnessed small increases in 2011 and 2013". On the other hand, the benchmark set by Member States on the proportion of defence equipment procurement and R&D (investment) in the total expenditure has been slowly but steadily increasing, remaining above the agreed 20% mark since 2007.

A worrisome trend

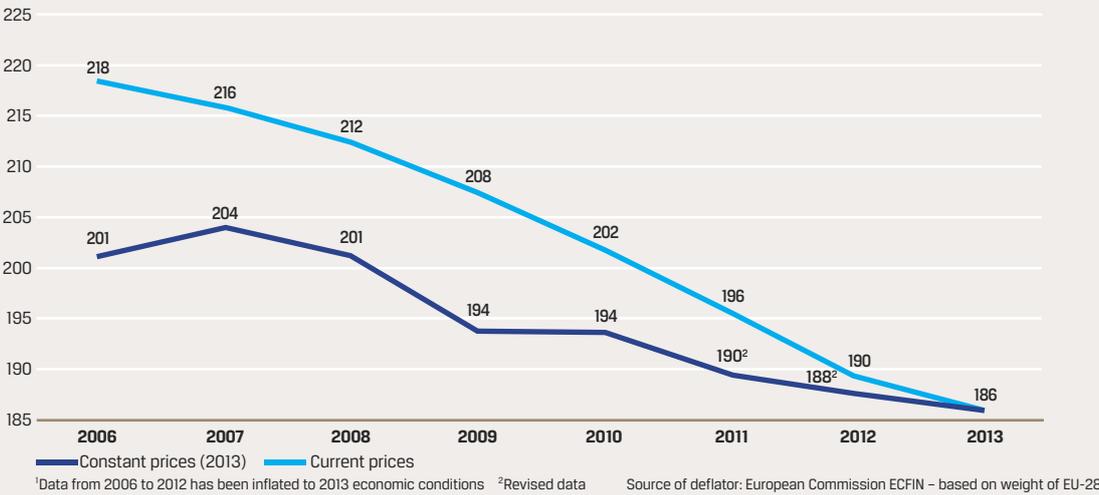
Since 2012, it has not been possible to provide a comprehensive picture of the total EDA Member States' expenditure on collaborative (including European collaboration) defence equipment procurement and R&T projects or programmes, as several Member States were not able to provide this data. However, "a glimpse into the partial 2012–2013 data reveals a worrisome trend, particularly for defence equipment procurement", the EDA Project Officer stresses. Between 2012 and 2013, reported collaborative equipment procurement expenditure decreased by 20.7% to the lowest level since 2006 of €4.75 billion. In relation to the total defence equipment procurement, collaborative expenditure accounted for 15.9%, suggesting that over 84% was spent nationally. European collaborative equipment procurement experienced an even sharper decrease of 21.6%, and in 2013, amounted to €4.50 billion, accounting for 94.6% of the total collaborative equipment procurement.

The total collaborative defence R&T expenditure of the EDA Member States that provided the data also shrank, though less dramatically (-0.9%), to €203 million. Its share in total defence R&T was 9.7%, the remaining 90.3% being regarded as national expenditure. Although the reported European collaborative defence R&T expenditure increased by 21.4% between 2012 and 2013, with a total of €168 million, accounting for 82.5% of the total collaborative defence R&T, it nevertheless remained at a record low. ❏

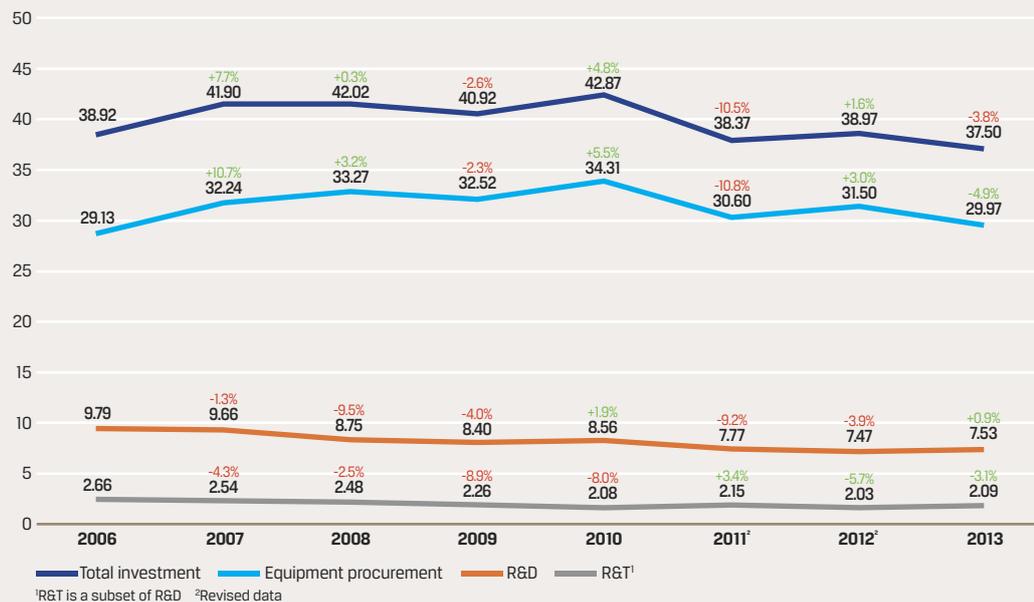
Defence expenditure breakdown (billion EUR and % change on previous year)



Defence expenditure in current and constant¹ prices (billion EUR)



Defence investment breakdown (billion EUR and % change on previous year)



> New wings for Europe's strategic tanker fleet

Three European nations have agreed to move forward and enter negotiations with Airbus for the purchase of a pooled fleet of new-generation tanker aircraft. This initiative will help alleviate some critical capability shortfalls, as we explain in this issue of European Defence Matters

They have become absolutely essential to the success of modern air operations, yet they remain a scarce resource in Europe. Air-to-air (AAR) refuelling aircraft, more commonly known as tankers, are designed to provide other air assets with the fuel they need to increase their range or to loiter for extended periods of time over a battlefield. But as all post-Cold War operations have shown, European air forces are largely dependent on American tankers when they get involved in a coalition operation. During the 2011 campaign over Libya, 80% of all AAR missions were flown by US aircraft, this is no change from what happened in the Balkans in 1999. While Europe is able to field approximately 40 tanker aircraft, the US has over 550 tankers in its inventory.

Addressing the shortfall

To address this shortfall, AAR was endorsed as early as 2011 by the European Defence Agency Steering Board as one of the initial eleven Pooling & Sharing projects. During the European Council meeting of December 2013, the work on AAR was recognised as one of the four key capability projects for EDA to expend even more effort on.

On 19 December 2014, a major milestone was

reached with the decision of the Netherlands, Poland and Norway to move forward together by entering negotiations with Airbus Defence & Space for the acquisition of a common fleet of A330 MRTT multirole tanker transport aircraft. Facilitated by the European Defence Agency who gathered Member States' requirements and drafted a Request for Information which was sent to the industry earlier in 2014, this initiative was carried out under a Dutch lead.

"This project is an example of innovative and future-oriented cooperation between like-minded European countries. It means that the joint capability to act is enhanced", Dutch Minister of Defence Jeanine Hennis-Plasschaert commented right after the 19 December announcement. The global AAR capability in Europe will indeed be strengthened by this new acquisition: while the Netherlands is looking to replace its existing fleet of two KDC-10 tanker aircraft, Poland and Norway currently lack this kind of strategic AAR capability. The joint MRTT acquisition will aim to procure an initial fleet of four A330 tankers, with potential options for more to be exercised later on.

Joint effort

With an initial operating capability (IOC)

expected in 2019, participating Member States will work on placing a contract at the end of 2015 or early in 2016. They will be assisted in this process by the Organisation Conjointe de Coopération en matière d'Armement (OCCAR) and the NATO Support Agency (NSPA), the former providing its expertise in the management of cooperative programmes and the latter acting as the contract holder on behalf of Member States. "This is a model for closer co-operation between nations and defence organisations", explains Pete Round, EDA Capabilities, Armament & Technology Director. "This new milestone is in line with our objective to help increasing the European tanker capability by 2020 and beyond through the establishment a multinational multirole tanker fleet", he adds.

A single configuration has been selected for this common fleet of multirole tanker transport aircraft, which should all be equipped with a rigid boom as well as underwing pods, thus allowing the tanker to refuel all equipped fixed-wing receiver aircraft. They will also meet the users' requirements in terms of passenger transport, cargo transport, and medical evacuation. It is expected that these aircraft will be operated by a multinational unit from a main operating base located in Eindhoven, Netherlands. They should



The A330 MRTT in figures

- Overall Length: 58.80 m
- Overall Height: 17.40 m
- Wing Span: 60.30 m
- Maximum Take Off Weight: 233 000 kg
- Maximum Cruise Speed: Mach 0.86 (550 kt)
- Main Deck Maximum Useable Volume: 335 m³
- Internal Fuel Weight: 111 000 kg
- Maximum Payload: 45 000 kg
- Range with Maximum Payload: 7000 km

Source: Airbus

Images: © Airbus

be placed under the operational control of the European Air Transport Command (EATC) in order to maximise the "Pooling & Sharing" effect of these new European assets. "This is more than just a tanker", Philippe Rütz, the EDA Pooling & Sharing project officer, points out. "Thanks to its modularity, the A330 MRTT will also contribute to an increase in Member States' strategic passenger, cargo transport and medical evacuation capabilities".

Although the project has been kick-started by a small group of three nations, other countries could join the initiative later in the process, be it through the acquisition or the in-service phase. While OCCAR and NSPA will effectively take over from the Agency to conduct negotiations and contracting with Airbus Defence & Space, this doesn't mean EDA will completely disappear from the radar scope as far as this activity is concerned. "It is of great importance to us to try and bring new Member States around the table to broaden this project to a greater number of nations", Philippe Rütz underlines. "The Agency has a role to play in establishing links with other MRTT users in Europe in order to yield operational and economic benefits through a collaborative approach", he stresses.

Synergies

Two other European countries have already chosen the A330 MRTT as their next-generation tanker aircraft: the United Kingdom and France. Even if these were procured through national programmes, potential synergies can be found in the field of support or training. But interoperability between European allies will also be greatly improved. "This could help reduce the European fragmentation in terms of tanker types", Philippe Rütz explains. "Today, the 40 tankers operational in Europe are of multiple different types, and this creates problem when it comes to interoperability and receiver certification", he adds. The EDA is active in that particular field: several air-to-air compatibility certification trials with the Italian KC767 have already been organised to alleviate that shortfall and make sure that tanker aircraft will be "cleared" to refuel as many European receivers as possible.

Another Agency work strand focuses on training, through the European Air Transport

Training (EART) series of exercises, the first of which took place in March 2014 in Eindhoven. For the first time in Europe, it provided tanker crews with the opportunity to share and refine their procedures in a realistic training environment. It attracted interest from several Member States including the Netherlands, Germany and Italy. This first-of-its-kind event offered a great cooperation opportunity for the European AAR community and a second one

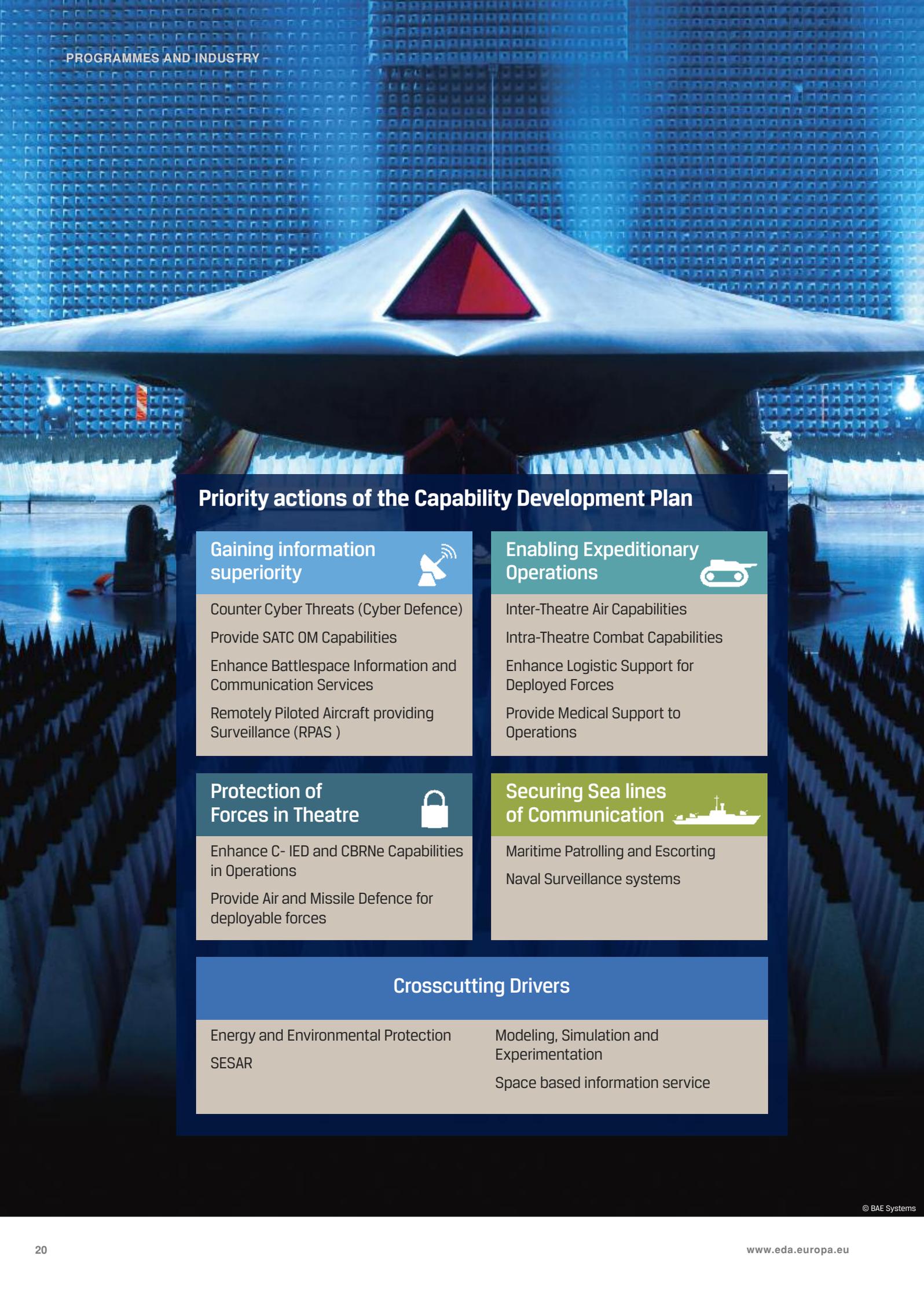
"This project is an example of innovative and future-oriented cooperation between like-minded European countries. It means that the joint capability to act is enhanced"

*Jeanine Hennis-Plasschaert,
Dutch Minister of Defence*



© Dutch Ministry of Defence

will take place in April 2015, once again in Eindhoven. If Member States want to play a substantial role in future air operations while reducing their dependence to the United States, there is only one way forward: doing more together. ■



Priority actions of the Capability Development Plan

Gaining information superiority

- Counter Cyber Threats (Cyber Defence)
- Provide SATC OM Capabilities
- Enhance Battlespace Information and Communication Services
- Remotely Piloted Aircraft providing Surveillance (RPAS)

Enabling Expeditionary Operations

- Inter-Theatre Air Capabilities
- Intra-Theatre Combat Capabilities
- Enhance Logistic Support for Deployed Forces
- Provide Medical Support to Operations

Protection of Forces in Theatre

- Enhance C- IED and CBRNe Capabilities in Operations
- Provide Air and Missile Defence for deployable forces

Securing Sea lines of Communication

- Maritime Patrolling and Escorting
- Naval Surveillance systems

Crosscutting Drivers

Energy and Environmental Protection
SESAR

Modeling, Simulation and Experimentation
Space based information service

› Future capabilities: a long-term vision

The European Defence Agency recently updated its Capability Development Plan, a reference document for defence planners in Europe. In this article we outline the main features of the revised plan

Increased insecurity on Europe's borders combined with continued constraints on military budgets at home have refocused the debate about defence capabilities in Europe. "As capability development is a long-term process, a crucial question needs to be asked: how will Europe retain and develop the capabilities needed to react to threats that may arise in the coming decades?", asks Christian Madsen, Head of Unit in charge of cooperation planning at the EDA.

Since 2008, the Agency has been producing a Capability Development Plan (CDP) to try and answer this difficult question. The CDP looks at future security scenarios and makes recommendations about the capabilities European militaries will need to react to different possible developments. It also has to be endorsed by all Member States, making it a reference document for capability development in Europe. The latest version of the CDP was endorsed in October last year by the Agency's Steering Board and presented to the Ministers for Defence in November.

New threats

"The global security situation has changed significantly since the first CDP was released in 2008", Axel Butenschoen, CDP Project Officer at EDA, points out. "The strategic situation in the European Union and the wider world have evolved considerably, while the economic crisis has also had profound knock-on effects on European militaries", he adds. These recent changes have highlighted the difficulty in accurately predicting what will happen even over a short period of time. The revised CDP recognises this and attempts to take into account the full range of possibilities that might

occur by 2030 and beyond, from a generally peaceful world to worst case scenario of an aggressive environment that includes inter-state conflict.

To date, the capability requirements linked to the Common Security and Defence Policy (CSDP) have focused primarily on crisis management and deployable forces. This is still the case, with no fewer than 16 CSDP Missions and Operations ongoing across three continents. However, insecurity around Europe has begun to shift this focus. "The question of territorial defence is back on the agenda for EU Member States", Christian Madsen underlines.

Focus shift

The issue of territorial defence versus deployable forces is not black and white. Certainly, there are different focuses: in general, territorial defence favours heavier and less mobile weapons, while deployable forces call for lighter, agile and more autonomous forces. These differences should, however, not be overstated: in modern warfare substantial mobility, agility and autonomy are also required for territorial defence, in particular if one state is supporting another in a regional or alliance context.

Consequently, capabilities such as air or sea transport, air-to-air refuelling, and deployable logistics and medical resources remain essential for both territorial defence and deployable forces. One key recognition is that the financial situation in Member States will not allow the development of separate forces for territorial defence and crisis management operations. "Altogether the combination of a reduced quantity of European forces, an increasingly multi-faceted adversary, and the

complex nature of future environments mean that capabilities will need to provide greater flexibility, agility, and adaptability", Axel Butenschoen says.

A global picture

The overall aim of the revised CDP is to support this effort by drawing a picture of European capabilities over time, which can be used by Member States' defence planning when identifying priorities and opportunities for cooperation. The mission of the EDA is to support Member States' defence efforts wherever their focus lies, be it for national, EU, NATO, or UN missions, which are eventually conducted by the same pool of forces. The EDA works to address both short-term operational requirements as well as providing contingencies for possible future developments.

Based on identified trends, capability shortfall assessments, Pooling & Sharing opportunities as well as information gathered from nations and the EU Military Staff, an updated set of "Priority Actions" was eventually selected by Member States as part of the CDP revision process. "In comparison with the trends identified in 2011, we can see a renewed focus on high-end warfare, including a larger maritime dimension", Christian Madsen explains. Detailed enough to allow for tangible progress on capability development, the identified Priority Actions could be undertaken either inside or outside the EDA framework. "At the end of the day, what matters most is to address the critical shortfalls faced by our armed forces – and to do so in the most efficient manner possible", the EDA official sums up. ■

> Demand grows for non-lethal capabilities

A ten-nation EDA project team is developing a new range of non-lethal capabilities to assist military expeditionary forces in areas such as crowd control and base protection

Bosnia, Kosovo, Afghanistan, Iraq... The Cold War aftermath has seen European armed forces engaged in a wide variety of operational commitments around the globe, vastly expanding the set of missions they have to conduct. "Nowadays, soldiers often operate among civilian populations in a set of missions ranging from emergency humanitarian relief to crowd and riot control, counter-insurgency and interposition between warring factions", Jean Michelin, detached to the European Defence Agency (EDA) as an intern from France and acting as Project Officer Engage, points out.

But in these complex and demanding situations, the soldier on the ground can no longer rely on the sole use of his weapon if he wants to avoid a catastrophic escalation of violence.

Somewhere in the broad range of requirements that have fallen on the shoulders of modern armed forces, the need for non-lethal capabilities (NLC) has emerged.

Lessons from Kosovo

For western armed forces, the Kosovo conflict acted as an eye-opening experience in that regard. "In 1999/2000, we had to resort to using non-lethal capabilities during our mission in the city of Mitrovica, where Austrian units were

deployed within German, British and French troops in order to prevent the escalation of riots", Colonel Erich Weissenböck, Deputy Head of the Force Development Division in the Austrian Ministry of Defence, explains. "As soldiers were attacked with stones and explosives, they used wire barriers and other tactics to try and contain the threat. But eventually they had to use tear gas, shotguns and even snipers to stop the demonstrators", he adds.

▣ **"To ensure that a potential threat doesn't enter a protected perimeter (...) it often boils down to the use of the warning shot, which is most of the time impractical, dangerous and can lead to collateral damage"**

Jean Michelin, EDA Project Officer, Engage

by NATO forces in Kosovo, they are virtually non-existent in land forces across the globe, despite an identified shortfall.

"To ensure that a potential threat doesn't enter a protected perimeter, or to deter an angry crowd from approaching a compound, it often boils down to the use of the warning shot, which is most of the time impractical, dangerous, and can lead to collateral damage", stresses Jean Michelin, who is also a French Army officer with significant operational

With today's military experience from various theaters of operation around the globe, non-lethal capabilities could be regarded as a logical step forward for military expeditionary forces, especially when operating under the UN flag and the blue helmet – and yet, somehow, their development has been very slow. Currently, apart from the notable crowd and riot control era experienced



experience. "Moreover, using conventional weapons in a non-lethal manner will usually deter a potential hostile action by an individual, but its impact on a crowd is less reliable, especially when there is a threat of violence escalation", he adds.

Maritime domain

But land forces are not the only ones who might benefit from the development of NLC. The EU-led counter-piracy operation Atalanta conducted off the Somali coast has demonstrated the need for naval forces to neutralise potential pirates before they can attack nearby commercial ships. "In combination with audible or visual warnings, non-lethal weapons provide a stand-off with regards to the threat, thus allowing to identify the real intentions of a potential adversary", Colonel Weissenböck details.

With an identified capability gap on one hand and a proven operational need on the other, ten Member States (Austria, Belgium, Cyprus, Czech Republic, Finland, France, Germany, the Netherlands, Spain, and Sweden) expressed in October 2007 their will to set up a dedicated NLC project team under the framework of the EDA. Over the last seven



© Austrian Armed Forces

years, and under a proactive chairmanship from Austria, the project team focused on four main strands of work, starting with a development of a NLC concept by the EU Military Staff (EUMS), in synergy with similar efforts previously conducted under a NATO framework.

The project team also dealt with information exchange between Member States, to provide them with a forum to remain aware of national initiatives in terms of procurements, cooperation potential, interoperability as well as research and technology (R&T). The effects of non-lethal capabilities were also explored, with a specific attention on legal issues and the medical impact of NLCs.

Future systems

Perhaps the most visible output of the project team's work in the field of NLCs, two R&T studies are being conducted to assess technologies available for future non-lethal weapon systems. "Based on operational experience, a need for longer-range capabilities has already been identified", explains Colonel Erich Weissenböck, who is also the Chairman of EDA's NLC project team. "Additional applications, such as the protection of vehicles and convoys, also need to be explored", he

points out. While one of the studies focuses on microwave-based NLC systems, the other is exploring optical and acoustic solutions.

These two studies help to provide a comprehensive picture of the current state-of-play regarding NLC technology development, as well as of the challenges arising in research. "For example, the technology to direct a non-lethal energy beam at a hostile individual already exists", Jean Michelin underlines. "However, it is still far from the technology-readiness level needed to integrate it into a portable, easily deployable, autonomous and ruggedized device that would match basic operational requirements", he adds.

Equipment opportunities

Although it is still being discussed, the project team's next step could be the identification of NLC equipment opportunities for Member States, as well as the definition of a set of common requirements based on the available technology and an agreed concept of operation. "This in turn could lead to the establishment of a common project whose

exact scope will have to be decided by the Member States", Jean Michelin underlines.

The end objective is to provide European soldiers with a common tactical doctrine and even a common set of tools when it comes to



© Austrian Armed Forces

NLC operations, thus greatly increasing their effectiveness and interoperability. But this will not be a quick win. "In contemporary operations like in cooperative capability development, the only lasting achievements require commitment, caution, time and effort", the French army officer points out. "It is through small victories and determination that we will succeed in reaching our objective, however far it may seem." ◀

> "We need to look at an increased interdependence with our EU allies"

The Netherlands has been at the forefront of European Pooling & Sharing initiatives in recent years and inter-operability of technologies and operational procedures is now a key priority within the country's defence technology strategy, says Vice Admiral Matthieu Borsboom, Director of the Defence Materiel Organisation (DMO)


Matthieu Borsboom, formerly Commander of the Royal Netherlands Navy, is Director of the Defence Materiel Organisation (DMO) in the Netherlands. Previous posts have included Admiral Benelux – Commanding Officer of the combined military staff of the Royal Netherlands Navy and the Naval Component of the Belgian Armed Forces – ISAF Deputy Chief of Staff Stability (Kabul), and Director of Operational Policy, Requirements and Plans for the Royal Netherlands Navy


What are the most important lessons learned from defence cooperation in the Netherlands so far? What should be the way forward in that regard?

Often, when we talk about cooperation, we tend to focus on specific areas such as training or procurement. In my view as Director of the Defense Materiel Organisation (DMO) I think that when considering cooperation on new capabilities, we have to look at it from the widest angle possible: maintenance, life-cycle support, doctrine, simulators... Everything

must be taken into account if we want to yield significant benefits. When we look at potential new programmes, we look for partners that share this same vision.

The partnership we have built over the years with Belgium in the naval domain is a great example of this. Our navies have set an integrated force sharing tasks, people as well as capabilities. What we did more than 30 years ago with France and Belgium as part of the Tripartite-class minehunter programme is one of the oldest examples of European defence cooperation. Building on this equipment programme, we have established a common training and exercise facility, and today the Belgian and Dutch navies are working in an entirely integrated fashion, for example to clear the North Sea of maritime mines. And in the future, we will look together at future plans for the acquisition of next-generation mine countermeasures capability.

The F-35 has been selected as the Netherlands' next-generation combat aircraft. What will be the benefits of this programme for the Dutch defence industrial and technological base?

The programme is now in good shape, and two aircraft are already participating fully in the Operation Test and Evaluation programme in the United States, as well as Dutch pilots. A parliamentary debate is planned for late February, during which we will propose to sign the first low-rate initial production (LRIP) contract. Meanwhile, preparations are ongoing for the transition from the current F-16 fleet to the future F-35.

The objective is to reach an Initial Operating Capability (IOC) in 2021. In terms of cooperation, it seems important to us to align with other future European F-35 users – something that we already take into account in our decisions.

It would be a missed opportunity not to cooperate on the whole lifecycle of this capability. At the same time, we are also looking at the future logistic footprint of the aircraft in Europe. The Netherlands were recently selected to be one of three maintenance shops for F-35 engines in Europe.



The Netherlands is leading a European effort to develop a new-generation multi-role tanker transport (MRTT) fleet. How important is that project to your country's armed forces?

This is an extremely important capability which is used every day by our armed forces. There is a clear need to replace it in order to field a new aircraft as early as 2019, while avoiding a capability gap. We have looked at cooperation in that domain since the very beginning. In 2007, I was personally involved in the SAC C-17 project and I witnessed firsthand the benefits of Pooling & Sharing when it comes to strategic capabilities.

The new MRTT project is building on

"I was personally involved in the SAC C-17 project and I witnessed firsthand the benefits of Pooling & Sharing when it comes to strategic capabilities"



previous experiences such as this one, and we were pleased by the role the European Defence Agency played in the project, bringing nations together and harmonising requirements between them. At the end of the day, what matters most is to have the capability available wherever and whenever we need it, no matter the flag on the aircraft or the location of its main operating base. Together with Poland and Norway, and maybe other partners in the future, we will share the costs of this common fleet and in the end we will benefit from an increased capability.

A new Defence Cyber Command was recently established in the Netherlands. What are your priorities in terms of developing new cyber capabilities?

The DMO is responsible for the whole Information Technology (IT) domain, with around 3,000 staff focusing on this issue. Some of them are working on cyber defence issues, under several work strands such as the protection of essential defence networks or the detection of anomalies. As part of our official defence cyber strategy, our first priority is to have an integrated approach in order to put all capabilities of the Cyber command available to the government agencies that might need them.

We also look at improving our digital responsiveness as part of a 'defensive cyber' approach, while exploring potential offensive capabilities. We have regular exchanges on these issues with our EU and NATO partners. Our overarching objective is to build a

comprehensive knowledge base, then to deliver this expertise to the armed forces.

Is interoperability with other EU allies now a top priority for the Dutch armed forces when it comes to capability development?

I would almost say that this is our number one priority. If you don't have a built-in interoperability in your equipment, you can join a NATO, EU or coalition mission but if you're not able to connect with other partners, you're simply useless. You might have sensors, effectors, command-and-control systems – but if we cannot plug into the global network, we're out of the game. Interoperability is very difficult. It has always been important in the NATO framework, but now with the changing geometry of ad-hoc coalitions it gets more and more complicated. Hybrid connectivity between civil and military systems also has to be taken into account and this is no easy feat, considering the pace at which new commercial standards are emerging. All this seems to be well understood by the defence community, but we need to increase our efforts if we want it to be as effective as possible.

In the short to mid-term, which capabilities could benefit most from an increased cooperation at EU-level?

The opportunities are widespread. I should not exclude any capability from the cooperative approach, which should in fact be the default approach. Of course, when we start talking about completely new capabilities, the

complexity lies in the industrial strategy and the alignment of defence industries at a European level. In my experience, the desynchronisation of national budget cycles can be overcome. What matters is that we have to tackle issues as early as possible, be it for the identification of requirements or the procurement strategy. Part of the reason why we need to cooperate is also to maintain the knowledge base – something we might not be able to afford on a national basis anymore. Eventually, we need to look at an increased interdependence with our EU allies.

What do you expect from an Agency like EDA to boost defence cooperation in Europe?

I have known the European Defence Agency from the capability side for several years now, thanks to my previous postings within the Dutch MoD. I think what the EDA does best is bringing together countries at the earliest stage possible, thus making it easier for Member States to get going with new cooperative programmes. I see more and more countries that just cannot do it on their own anymore; we need to cooperate, but we must not wait until it's too late. One of the reasons why we chose to take the lead on the MRTT project is to send a clear signal to other nations, trying to convince them that cooperation is the way forward. For the Agency to keep proving its added value, it needs to make it as easy as possible for Member States to join such initiatives. Every time the EDA succeeds in reducing their workload, this is a clear victory for European defence cooperation. ■



➤ Maritime surveillance: a European challenge

Surveillance of Europe's vast maritime areas is a key element of the EU's new Maritime Security Strategy. This particular issue requires close collaboration between the civil and military worlds, as we explain in this issue of European Defence Matters

With 23 of its 28 Member States being coastal countries, the European Union has a global role to play when it comes to maritime affairs. By approving a newly-designed EU Maritime Security Strategy (EUMSS) in June last year, the European Council acknowledged this reality and proposed a set of actions aimed at addressing the risks and threats faced by the EU in the maritime domain.

Several areas of development were earmarked in the new strategy, one of them being the enhancement of maritime awareness and surveillance through the development of a 'Common Information Sharing Environment', also referred to as CISE. This long-term roadmap aims to fuse Member States' national maritime surveillance networks in order to enhance the global 'picture' at



EU-level, while avoiding any duplication of efforts. According to the European Commission, 40% of all maritime surveillance information in Europe is collected multiple times by different nations, while 40 to 80% of this data is not shared amongst other interested users.

The roll-out of a new EUMSS is only the latest in a series of projects undertaken by European nations, both collectively and individually, to improve maritime security in their waters. Many stakeholders are involved in this global effort: Member States, DG Mare, DG Home, DG Move, the European Maritime Safety Agency (EMSA), Frontex, the European External Action Service (EEAS)... The need for proper coordination between these different actors is therefore crucial.

The Marsur solution

European armed forces are expected to

play an essential role in the ongoing CISE initiative because of the large number of military-operated systems (coastal radars, sensors or dedicated radio-equipment) contributing to the maritime 'picture' in Europe. But a significant challenge remains: how to ensure that all these military and governmental systems can effectively 'talk to each other', exchanging relevant information with their EU counterparts as well as with civilian stakeholders? Although simple, this question raises a lot of technical and operational issues that need to be addressed in order to provide a seamless 'recognised maritime picture' at EU-level.

For a number of years, through a project called Marsur (Maritime Surveillance), 18 countries have worked on this issue under the auspices of the European Defence Agency, who initiated the programme in 2006. Under this arrangement, software allowing dialog between EU maritime information systems has been developed. Running on dedicated servers



© Italian Ministry of Defence



© EUNAVFOR



© Italian Ministry of Defence

called MEXS (Maritime Exchange System), it relies on an interface installed in each Navy's operational headquarters: Toulon in France, Bodo in Norway, Northwood in the United Kingdom, Roma in Italy. A key characteristic of this network is that there is no central EU component collecting or distributing the information: each nation is responsible for correlating its own data with the data received from other partners. Information shared between Marsur users includes ship positions reports, tracks, identification data, Voice over IP, or even images.

This new capability was first tested live in 2011 and proved promising enough for Member States to continue supporting the programme. After further technical work, it reached an operational level of maturity in 2014; the milestone was announced during the Euronaval defence show that took place in Paris in October. A demonstration was staged to showcase an exchange of information between several countries. A symbolic handover was also arranged to mark the transfer of this capability for Common Security and Defence Policy (CSDP) missions to the EU Military Staff. It sent a clear message to the audience: Marsur is ready to be used – now it's up to European navies to make the most of it.

Way ahead

From the outset, the Marsur system has been designed so that it could easily be integrated into a network of 'systems of systems' and ensure an efficient interaction with other European maritime security

stakeholders. Other similar systems have already been developed: EuroSur (border control), SafeSeaNet (traffic control) or VMS (fishery control). Therefore, Marsur could become the 'military layer' of the global CISE effort. As such, it would support CSDP missions and would also help fulfill a wide spectrum of missions, ranging from natural disaster prevention to search and rescue and fisheries surveillance or even counter-terrorism.

The next step will be to facilitate further technical developments in order to ensure Marsur's connectivity with other maritime security regimes. Close collaboration with the European Commission could lead to Marsur fully playing its role as a key contribution to the EU Maritime Security Strategy, and more specifically the CISE pan-European networking effort. As part of the recently-launched EU CISE 2020 program, the technical platform of this ambitious project will be validated, with a view to reach a full operational capability by the end of this decade.

The new EU Maritime Security Strategy also laid out other areas of improvement for Member States, stating for example that 'capability development should be reinforced, for instance by promoting Pooling & Sharing initiatives and supporting the development of dual-use technologies', and that 'maritime security research and training will be strengthened'. All areas where the European Defence Agency will play a role to ensure that the views of the military community are fully taken into account in this domain of strategic importance to the future of the EU's global presence. ■



Marsur at a glance

- An EDA project launched in 2006
- A software solution allowing dialog between EU maritime information systems through dedicated servers called MEXS (Maritime EXchange System)
- 18 countries are part of the Marsur community: Finland (initial lead nation), Belgium, Cyprus, Germany, Spain, Greece, France, Ireland, Italy, Lithuania, Malta, the Netherlands, Portugal, Sweden, the United Kingdom and Norway
- No central EU component: each country is responsible for correlating its own data with the data received from other partners
- Approximately 2 million euros have been invested in the program through the EDA's operational budget and common MS funding

Europe's maritime challenge

- 23 out of 28 EU Member States are coastal states
- EU Member States are responsible for the control of a coastline over 90 000 kilometres in length, bordering two oceans and four seas
- 90% of the EU's external trade and 40% of its internal trade is transported by sea
- 15 000 vessels are cruising in the vicinity of Europe every day
- More than 400 million passengers pass through EU ports every year
- Approximately 300 public authorities are involved in maritime surveillance activities in the EU

> A greener future for Europe's armed forces?

Through a wide portfolio of projects, European countries are trying to expand the use of renewable energy in their armed forces. The European Defence Agency is at the forefront of this initiative, according to Tom Bennington, Programme Manager Energy and Environment at the Agency

It is hard to overlook that energy and environmental factors are becoming increasingly important as Europe undergoes a fundamental transition towards a low carbon economy and deepens its sustainability agenda.

Energy is a strategic tool in the international system and energy security has grown rapidly in importance as the lessons of Ukraine are analyzed. Against this backdrop and an ever more restrictive posture on carbon emissions and environmental protection, it is difficult to imagine that European Armed Forces will not be impacted by these profound changes: deploying troops to low-footprint, low-energy camps, developing energy efficient and self-sufficient main operating bases, embracing green procurement principles to deliver truly sustainable military equipment and even improved training and welfare services... The impact of this paradigm shift on

the defence community is likely to be major.

For many years, the European Defence Agency has been involved in several energy and environmental issues. Over time, and primarily through its on-going research and technology work, it has accumulated a significant body of knowledge, which has examined areas as diverse as fuel cells for unmanned underwater vehicles, design and construction of lightweight armoured multi-purpose vehicle as well as renewable power and alternate fuels.

The Go Green pilot project

Since 2011, the Agency has organised a series of workshops under the auspices of the seminal 'Military Green' initiative. These proved very popular and set a firm foundation – treating energy as a capability in its own right, rather than the conventional 'commodity' approach. Running parallel in the armaments

field, the European armed forces 'Go Green' pilot project sought to take advantage of land and buildings belonging to the military in order to capitalize on this irreducible spare capacity for solar power generation through a novel financing approach.

The pilot, which began in March 2012, is now drawing to a close. According to all parties involved, it has exceeded expectations in delivering a fully-sized, industrial capacity solar facility at the Paphos military airbase in Cyprus. As part of this project, a 5MW facility will deliver power to the local community and the adjacent civilian airfield out until 2034. This marks a significant milestone as the project was funded entirely through a Private Finance Initiative (PFI), thus coming at no cost to the Cyprus Ministry of Defence (*see interview*). The project has been managed by a consortium gathering Schneider Electric and Hanwha Q Cells under the lead of Gamma Solutions.

>> GO GREEN – a contractor's view

Three questions to Carlos Almodóvar, Planning & Development Manager, Gamma Solutions (consortia lead for the Go Green project)

Was the Go Green pilot project your first experience working with a military customer?

Yes, this is first time Gamma runs a private-public partnership with military institutions. It has been exciting to witness the welcome received and the enthusiasm showed by the military personnel and all the relevant authorities in Cyprus. We do believe this project will demonstrate how armed forces can contribute to strengthen renewable

energy importance within the energy mix in all the Member States.

What were the main challenges associated with this project?

Gamma has a strong background in developing and executing photovoltaic (PV) projects in the UK, and our experience shows that all PV projects are difficult to manage because of legal, property, environmental or health and security issues. This specific project has represented an additional challenge as it comes from an international tender, where Gamma bid against strong multinational companies. And the power plant is located inside a military airbase, where specific and very restrictive security and operational requirements apply. This

pushed Gamma engineers to move one step beyond in the design and the layout of the plant. Altogether, this made EDA's Go Green project an impressive challenge for us.

Do you see an important market with European defence customers?

Many elements suggest that the paths of defence institutions and energy companies should cross: armed forces are one of the most important landowners all around the world; the energy demand continues to grow in all industrialized countries, while environmental issues and the use of green energy resources are increasingly taken into account. Continuous research and development improvements also contribute to making green energy cheaper and cleaner. From Gamma's point of view, the Go Green project represents the beginning of what could be a long and very productive partnership.



Way ahead

So what next for the EDA approach in this area? The restructuring of the Agency in January 2014 provided an opportunity to bring all of its disparate work strands together in a single programme. The universal nature of energy and environmental factors can be challenging to prioritize; this programme was therefore designed to deliver a portfolio of activities, capitalising on previous work but integrating the activities across the capability, armaments and research perspectives. The portfolio is built to reflect Member States' priorities as listed in the newly revised Capability Development Plan (*see page 20, this issue*). It also takes into account previous studies, lessons from the Go Green pilot project as well as two new project initiatives for 2015.

Smart energy camps

The first project aims to deploy a 'Smart Energy Camp' technical demonstrator to a European Union (EU) Common Security and Defence Policy (CSDP) operation, thus demonstrating the benefits of new energy technologies in reducing diesel consumption at a military site. This should be achieved through the use of renewable energy, from both wind and solar power sources, to be integrated into the power supply through a novel smart grid technology. The demonstrator builds on the outputs of previous 'Military Green' workshops organised by the EDA and is a tangible step towards fully sustainable deployed bases where water, waste and energy would all be managed in a more sustainable fashion, both efficient and with minimal adverse impact to the environment.

The second project will develop a Strategic Research Agenda for energy technologies with a specific objective of identifying candidate 'dual-use' technologies that might benefit from EU funding instruments such as Horizon 2020 and, in some circumstances, EU Structural

Funds. The work will run throughout 2015 and will draw heavily on Member States' national priorities in order to reduce duplication and share best practice.

Cooperation among stakeholders

Since September 2014, the Programme has been governed through the EDA's 'Energy and Environment Working Group' supported by 17 Member States – and still growing. As well as managing the portfolio, the group is looking to expand its activities in the areas of biofuels and human factors; work in these areas is expected to launch in the second semester of 2015.

Last year also saw closer cooperation between the EDA and the European Commission in the defence energy field, and a closer liaison with DG ENER staff as they plan their own consultation for energy in the defence and security sector. The consultation was proposed as part of the Commission's July 2013 Communication 'Towards a More Competitive Defence and Security Sector'; it is hoped this work will come online in the early part of 2015 and provide tangible benefits to Europe's defence sector. 



Tom Bennington, Programme Manager, Energy and Environment, EDA

>>GO GREEN – a Defence Ministry view

Three questions to Mr Christos Malikkides, Permanent Secretary of the Cyprus Ministry of Defence

How important is the Go Green project to Cyprus?

Cyprus is a small country, but as a Member State represents the eastern most reach of the European Union. We take this role very seriously as ambassadors of the EU in this important and geostrategic region of the eastern Mediterranean. We are pleased to work closely with the European Defence Agency in military matters and to integrate this defence specific initiative with the wider policies concerning climate change and the need to move towards renewable energy sources. Go Green is therefore an important project for Cyprus as it marks our intent to both improve defence collaboration and to meet our renewable energy targets.

Will Cyprus work more collaboratively in the future?

We are always looking to learn and share best practices in the defence field and as budgets for the armed forces across Europe are contracting, it makes sense to look at newer models for procurement, where risks and benefits can be shared amongst like-minded partners. We have recently placed some of our MoD staff within the EDA and look forward to the opportunities they can identify.

Nicosia is a long way from Brussels – is it practical to increase your input to the EDA's work?

We are well represented in Brussels through our permanent staff and we take advantage of videoconference as well as online working opportunities. We may be located far away in geographical terms, but as I said before, we are fully engaged in EU business and are delighted to be in first position regarding the Go Green energy project.



"The EDA brings together national experts, policy-makers, armaments directors and ministers, therefore has the potential to develop a project from an idea through to implementation"

© Latvian Ministry of Defence

> "The prerequisite for improving our security will be enhancement of cooperation"

Latvia holds the presidency of the European Union for the first six months of 2015 and Raimonds Vējonis is the country's Minister of Defence. These are important times for Europe's defence institutions and he outlines here his priorities for the coming months

Minister Vējonis, what are Latvia's priorities on CFSP/CSDP for the EU presidency?

One of the underlying tenets that shaped Latvia's approach to our Presidency is the principle of 'Engaging Europe'. Enhancement of the European Union's (EU) global role and strengthening the security and welfare of the EU's neighbourhood is our main priority. But we have also been affected by the evolving security situation in the EU neighbourhood and the upcoming European Council discussion on defence in June 2015. Latvia will contribute to the preparations for the European Council of June 2015 and will underline the importance of continued progress on security and defence issues throughout its Presidency.

To increase the welfare and prosperity of EU citizens we have to work hard on increasing security. In this regard I see that in the area of the EU Common Security and Defence Policy (CSDP) we have to increase cooperation with our partners, especially to enhance transatlantic cooperation. NATO is an important partner for the EU, since 22 countries are members of both organizations. We also have to work more closely with the USA. The USA has been an important actor within the European security architecture and has participated in some CSDP missions. By deepening EU-US cooperation on CSDP, there is also an opportunity to reinforce existing EU-NATO dialogue and bring that cooperation to a new level.

Europe has seen important changes to its security environment in 2014 and the beginning of 2015. How can European countries cooperate to face these new or hybrid threats?

Indeed, there have been a lot of dramatic events happening in this period. These events have strongly shaped our approach to defining priorities for the Presidency of the EU Council. Russia's aggression in Ukraine gave us a clear view on how dangerous hybrid threats can be. We have seen Russia trying to reach its geopolitical goals not only by military means, but also with propaganda. It is done with the aim of destabilizing the internal situation of the targeted states and changing public opinion in favour of the Kremlin's ideology.

Also, the terrible tragedy in Paris showed us that the terrorism is still a threat to internal security, and it needs to be tackled both by external and internal means. It is clear that instability of our neighbourhood, increasing flows of illegal immigration, the rise of the ISIL in the Middle East and the continuing instability of the North African region are just some of the terrorism sources.

What were the lessons learned from the joint exercises conducted with other Baltic countries last year?

A number of joint exercises conducted every year with the participation of the Baltic Countries and other NATO member states such as, 'Sabre Strike', 'Silver Arrow', 'Operation Summer Shield', 'Steadfast Javelin II' and 'Baltic

Host', provides an opportunity to test our soldiers' high performance and readiness, as well as improving their cooperation, interoperability, professional skills and knowledge.

Since 2013, when the NATO exercises 'Steadfast Jazz 2013' with the incorporated exercise 'Baltic Host 2013' were conducted in Latvia, we have identified a number of improvements to ensure a better cooperation among the Baltic States. Lessons learned will be implemented during the exercise 'Baltic Host 2015'.

Several projects have been launched in recent years under the Baltic Defence Cooperation framework. What is the current status of this collaborative effort?

We have launched important projects within the Baltic defence cooperation format. The recently established Baltic Combined Joint Staff Element will deepen coordination on an operational level among the Baltic States. The Baltic Battalion is a combined unit consisting of more than 1,000 soldiers from Latvia, Estonia and Lithuania under a common command structure. With this unit we will participate in NATO exercise 'Trident Juncture' this year and we have also applied to take part in NATO Response Force 2016.

Likewise, the future of existing projects, such as BALNET (Baltic Air Surveillance Network), BALTRON (Baltic States Naval Squadron), BALTDEFCOL (Baltic Defence College) is being discussed in our meetings. →

What role can European institutions play to facilitate cooperation between Member States? How can regional cooperation contribute to such efforts?

European institutions, particularly the European Defence Agency (EDA), have a unique ability to address the capability gaps, help Member States to make better use of their resources, identifying and developing new and innovative technological solutions thus contributing to the European ability to respond to the changing security situation.

In the same time the EDA has a great untapped potential. The EDA brings together national experts, policy-makers, armaments directors and ministers, therefore has the potential to develop a project from an idea through to implementation. In some cases the EDA, when tasked by Member States, can have a role of facilitator between the EU institutions and Member States, as it has done for the Single European Sky Air Traffic Management Research (SESAR) – a programme where the Agency has consolidated military views and interacted with other involved institutions. Furthermore, the EDA has the ability to improve mutual trust among the member states thus creating an environment where all parties involved are ready to invest and contribute

We would like to see that the June 2015 European Council continues discussions on the European Commission's more active part in research and technology and the development of dual-use capabilities.

Enhancing synergies between the civil and the military spheres was one of the key tasks of the December 2013 European Council. How do you assess the steps taken in this direction so far and how could such synergies benefit the European defence technological and industrial base?

One of the most important aims of EU defence industrial policy is to develop a competitive European Defence Technological and Industrial Base (EDTIB). Work has been started on assessing and improving regional cooperation in the Baltic States and the possibility of developing defence industrial clusters to boost the industrial capacity of the region. Our experts worked on this during the seminar that was hosted by the Latvian Ministry of Defence on January 8, 2015 in cooperation with the EDA.

In Latvia we have small and medium-sized companies that specialize in niche products. Consequently they have the advantage of being



able to produce specific products that have limited demand and therefore are not the focus of the large companies. We believe that small and medium enterprises are a vital part of the defence supply chain, a source for innovations and significant contributor to the competitiveness of the European industry.

What are Latvia's expectations towards the European Council in June? What priority defence topics need to be discussed by Heads of State and Government? Or in other words, what concrete tasks do you hope for?

I believe we have to review our strategic documents. For example the first sentence of the European Security Strategy states that: "Europe has never been so prosperous, so secure nor so free". Such words which held true in 2003, when the strategy was drafted, are increasingly at odds with today's reality. This clearly means that the Strategy needs to be reviewed and European Council in June should undertake this task.

The prerequisite for improving our security will be enhancement of cooperation – among EU institutions, Member States and our international partners – the NATO and the USA in particular. By sustaining the momentum of action and improving cooperation, we have a real chance to enhance our security and therefore our prosperity. Three main outcomes from the European Council should be expected – first, reviewing the European Security Strategy; second, enhancement of cooperation inside the EU and with its partners; third, working to enhance the EU's response to hybrid threats.

Last year, the European Defence Agency signed a framework agreement on behalf of Latvia, Estonia, Lithuania, the Czech Republic, and Poland to purchase Carl-Gustav ammunition. By pooling demand, the participating countries can benefit from economies of scale. How do you assess the

EDA's role in achieving such benefits for Member States?

The Joint Procurement Initiative on the common purchase of the Carl Gustav ammunition is a good example of the EDA exercising its role as a facilitator of cooperation projects. The project started as a regional cooperation among the Baltic States and was joined by Poland and the Czech Republic.

The participation provides several contractual advantages that one country would not have, especially smaller countries with a lower level of consumption. The advantages are multiple, such as flexibility for orders. Having the EDA as the administrator of the project means that participating countries can save on the administrative duties and procedures. Smaller countries may find it challenging to establish a dialogue with the industry while the EDA can be an efficient mediator.

In which other areas of capability development do you see a strong role for the EDA?

The EDA in general should strive to encourage cooperation in projects that increase our regional security, help to remedy our capability gaps while remaining aligned with the Capability Development Plan – thus having a bigger impact on Europe's defence architecture.

If we look at the big picture, I believe the next development phases of the major capability development projects – such as Remotely Piloted Aircraft Systems – could be expanded and diversified to include also Member States with smaller scale interests.

Latvia takes part in several EDA projects that help us to develop more efficiently our national capabilities and to connect with other Member States – such as the Cyber Ranges and Maritime Surveillance projects. Acknowledging also the importance of maritime security, we look forward to seeing how the newly adopted European Maritime Security Strategy and its



Latvian and U.S. troops at Adazi Training Area, Latvia



related Action Plan will be integrated in the Pooling & Sharing initiative.

How do you see Latvian defence evolve in the future?

The heart of the matter of the main principles of Latvian national defence will continue to be the development and modernisation of national defence capabilities, strengthening Euro-Atlantic security and defence, and contributing to international security.

Being aware of the importance of resource

issues I have been actively working together with members of government and parliament to increase defence spending. Last year the Parliament adopted the Law on National Defence Spending, stipulating a gradual yearly increase of the defence budget, reaching 2% of gross domestic product (GDP) by 2020. Defence spending has already increased this year and is being invested in the development of critical capabilities, such as air defence, strengthening the National Guard and the mechanization project of the Latvian Land Force Infantry Brigade.

But it is not only about how much we spend on defence but how efficiently we use these resources. The development of the Latvian National Armed Forces is set out in the National Armed Forces Development Plan for 2012–2024, providing the goals, tasks and terms for capability development. Furthermore, Latvia's defence system is closely integrated within the EU and NATO's defence architecture. The cooperation, especially the regional cooperation, has become and will continue to be an indispensable part of our defence system development. ■

Nexter, creating new references in defence



TITUS®
Tactical Infantry Transport & Utility System

TITUS® is the last armoured vehicle designed by Nexter in order to meet all the constraints of the modern hybrid warfare. Continuing the famous long lineage, including Leclerc MBT, VBCI and Aravis®, all combat proven in many theaters, Nexter combined the best of its experience and technology to offer to the tactical commander a full range of possibilities with the multi role armoured vehicle of the XXIst century.

From APC to combat utility variants, from Peace Keeping Operation to Counter Insurgency, TITUS® brings the technology and the Nexter touch into the heart of the action.

www.nexter-group.fr

> "Shepherding Europe's defence establishments towards more effective programmes"

Former European Defence Agency Chief Executive (2004–2007) Nick Witney, Senior Policy Fellow at the European Council on Foreign Relations, reflects on a decade of the EDA and discusses potential ways forward for the institution

In December 2013, the European Union's (EU) heads of state and government, meeting in the European Council, turned their attention to European defence – for the first time in five years. The 2,000 word summary of their conclusions referenced the European Defence Agency more than a dozen times. Across the range of defence support issues, from capabilities to research to equipment development and acquisition, embracing even discussion of the defence industrial scene, Europe's leaders set out their agenda, and then charged the EDA to deliver it.

As one who was 'present at the creation', this of course fills me with pride. It certainly looks like a vindication of the high hopes which I and my comrades on the original project team had for what this Agency might become.

Looking back, we had an extraordinarily free hand: the 2003 European Council in Thessaloniki had called for the creation of an "agency in the field of defence capabilities development, research, acquisition and armaments", but beyond this minimalist specification the design was up to us. The press ran stories of tension between London and

Paris as to whether the new institution would 'really' be about bolstering Europe's military capacity, or its armaments industry. But to the project team it seemed evident that the answer was 'both, and more'.

The new-born European defence project had already been endowed with political and military institutions. What it now needed was a 'back office', focused on providing the wherewithal to sustain these new political and military ambitions: a place where the synergies between

all aspects of what might loosely be termed the infrastructure of defence could be identified and exploited – and where, crucially, member states could cooperate to achieve what none could manage by itself.

For this was to be an 'intergovernmental' agency, directly funded and controlled by those Member States who chose to join it. The Agency could function as a conscience, and as a

catalyst: but the money and the decision-making power remained firmly in the hands of its 'shareholders', and the Agency's success or failure would ultimately turn on the willingness of those Member States to make use of the opportunity the new agency represented.

And it is this final consideration which

mitigates my pleasure at the central place the EDA so clearly enjoys in today's European defence landscape. For there can be no concealing that the political climate in which today's EDA must operate is significantly less supportive than at the time of its conception and birth.

Even for those who were involved, it is hard now to recall how optimistic everyone then was – not just about the shiny new European Security and Defence Policy, but about the European 'project' as a whole. Economic and Monetary Union was in the works; a new Constitution for the Union was in preparation; and the near-doubling in size of the Union by the biggest and most ambitious enlargement to date was in prospect. Internationally, this story of success was widely admired, even seen as the paradigm for relations between states in the twenty-first century; and even European ministries of defence, the last bastions of defensive nationalism, were slowly acknowledging the logic of cooperation. Member States were jostling to join the new Battlegroups initiative. After all, we had all just signed up to the new European Security Strategy's injunction to be 'more active, more coherent and more capable'.

In such a climate, it was relatively easy to get the key principles agreed – to secure, that is, common assent that greater pooling of efforts and resources was essential; that Cold War 'heavy metal and high explosive' must be replaced by more modern, and useable, capabilities; that manpower numbers must be cut, to allow greater investment in research and



"Today, the EDA quite rightly focuses less on major new collaborative procurements (for which the budgets no longer exist) and more on new fields for cooperation such as helicopter aircrew training, or maritime security"





equipment; and that both demand and supply must be increasingly consolidated in a European defence market that worked on a continental scale.

Getting member states to follow words with deeds was, of course, altogether harder (the highlighting in last December's summit communique of the urgency of joint European action on unmanned aviation recalled to my mind the frustrations of trying to move from 'something must be done' to concrete action in just this domain almost a decade earlier). But a tide was running and everyone knew its direction. How different today, in the depressed aftermath of the Great Recession. Over the last half-dozen years, as defence budgets have been cut across Europe and Member States have made increasingly clear, with decreasing signs of embarrassment, their reluctance to participate in any serious crisis management operation, I have watched with admiration as my successors at the Agency have somehow contrived to maintain its relevance and centrality.

The 'somehow' has of course been a process of continuous adaptation, to changed circumstances and different Member-State needs. Today, the EDA quite rightly focuses less on major new collaborative procurements (for

which the budgets no longer exist) and more on new fields for cooperation such as helicopter aircrew training, or maritime security. In this way it continues to more than earn its corn, and provide invaluable support to such occasions as last December's European Council discussions, at a time when other sources of inspiration, apart from the Commission, were conspicuously absent. And if grumpy old men like myself feel that the Agency has nonetheless yet to fulfil the great ambitions we had for it ten years ago – well, the same alas is true of the European defence 'project' as a whole.

For ultimately – and despite Claude-France Arnould's heroic efforts – the Agency cannot make its own weather. To change the metaphor, it is a fine instrument with the capacity to make some splendid music – but it is nothing without hands willing to pick it up and play it. And it is anyone's guess when, indeed whether, such conditions will again obtain.

As Europe gradually recovers from recession, it is reasonable to hope for the gradual restoration of optimism and ambition. The new leadership team in Brussels could make a huge difference, too. The daily news of mayhem and the collapse of security and public order in what we once termed 'our' neighbourhood, coupled with the Obama

administration's very evident determination to force Europeans to take more responsibility for their own security, may slowly induce European capitals to take defence more seriously and to do it – since there is now no other way – together. Alternatively, the present declinist political mood may endure, the internal divisions within the Union caused by the economic crisis may never fully heal, and the currently-prevailing 'heads down' school of strategy may continue to hold sway.

So the EDA has passed its 10th anniversary with plenty of question-marks over its future. What are not in doubt, however, are the energy and determination of the Chief Executive and her staff; the fitness of this small institution (*parva sed apta*, as the inscription over the entrance to the Bagatelle chateau in Paris reads) to continue to shepherd Europe's defence establishments towards more effective programmes and practices; and the Agency's potential to deliver really transformative developments in Europe's defence capacity – if only its Member States decide that that is what they want.

And as for a place to start – what about ensuring that another decade does not go by without an effective, common European effort to achieve unmanned aviation? ■

› "Collaboration in defence investment should be the default option"

In this opinion piece, Airbus Group Chief Executive Tom Enders shares his long-term vision for European defence while encouraging Member States to get more involved in cooperative programmes



he situations in Libya, Syria, Iraq and Ukraine are equally stark reminders of how much we Europeans still depend on

the USA and of the growing(!) gap in our defence industrial capabilities. Europe's 'peace dividend' is largely behind us. Yet faced with lingering, multifaceted and persuasive threats, European stability still depends on American willingness, capabilities and industrial investment.

That was not what we had in mind when, back in 2004, my company together with BAE Systems and Thales pleaded for the creation of the European Defence Agency (EDA) and increased investment in defence capabilities.

Today, thankfully, the EDA provides an engine at the heart of European defence, but a rather small one and one that still lacks enough fuel to drive it. What's more, the defence vehicle it's supposed to get moving is suffering from a decade of financial guillotines, national egos and dwindling expertise.

By 2024, if that continues, the once powerful European defence industry will be reduced to buying off-the-shelf from a US monopoly or from Russia, China or South Korea. EU-defence ministers will be left imploring Uncle Sam to maintain NATO's article five provision but, as former US Secretary of Defence Gates put it: "There will be dwindling appetite and patience in the US Congress to expend increasingly precious funds on behalf of nations that are apparently unwilling to devote the necessary resources to be serious and capable partners in their own defence."

Whether the threats are digital or natural, terrorist or traditional, Europe can't resolve them as individual nations. Only by combining our resources do we stand a chance of preserving peace, freedom and security. That's why Europe's economic and financial powers, especially Germany, can no longer ignore their responsibilities. US support is not a 'right' nor a given. We are not the 51st state. We have other, better options to restore Europe's strategic autonomy.

In December, European leaders showed renewed interest and promised follow-up by next summer. Since then, we've seen a new leadership team emerge in Brussels, growing threats on our borders and the latest Eurobarometer showing 72% support for a stronger Security and Defence Policy. It's the perfect storm for change. That's why I am confident Europe can build a more credible partnership with the US and why I'd like to offer

an industrial perspective on some of those options.

First, Member States could reverse the decreasing trend of investment in defence and actually invest the 2% of gross domestic product (GDP) that they have committed to; something that only four currently achieve setting the average at 1.50%. It would still be half of the US investment, but would show willingness after a decade that has wiped some 15% off European defence budgets, placing us behind Asia. Should this trend not be reversed, estimates show a further 22% decrease by 2020! That's like throwing away three times the contribution of Poland.

On the one hand, such renewed effort would protect almost two million highly skilled European defence jobs and ensure that our military does not have to shop in a US monopoly.

On the other hand, as illustrated by a recent EDA report, the defence research and development (R&D) multiplier is between 12 and 20 times that of other sectors. This is because the high skill level and the close ties between prime contractors and small and medium sized enterprises (SMEs) is a key source for innovation in society as a whole, filtering into everyday life with technology like the global positioning system (GPS), wind farms, or semi-conductors. In fact, every €100 million invested in defence adds another €70 million to GDP year after year.

So, if Europe wants to rebuild its economy and its reputation as a credible partner in NATO, then delivering on that 2% GDP commitment is the best place to start.

The second option is to stop wasting any money that is invested in defence. Europe can get a better bang for its buck by "Spending more, better and more together", to quote Javier Solana.

In 2007, Member States agreed to jointly spend at least 35% of equipment budgets and 20% on R&D, yet we are still more than ten points off target. Such inability to co-operate and duplication already cost Europe over €26 billion a year!

Various 'smart defence' initiatives are sometimes used as camouflage for an unwillingness to spend. Still, collaboration in defence investment should be the default option without forgetting the lessons of past endeavours. Do the military or the taxpayer really need 23 different versions and six assembly lines for 14 helicopter customers who are meant to be allies? Does Europe really need 17 production lines for tanks, armoured vehicles and self-propelled artillery when the US has just two?

Better, cheaper products can be delivered

with simpler and leaner programmes. Meteor is a great example. There is constant dialogue between the UK, acting as the lead nation on behalf of the other participating Member States, and MBDA as the sole industrial interlocutor. This allows real-time exchanges to assess the cost and feasibility of any new options decided upon.

So, the default approach should be to involve industrial suppliers at the start of definition, to genuinely empower a single lead to take decisions on behalf of Member States; and to define common standards and certification processes, which could slash costs by almost a third. This could be reinforced through tax breaks and a well-coordinated armament export policy for all co-operation programmes, crucial for companies like Airbus Group where two-thirds of defence revenues come from co-operation programmes.

This brings me to the final option I will offer: that we could look to the future, instead of just the next political cycle.

I mentioned the wider benefits of defence technology and the amount of R&D budget being wasted. I should also mention that those R&D budgets have halved since 2006 with an R&T spending now representing only a ridiculous 1% of total defence expenditure! It's ironic that the digital revolution would not have happened without defence investment 60 years ago, yet today we can't keep up with the digital battlefield it has created.

That's why we need to combine a longer term vision for European defence with a faster, more efficient response to the immediate risks.

For example, projects like the Alliance Ground Surveillance take 20 years to launch. What engineer wants to pass an entire career without working on anything new? That's why engineers prefer the commercial sector that increasingly leads in innovation. Even engineers interested in the kind of Unmanned Aerial Systems that Europe so desperately needs, now see better prospects with the likes of Amazon or Google.

Ten years after the creation of the EDA, Member States remain so focused on national sovereignty that they risk giving away our collective security and stability. If our leaders really want European strategic autonomy, they must act together: they must deliver on their promise to spend 2% of GDP on defence, co-operate instead of wasting resources, and create a clear vision for the future by launching programmes now. This is the only way to ensure that we actually *have* a robust European defence industry for the twentieth anniversary of the EDA. ■

Key Quotes

Page 6

"In the coming weeks, I intend to visit each and every Member State in order to gather their views first hand and hear their priorities. We all need to be on the same wavelength. This is all the more important because defence expenditure in the EU is under continuing pressure: the case for increased cooperation has never been so compelling"

EDA Chief Executive Jorge Domecq



Page 32

"European institutions, particularly the European Defence Agency (EDA), have a unique ability to address the capability gaps, help Member States to make better use of their resources, identifying and developing new and innovative technological solutions thus contributing to the European ability to respond to the changing security situation"

Raimonds Vējonis,
Latvia's Minister of Defence



Page 13

"Market uptake is crucial in order to ensure that EU-funded defence research generates new capabilities for armed forces in Europe and business opportunities for the European Defence Technological and Industrial Base (EDTIB)"

Eric Trappier, Chairman of the Defence Business Unit of the Aerospace and Defence Industries Association of Europe (ASD)



Page 14

Around **one-third** of the European defence industrial workforce is aged over 50, with the industry facing a risk for a substantial loss of expertise when these individuals reach retirement age

Page 27

EU Member States are responsible for the control of a coastline over 90 000 kilometres in length, bordering two oceans and four seas

Page 21

"In comparison with the trends identified in 2011, we can see a renewed focus on high-end warfare, including a larger maritime dimension"

Christian Madsen,
EDA Head of Unit Cooperation Planning

Page 25

"If you don't have a built-in interoperability in your equipment, you can join a NATO, EU or coalition mission but if you're not able to connect with other partners, you're simply useless"

Vice Admiral Matthieu Borsboom,
Director of the Defence Material Organisation (DMO),
the Netherlands



Advertisers index

Airbus Military and Defence	Outside back cover
European Defence Agency	Inside back cover
Eurosam	Inside front cover
Nexter	33
PMI Media	4



EUROPEAN
DEFENCE
AGENCY

Let's Communicate

「 We want to keep you up to date with European defence. So we'll be talking more, and listening too. 」

You're already reading our new magazine, European Defence Matters. Now look out for more publications and updates, and a monthly email NewsDigest. Find us on social media. And as ever, keep an eye on our website for informed comment and timely announcements.



www.eda.europa.eu

PUTTING
WHAT'S
WANTED,
PRECISELY
WHERE
IT'S NEEDED



-  SELF-PROPELLED HOWITZERS
-  HEAVY ARMOURD VEHICLES
-  HEAVY HELICOPTERS
-  HEAVY ENGINEERING VEHICLES
-  LIGHT VEHICLES
-  TROOPS
-  PARATROOPS
-  PALLETS AND CONTAINERS
-  MEDICAL EVACUATION
-  MEDICAL SUPPLIES
-  AIR TO AIR REFUELLING

A400M



Fighting a battle, preventing a war or bringing relief. Your kit has to come a long way, fast, and you want it precisely where you need it. Even if your only runway is short and unpaved. That's when you need the A400M. And it's a tanker for fighters and transports. A400M – challenging old standards.

www.airbusdefenceandspace.com

PIONEERING THE FUTURE TOGETHER

