

European Defence Matters

A magazine of the European Defence Agency



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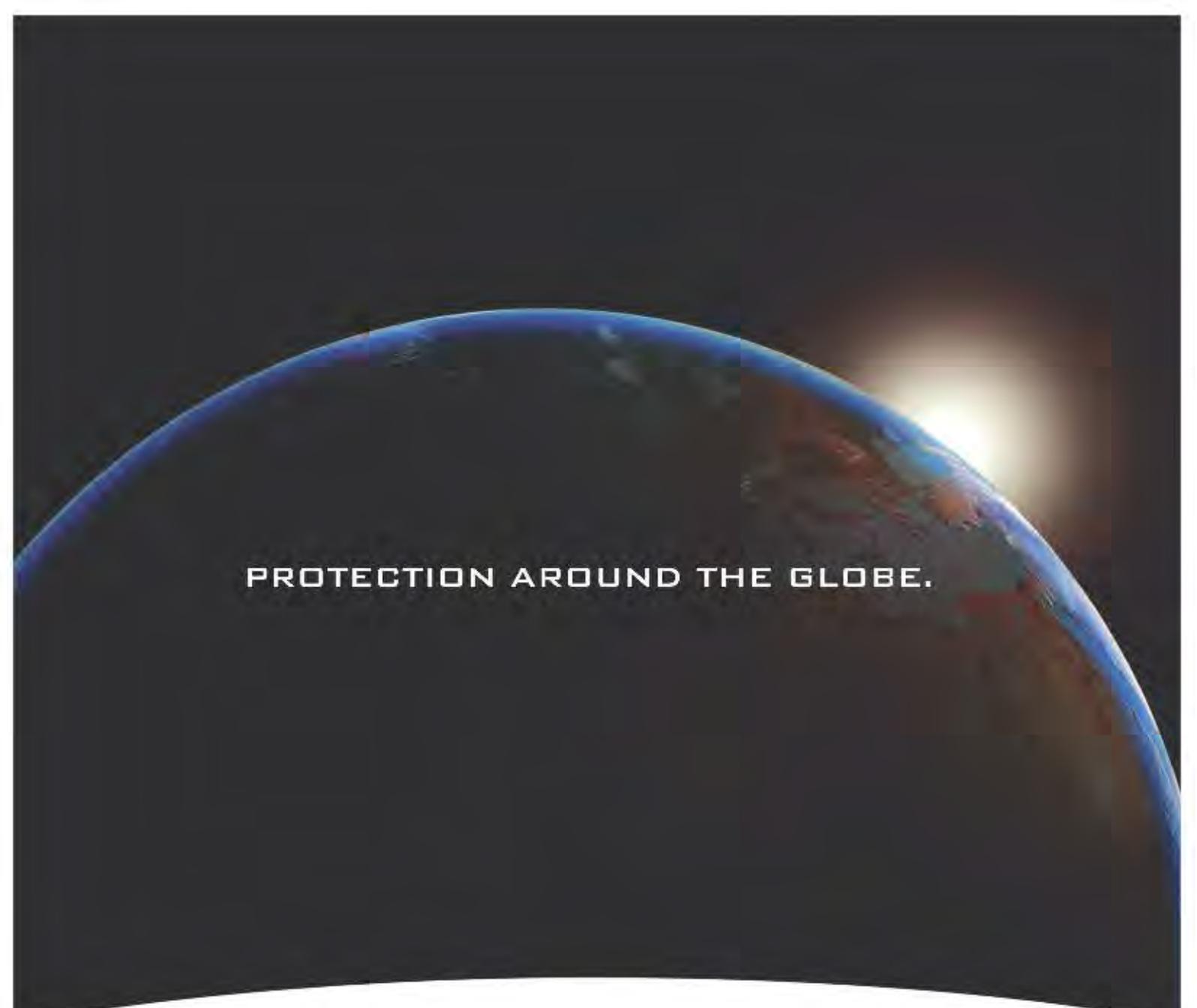
Learning to work together on the battlefield



➤ "Pool it or lose it" is becoming a reality

➤ Armament cooperation drives single airworthiness standard

➤ The future of Europe's land systems



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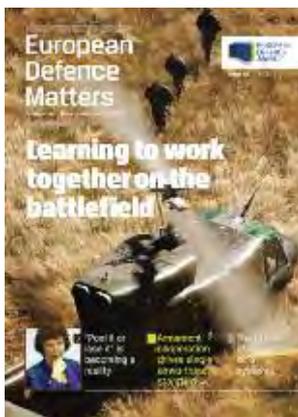
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Eric Platteau
Director of *European Defence Matters*
Head of Media and Communications,
European Defence Agency



Philip Butterworth-Hayes
Editor-in-Chief
European Defence Matters



How we are making a real difference to front line effectiveness

Most military commanders have a single goal – to raise the operational effectiveness of the forces under their command. Effectiveness is their main aim and it is at the heart of everything that the European Defence Agency (EDA) does, too

In an era of multinational expeditionary operations it is becoming increasingly important that Dutch and French troops are on the same wavelength in the conflict zone and that Italian maintenance experts can overhaul the same German and UK aircraft flown by Italian squadrons. For even quite simple operations – such as being able to exchange ammunition and other vital supplies – it has sometimes been impossible for coalition troops to work together at their optimum effectiveness. Some of these areas of cooperation require complex negotiations between national governments involving years of debate and legal wrangling, but others do not. In areas where cooperation is required the EDA can help by facilitating discussions, accessing technical expertise and exploring, if appropriate, resources available at the European level.

The last few months have seen EDA facilitate a number of important exercises aimed at improving the operational effectiveness of strategic/tactical airlift capabilities and helicopter operations in support of ground troops. The objective is to examine how different nations can improve their ability to work together in challenging environments, to learn some of the lessons of Afghanistan and Libya and to forge personal bonds between the crews which will translate to more effective collaboration in theatre (*see EDA brings battlefield experience to multinational training exercises, this issue*).

If effectiveness is the key task for military commanders then improving capability levels while spending better is an imperative for defence ministers. An example of how the EDA

is active in this area came in late 2011 when the International Security Assistance Force (ISAF) deployed a forensic laboratory, on behalf of eight participating EDA Member States, to help identify the instigators of improvised explosive devices (IED) in Afghanistan. An update on how the laboratory, which was funded and programme-managed by the EDA, has performed in action is included in this issue.

We also examine how pooling and sharing is transforming national capabilities at best cost from the provision of medical equipment to developing a single standard for military airworthiness throughout the European Union. We highlight opportunities, too, for defence ministries to turn a profit by exploiting the land and buildings under their control for renewable energy sources.

We are grateful to the high level policy and military strategy decision makers who have contributed their views to this issue, including Catherine Ashton, the High Representative of the European Union for Foreign Affairs and Security Policy and head of the European Defence Agency, Jim Townsend, Deputy Assistant Secretary of Defense for European and NATO Policy within the US Department of Defence, Mieczysław Cieniuch Chief of the General Staff of the Polish Armed Forces and Lieutenant General Claudio Debertolis, Director General of Italy Ministry of Defence. Their different perspectives on how future cooperative efforts in the defence domain will need to be refocused make fascinating reading.

Please enjoy this issue and do not hesitate to contact us if you have any comments about the views or analysis expressed in these pages. 

News:

EDA highlights aviation's role in defence, security and economy



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During the ILA Berlin air show, the EDA presented a seminar on 'European Military Aviation – Flight Path for a Better Future' to an international audience of military aviation specialists from government, the armed forces and industry.

Opening the seminar, EDA Chief Executive Claude-France Arnould focused on the importance of military air capability in meeting national and communal defence and security goals and highlighted the effect the sector has on wider economic growth in Europe. She referred to the Agency's FAS4Europe study, a 12 month programme completed under the leadership of

Saab AB and involving 30 major European entities, highlighting the fact that European military air capabilities are eroding and having a detrimental impact on Europe's ability to respond to crises.

"Europe has successfully managed to join forces in two fields closely related to military aviation: space and civil aviation. If we want a similarly strong and independent aeronautics defence sector, we have to set the course now", she said, adding that Europe risks falling significantly behind the global competition in unmanned aerial systems (UAS) capabilities.

In addition to the on-going work on the UAS issue, the chief executive also highlighted several

other military aviation areas in which the Agency has successful projects approaching conclusion. These include air to air refuelling, the European Air Transport Training programme (*see cover story in this issue*), work on military airworthiness issues and the Helicopter Training Programme (*also covered in this issue's cover story*).

Domingo Ureña-Raso, CEO of Airbus Military, also emphasized in his keynote speech that Europe's industrial capacity was already deteriorated and would soon be seriously impacted with consequences for the key capabilities and technologies. He therefore called for increased European cooperation, especially through EDA. **◀**

European satcom cell launched

In late September the European Defence Agency (EDA) signed a three-year €2.3 million with Astrium Services to provide five Participating Member states with commercial band (C, Ku and Ka) satellite links as a first and short-term step to improve satellite communications (SatCom) capability for European defence. In the long term the EDA plans to save nations up to €1 billion through pooling

and sharing national-based military satellite communications (MILSATCOM) capacities.

France, Italy, Poland, Romania and the United Kingdom have formed the European Satellite Communications Procurement Cell (ESCPC) within the EDA to reduced costs and improve access to military satellite services. The EDA ESCPC aims at pooling commercial SatCom demand from a number of European Union (EU)

national defence departments, reducing costs by around 10 per cent. "The overall aim of the ESCPC is to overcome fragmented procurement of commercial SatCom capacity in order to reduce costs, promote ease of access and improve efficiency to deliver a better connectivity to armed forces of the EU Member States." said Claude-France Arnould, EDA Chief Executive. **◀**

News in brief

New EU CSDP mission to Horn of Africa

The Council of the EU approved in July the launch of a new Common Security and Defence Policy (CSDP) mission, EUCAP Nestor, to support regional maritime capacity-building in the Horn of Africa and Western Indian Ocean states.

The mission is part of the EU's efforts in fighting piracy and instability in the region. A team of around 175 people will work with governments of Djibouti, Kenya, the Seychelles and Somalia to reinforce the capacity of states to effectively govern their territorial waters. EUCAP NESTOR will also support establishing a Djibouti Regional Training Centre (DRTC) to help develop a self-sustainable capacity to enhance their maritime security and governance, including judicial capacities.

Changes at top of NATO ACT

In September General Stéphane Abrial stepped down from his post as NATO's Supreme Commander Allied Command Transformation (ACT) in Norfolk, Virginia. The general, whose appointment by the North Atlantic Council in July 2009 marked the first time a European officer was permanently appointed to head a NATO strategic command, was previously Chief of Staff of the French Air Force.

During his time in post, General Abrial has been a staunch supporter of the pooling and sharing initiatives launched by EDA and of closer cooperation between NATO ACT and the EDA.

EDA and OCCAR strengthen ties

The EDA and the Organisation for Joint Armament Cooperation (OCCAR) have signed an Administrative Arrangement, paving the

way for a closer relationship between these two important actors in European defence cooperation. The EDA and OCCAR fulfil complementary roles. In recognition of the close working relations established between EDA and OCCAR and the potential benefits and synergies stemming from still closer cooperation, an Administrative Arrangement (AA) was signed by Claude-France Arnould, the EDA Chief Executive and Patrick Bellouard, the OCCAR-EA Director.

Claude-France Arnould commented: "Thanks to this partnership, a project can be brought from concept to battlefields with fewer delays, delivering at greater speed and greater efficiency for our Member States."

The AA constitutes the foundation and establishes the framework for further cooperation



between EDA and OCCAR. EDA and OCCAR will seek to ensure that their activities are coherent, complementary and effective.

In pursuing cooperative projects and programmes, EDA and OCCAR will direct their efforts towards enhancing European defence capabilities, improving European Armaments cooperation, and strengthening the European Defence Technological and Industrial Base (EDTIB).

Patrick Bellouard expressed his conviction that: "From now on, integration into OCCAR of programmes originating from EDA's work on capabilities and harmonisation of requirements, will run smoother, delivering maximum efficiency for our customers."

With the signing of this arrangement, OCCAR and EDA become privileged partners in the field of

defence capabilities development. Under the arrangement, EDA and OCCAR will share information on projects and programmes throughout their lifecycle, helping to guarantee a seamless handover in each case, with both parties remaining involved and informed at every stage.

EDA and OCCAR can now deepen their cooperation through the administrative arrangement and a security agreement on the exchange of classified information. EDA & OCCAR will subsequently identify cooperative projects initiated and prepared by EDA that may be managed by OCCAR.

This Administrative Arrangement forms part of both organisations' ongoing efforts to engage with all defence stakeholders in Europe, delivering maximum efficiency for Member States. 

High-level speakers confirmed for EDA conference

European Defence Matters, the EDA's annual conference will take place on Thursday 21, March 2013 at the Albert Hall in Brussels and will gather defence and foreign affairs ministers, chiefs of defence, senior decision makers in industry, government and European Union institutions along with representatives of think tanks and the media. It will provide a unique European platform for

debate, networking, and future planning.

Three topics are on the agenda: "Lessons learnt from the frontline of defence cooperation"; "Looking ahead: setting the goals for European defence cooperation"; and "European defence cooperation: concrete steps for the next year". First confirmed speakers are President of the European Council Herman van Rompuy, President of the

European Parliament Martin Schulz, Ireland's Minister of Defence Alan Shatter, Chief executive of EADS Dr Tom Enders, First Vice-President to the European Commission and Commissioner Michel Barnier.

The conference will open at 9.00am and end at 7.00pm. The debate will be held in English. The detailed programme will be distributed in due course. 

Three States join MARSUR

Bulgaria, Latvia and Norway have joined the Maritime Surveillance (MARSUR) community. MARSUR is a network of naval and maritime information exchange systems which aims to avoid duplication of effort and to use available technologies, data and information; to enhance cooperation in a simple, efficient and low-cost solutions for civil-military cooperation; and to support safety and security.

The 15 initial participating Member States are Belgium, Cyprus, Germany, Spain, Finland, Greece, France, Ireland, Italy, Lithuania, The Netherlands, Poland, Portugal, Sweden and the UK. The project has been coordinated by the EDA since September 2006, following a mandate given by the EU Defence Ministers in late 2005.

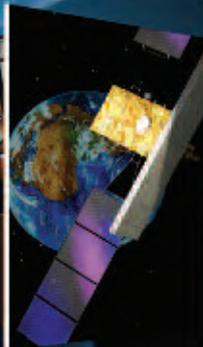
EDA and Egmont Institute launch PhD prize

The EDA has joined forces with the Egmont Institute of Brussels to establish a European PhD thesis prize. The first of its kind, the prize, worth €2,000, aims to award scholars for their achievements in the realms of defence, security and strategy. The prize will be awarded annually at the EDA Conference.

With Professor Sven Biscop of the Egmont Institute chairing the jury and the EDA's Chief Executive Claude-France Arnould a jury member, the prize is aimed at scholars who have received their PhD in the last academic year and delivered research results that are significant and will help shape future EU policy. The next EDA annual Conference is scheduled for 21 March 2013 and the successful winner will be given the opportunity to address conference. A Call for Submissions will issued shortly.



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› EDA brings battlefield experience to multinational training exercises

The injection of new capability for the armed forces is one of the primary goals of the EDA. Nowhere is this more crucial than in aircrew and aircraft maintenance training - Tim Mahon examines three major exercises that the Agency has facilitated this year and reports on how the lessons learned will be translated into more effective operations

One of the lessons learned from recent European Union (EU), North Atlantic Treaty Organization (NATO) and coalition operations is that in expeditionary warfare strategic transport is critical. The various initiatives aimed at improving both strategic and tactical airlift within individual participating Member States (pMS) - and within NATO - have had an effect on improving this situation, but it was also readily apparent at senior levels that something had to be done to turn the possession of platforms into assets with true utility. That meant developing a training regime that would address specific issues such as cargo handling and loading, flying in adverse conditions, short runway landings and take-offs and so on.

The fighter aircraft community has been the beneficiary of extensive joint and collaborative training programmes for years, with the Tactical Leadership Programme and the Red Flag series of exercises being examples. Airlift to date, however, has been an entirely different matter and training for strategic and tactical airlift crews has been very much a national responsibility. The creation of the European Air Transport Fleet partnership has been a major step towards increasing availability for airlift for Europe and the European Air Transport Fleet (EATF) Ad Hoc Working Group Operations and Training (AHWG O&T) has

developed projects to increase the opportunity to harmonise training and adopt best practices across the fleet. AHWG O&T has two concrete initiatives currently - an annual European Air Transport Symposium and live training events, under the banner European Air Transport Training (EATT), the first of which took place in Zaragoza, Spain in June this year.

"It is important to recognise that (EATT) is not just about an exercise, it delivers effective training too," said Laurent Donnet, Assistant Capability Manager for EDA. "The distinction, of course, is that training is where you get your qualifications."

EATF is an EDA Category A project supported by 19 pMS plus Norway and is aimed at "improving airlift provision within Europe," according to Dimitrios Moutsiakis, the Agency's EATF Officer. "The only way to do this is either to acquire or generate more capability, or to use the existing fleet more efficiently," he said. EATF is aimed at pursuing the latter alternative.

With eight aircraft from six nations involved over a two week period in June, EATT 2012 was an unqualified success, according to Donnet. "The post exercise questionnaire was 100% positive in responding to the question of individual value," he said. The average rating of the exercise as a whole, from 150 participants, was 84%, taking a broad range of issues from flight safety to

continued on page 12



Exercises Green Blade (above) and Hot Blade (below) featured multinational helicopter-based operations in very different climatic conditions.

Main picture: The Air Transport Training (EATT) live training exercise involved eight aircraft from six nations.





threat simulations and mission debriefing into account. One participant said in his evaluation report that "EATT proved to be an excellent training opportunity for multinational tactical air transport... the perfect match for current training needs."

There is currently no permanent staff for EATT, just a core planning team, and so two exercises per year is probably the limit that can be achieved within existing resources. "This is the right moment to try to find a permanent base and a permanent staff – which will probably be about 10 people," said Donnet. The plan is to further develop EATT as the core of a series of initiatives to achieve the aim of better utility of the existing fleet. One such initiative is the creation of a European Advanced Airlift Tactics Training Course (EAATTC), which, planned in 2014, will mirror the success of the existing US course that has been in existence since 1984 and for which courses are now run as often as monthly. The advantage of the proposed EAATTC, far from duplicating effort in another NATO Member State, will be to provide a European venue for training. "That's what the nations want," said Donnet, quoting the example of one aircrew who attended an American event that achieved only 20 minutes actual training over a two week period.

Fixed wing airlift training is one thing. Tactical training for helicopter pilots is quite another, but is one in which EDA also has a successful project running the Helicopter Training Programme (HTP). One element, the Helicopter Tactics Course (HTC) takes advantage of facilities provided by the Royal Air Force at Linton-on-Duse in the United Kingdom and the development of a basic simulator – one that was developed by AgustaWestland extremely rapidly and for a very low cost under an EDA contract – to provide tactical training for helicopter aircrews. Inspired by an identified capability gap in nations that had committed medium helicopters to International Security Assistance Force (ISAF) operations but had minimal or zero training capability, the HTC has trained several dozen crews over the last few years. Andy Gray, EDA's Helicopter

Project Officer, said that "HTC provides the groundwork for the type of training we can now conduct collaboratively with the support of various host nations."

The most recent example of this type of training was Exercise Hot Blade 2012, the latest event in the Helicopter Exercise Programme (HEP), also part of the Agency's HTP, which took place in Ovar in northern Portugal in July. In his welcome message to the participants from eight nations assembled at Ovar, Portuguese Air Force Chief of



"Don't focus on the flying: that's the easy part, more or less. Concentrate instead on the quality of the planning and the debriefing – that's the key aspect."



Staff General José António de Magalhaes Araújo Pinheiro said: "The multinational nature of present-day operations calls for more joint training... we have to do more together and common training is one of the most efficient ways to reach our goals."

Designed to allow European helicopter aircrews to practice operations in a hot, high, dusty environment, Hot Blade 2012 demonstrated to observers the multinational and joint forces nature of today's military operations. In one of the exercise scenarios – taking place in an exercise area over a sparsely populated part of the mountainous region a half hour from the base at Ovar – Dutch and Austrian helicopters, covered by a Belgian attack helicopter, airlifted Portuguese Air Force and Army troops into a tactical landing and were supported by combat sorties from a pair of Portuguese Air Force F-16 fighters. The scenario was a compelling iteration of the joint nature of operations and

highlighted the necessity for this type of training to practice the complex tactical control procedures required for a successful outcome. One of the most visually apparent complications was the high degree of dust that results from a tactical helicopter landing in rough terrain – an issue that no amount of simulated 'brownout' landings can adequately prepare an aircrew for.

Portuguese, Belgian, German, Dutch, Austrian and Finnish aircrews participated in Hot Blade 2012, with both Sweden and the United Kingdom as observer nations. Seven different models of helicopter took part in operations, providing an opportunity to practice the complex maintenance operations required for such a varied force. In addition to the training issues on site, some nations took the opportunity to practice other logistical support functions as well. Germany, for example, transported its CH-53 Sea Stallions to Portugal by sea, something that, according to one German officer in Ovar, "we have not practiced for nearly 20 years."

Over a two week period, the participating aircrews and support troops practiced a wide variety of joint tasks in addition to flying in challenging environmental conditions, which are rarely encountered in other training exercises. Air assault, special operations aviation, combat service support, close air support (including urban and emergency scenarios), helicopter escort/convoy operations, reconnaissance and security operations, combat search and rescue, personnel recovery, medical and casualty evacuation and military/non-military extractions all featured on the exercise agenda. Every one of these tasks demands specific expertise, knowledge and skills and Gray said, "The opportunity to conduct such a wide-ranging exercise with this variety and numbers of aircraft is very rare indeed."

The exercise in Ovar - and the entire HTP - has been informed by lessons learned in the crucible of operations in theatres such as Afghanistan and Libya. Since the future of expeditionary warfare is



undoubtedly joint in nature, the opportunity to train together in the way that participating nations will operate together in the future is an absolutely invaluable one, in Gray's view. The cost of mounting this type of exercise is substantial, even with the support of host nations such as Portugal and the crucial support of contributing nations such as Luxembourg, who provided some of the financial support needed for Hot Blade and whose Defence Minister visited the exercise along with his Portuguese counterpart in a demonstration of support for the concept of multinational training. But as Gray said: "Much of this training would have taken place on a unilateral basis within each participating nation anyway, and the additional marginal cost to make this happen in a collaborative and harmonised manner is quite small by comparison with the obvious accrued benefits." Hot Blade 2012 was a demonstration of the significant benefits that nations can derive from collaborative training and a vindication of the concept that continues to find traction among the armed forces, ministries and governments of participating Member States.

Following on from Hot Blade, the EDA team turned its attention to Exercise Green Blade 12 in Belgium over two and a half weeks in September and October. Belgian weather lived up to its reputation and towards the end of the exercise crews faced challenging conditions of a different kind – wet, windy, low visibility weather which presented an entirely different mission scenario from the high, hot and dusty operations in Portugal.

"What we want here is a capability-focused exercise, not one dependent on a particular set of environmental conditions," said Andy Gray. "Crews – and the staff – have to recognise that this is the reality of helicopter operations: this is where we live, below the cloud-base, in close proximity to the ground and in all type of weather."

Smaller in scope than its southern equivalent, with 15 helicopters from Belgium, Italy and Germany participating, Green Blade 12 was also different in

that it was combined with Exercise Pegasus, a Special Forces operational exercise involving troops from Belgium, Italy and Spain. This meant that aircrews were able to rehearse and practice a wide variety of ground support missions including air assault, close air support, extraction and medical/casualty evacuation. The demonstration exercise put on for the VIP and Press day highlighted all these functions in a seamless fashion, showing the powerful and much-needed capability that joint training between helicopters and ground forces can achieve.



"What we want here is a capability-focused exercise"

Andy Gray
Helicopter Project Manager, EDA

This capability remains highly relevant to the range of missions the armed forces are being called upon to face today and in the immediate future, which explains the high levels of support this kind of training receives from all levels of the political and military hierarchy. Luxembourg Defence Minister Jean-Marie Haldord said "We don't have a lot of personnel to be able to devote to supporting this kind of exercise, but we do have financial resources we are happy to commit to useful initiatives such as this. We are intent on contributing what we can in as broad a range of circumstances as possible."

Asked what he would recommend to his successors in future exercises of this type, Lieutenant Colonel Michel Gelders, Belgian Project Officer for Green Blade, said: "Don't focus on the flying: that's the easy part, more or less. Concentrate instead on the quality of the planning and the debriefing – that's the key aspect." He added that unique components of the individual exercise mix can also have an effect on

preparation. For example, the necessity to cater for Special Forces meant that the planning cycle – normally 24 hours – needed to be revised to 72 hours, since that is the basis on which all Special Forces mission planning is normally conducted.

The creation of a community among European helicopter aircrews and ground crew during the exercises will also go a long way to ensure the smooth running of future operations. "People are the force multiplier and the creation of friendships at this level is an important factor that should not be discounted as a 'warm and fuzzy,' non-productive issue," said Andy Gray. "Small unit cohesion is essential and is sometimes quite difficult to achieve – we have made major steps forward in developing a community spirit among helicopter crews that will be of enormous and tangible benefit to future operations," said Andy Gray, who joined the EDA after an operational tour in Afghanistan.

The EDA's training programmes have two main objectives: the more efficient and productive use of existing assets and the provision of a realistic training environment in which trainees from several nations can learn to operate more effectively together. "We want crews to be able to operate efficiently from the first point of entry [to an operational theatre], not three months later," said Gray. "We are helping to build trust while retaining respect and credibility in the system and are continuing to fill (capability) gaps identified by operators."

Which is why the series of helicopter exercises stemming from Hot Blade and Green Blade is now fully resourced as far out as 2022. "I already know who will host the exercises, I know which nations are committed to providing planning staff, I know where the central finance will come from and I know how we will run the exercises for the next ten years. We really are putting in place a programme to help produce the generation of helicopter aircrew to come after mine," Gray said. ■



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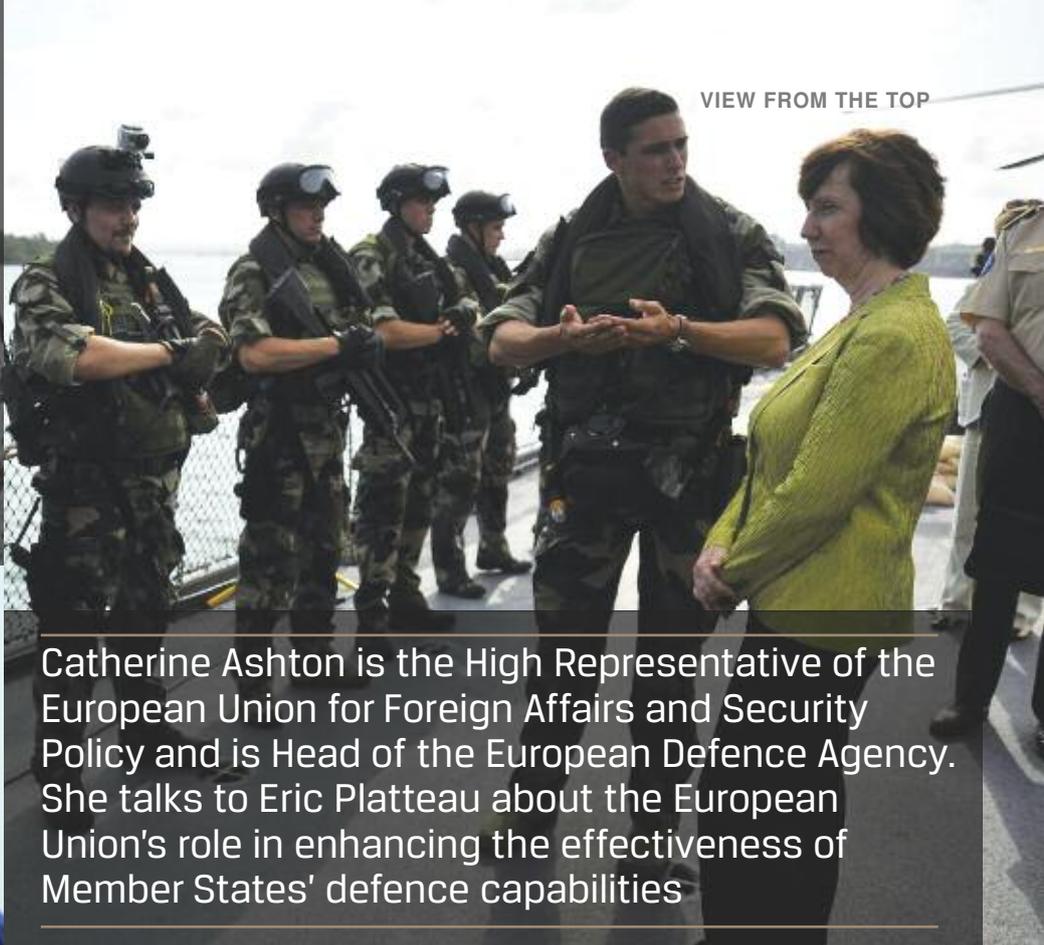
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> "Pool it or lose it" is becoming a reality



Catherine Ashton is the High Representative of the European Union for Foreign Affairs and Security Policy and is Head of the European Defence Agency. She talks to Eric Platteau about the European Union's role in enhancing the effectiveness of Member States' defence capabilities



Could you give us an update on the range and scale of EU military operations currently underway or planned? What is your assessment of these operations?

The European Union (EU) is currently running three military operations. The largest and best-known is Operation Atalanta, the counter-piracy operation in the Horn of Africa. In Uganda we are running *European Union Training Mission (EUTM) Somalia*, a mission to train Somali soldiers as part of the EU's significant engagement to help stabilise their fledgling democracy. Finally, in Bosnia-Herzegovina, *Operation Althea* combines a peace-enforcement mandate with training and mentoring of local security forces.

Other Common Security Defence Policy (CSDP) operations are civilian, but can be defence-related or have a military component. For instance, the *European Union Mission to Provide Advice and Assistance for Security Sector Reform (EUSEC)* mission in the Democratic Republic of Congo is essentially about defence reform. The new *European Union Maritime Capacity Building Mission in the Horn of Africa (EUCAP) Nestor* mission aims to enhance the maritime capacities of coastal states in the Horn of Africa. Our action in the region illustrates very well our comprehensive approach combining all the tools of EU external policy, be they political, humanitarian, security or development-related. I prefer not to comment on possible future operations. But military input is vital in any joint approach to dealing with crisis situations throughout the world.

Our operations have been shown to be

effective. The EU Naval Force Atalanta is again a very good example: since its launch there has not been a single pirate attack on a ship chartered by the World Food Programme to deliver aid to Somalia under its protection. And the overall number of successful pirate attacks has dropped from 65 in 2010 to just five so far this year. Another example: Somali soldiers trained by EUTM – about 2,500 up to now – have played a key role in freeing Mogadishu and other parts of Somalia from Al Shabab.

As head of the EDA what is your assessment of the Agency's output, especially in the key area of improving the pooling and sharing of defence capabilities between States? What are the EDA's strategic priorities for the next five years?

The Agency plays a key role in supporting Member States to step up pooling and sharing of defence capabilities. Of course the capabilities will always belong to the Member States but the EDA can support the process, identify opportunities, and act as a matchmaker. Pooling and sharing projects are the EDA's core business, and should help the Member States to deliver the operational capabilities that our Common Security and Defence Policy will need in the future. The key strategic priority for the EDA is to help Member States to take pooling and sharing to a new level, to make it more sustainable.

In your view how far have Member States embraced the concept of increased collaboration in defence matters, given recent statements by defence departments in France, Italy and Germany on the need for increased cooperation in economically challenging times? What would be the consequences of not

pursuing more collaborative efforts?

I have been chairing informal and formal meetings of EU Ministers of Defence since I took up my job and the topic of greater cooperation is always high on our agenda. The political will is certainly there. The consequences of not pursuing more collaboration would be a loss of military capabilities, and this would reduce Europe's capacity to act as a provider of security in its neighbourhood as well as more globally. To be a credible player on the world stage, you need not only the will but also the capability to act. As defence budgets are cut throughout Europe, the only way forward is more cooperation. Ministers of Defence know this and have started to respond. I am pleased that the President of the European Council has decided to put the issue of defence capabilities on the agenda for Heads of State and Government. The matter needs attention at the highest level.

What are the key enablers and obstacles to collaboration in defence issues and how can they be enhanced and overcome?

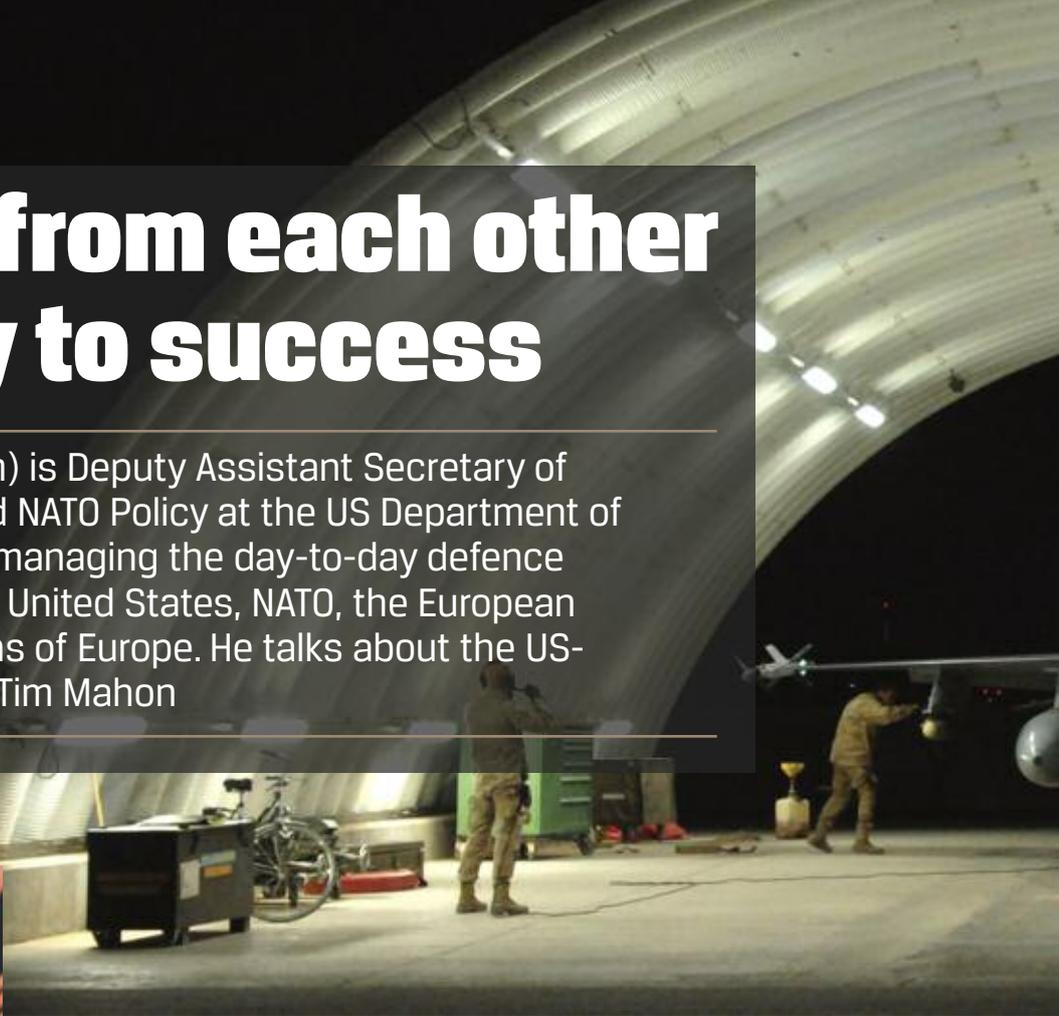
National sovereignty, or rather the reluctance to cooperate and share for fear of 'losing' sovereign control, will always be a potential obstacle. This is why we need to talk about the logic behind such cooperation as well as its potential benefits. Member States will of course want to continue to be able to act on their own and not become dependent on others. But there are interesting models for coping with these issues, for example the successful cooperation between the Belgian and Dutch Navies. Our shared strategic culture is also a big advantage and the desire to maintain certain capabilities, given budgetary and other constraints, means "pool it or lose it" is becoming a reality. 

Learning from each other is the key to success

James J Townsend Jr. (Jim) is Deputy Assistant Secretary of Defense for European and NATO Policy at the US Department of Defense, responsible for managing the day-to-day defence relationship between the United States, NATO, the European Union (EU) and the nations of Europe. He talks about the US-European relationship to Tim Mahon



As well as a governmental and industrial career in which he has focused much of his time on understanding and commenting on European defence issues, Jim Townsend Jr. is an adjunct professor of international studies at the American University and has lectured overseas and in the US at the War Colleges National Defense University and the Foreign Service Institute



For Europe, Libya confirmed that it needs greater key capability enablers, such as air-to-air refuelling, precision guided munitions, and intelligence, surveillance and reconnaissance (ISR). How do you see the US supporting efforts in this regard?

There is a multi-pronged effort to address some of these capability shortfalls. We're working on "smart defence" to drive the efficient acquisition of capabilities and skills with some of the smaller nations in the Alliance and that's very helpful: developing a cadre to be able to operate in a multinational CAOC (Combined Air Operations Centre) environment, in intelligence functions and in the interpretation of sensor feeds from unmanned aerial systems is a good thing. We need personnel to be able to do these kinds of things and these kinds of shortfalls apply to EU nations as well in many cases. We would hope the European nations would continue to work together within NATO and the EU - the EDA is working hard with Allied Command Transformation (ACT) in its pooling and sharing initiative, which has similar objectives to our Smart Defence work.

We have to do this together. The US can continue to pursue all kinds of bilateral programmes: we are working hard at developing just such a programme with NATO for training and exercises over the next ten years. There's lots more we can do on a bilateral basis, and NATO and the EU are critically important channels for the effort to share in mitigation of capability shortfalls - ACT is surely going to pick that up.

President Obama and many others have called

on Europe to address a rebalancing of defence priorities. Could you comment on how this might be best achieved?

Most national capitals face similar problems in terms of economic and financial constraints stemming from the debt burden: the Eurozone nations have their own particular problems at the moment. It's hard, therefore, for defence to be the priority we wish it to be, but we need to keep banging on the drum that defence cannot be taken for granted, it always needs to be a priority and that there is therefore an imperative to 'work smarter'.

We all need to dedicate the energy and the political capital, the focused activity and the resources needed to capitalise defence in the strongest manner possible - and that all begins with the nations. Member states of the various alliances have special responsibilities and we all depend on one another. It cannot be the US - or any other nation - that carries that responsibility alone. We have to struggle to make sure we all reach and maintain the level of two per cent of gross domestic product (GDP) that we have defined as the threshold target for our defence and security. We also need to keep reiterating the fact that when times get better and current issues are behind us, we reinvest and recapitalise our defence. This is a process, not an event.

Where are the similarities and differences between US and European defence priorities?

The US has global interests - as, indeed do some of our European allies. Asia, for example, is a critical component of our world view, as it is for Europeans. The requirements of some nations -



notably the US – might be larger in scope since not every nation has identical security concerns.

The common theme though is for all the nations to bring to the Alliance what is asked of them. One great example of such a common thread is expeditionary capability. This isn't just about operating at the end of a long communications link in Afghanistan – even operations in parts of Europe would require this kind of capability. Allied planners look at and communicate a range of needs and requirements stretching out over at least the next ten years. We all need to work to ensure we can bring to the party what NATO, for example, asks us to provide: how does NATO ask us to engage; how can we contribute most effectively; ground capability, cyber warfare expertise, there's a whole range of issues here and a lot of work going on to support the right response.

Some European commentators believe that the US might exploit smart defence and pooling and sharing as a way to get Europeans to buy American. What is your response?

Frankly it makes me laugh. This idea that there is a secret 'Buy American' policy in this building is an exaggerated irritant. There is no covert plotting in this respect – mostly because we do not have a 'government industry'. So we leave commercial strategies to industry in the main. Indeed, we are such capitalists that any attempt by government to 'interfere' or guide such strategies would scare industry – they would see it as anathema! Government does government: industry does industry.

We need to remember that smart defence has

NATO as its parent – not the US. It was proposed by the Secretary General and picked up by General Abrial and his successor as commanders of ACT. That said, we need to do a lot more work in this area. Smart defence is a great tool for the toolbox, but is not an end in itself. And it's not about buying kit – it's about nations coming together, to work smarter, and to make better use of resources in a constrained environment.

It has been suggested that the International Traffic in Arms Regulations (ITAR) is an impediment to pooling and sharing, in the sense that it makes exploitation of some technologies difficult. What are the prospects of this being improved in the short-term? Would this also facilitate greater intra-European and US-European collaboration?

We're working on this right now and have been for a couple of years. ITAR is complex, it's political and everybody hates it. It makes it hard to be efficient. But it's like going to the dentist – there are very good reasons it was developed and implemented and if we are going to change it we need to do so in a manner that does not risk sparking off a new arms race or any instability.

So we are working – very hard, I may say – to streamline ITAR, make it more user-friendly and less of a barrier to efficiency. Actually, I think what we are doing right now represents the best hope we have ever had of making better sense of the issue – providing all the safeguards for technology, preserving our security but at the same time not impeding better and more sensible ways of doing things.

How do you see the US and Europe cooperating in growing areas of concern such as the threat posed by cyber attacks?

We are deeply engaged with NATO and the EU in this area, which is a big concern in the transatlantic relationship, not only from a military perspective but also from a commercial standpoint. The real problem is that cyber has no home – it is of concern to a wide range of actors ranging from government departments to industrial concerns – all of whom are being attacked in the cyberworld on a daily basis.

Learning from each other is the key to success here. We need to establish a home for consideration of cyber issues and appropriate countermeasures. Stove-piping the issue doesn't help anybody – so let's not do that. We need a communal forum for information exchange and the development of common action plans.

And we'll get there – I know that. The issue is right at the top of the agenda and is being closely worked on both sides of the Atlantic – cooperatively. There is more and more joint action every day.

At an industry level how can we develop more transatlantic cooperative efforts to leverage the strengths of the US and European knowledge-base?

A great question, to which there isn't really a good answer from a governmental perspective but I do have an aspiration. It's businesses that drive efficiencies – if they don't, they go broke. The business channel is a far better method of harnessing the sort of collaboration we need than any governmental or institutional body. What we can do, though, is to provide the background, the atmosphere and the environment for industry to collaborate efficiently.

Industry needs to know the capability we need and, increasingly importantly today, the price we can afford to pay for it. They have to understand that the days of paying top dollar for 'gold plated' equipment are over. There is a new wind in acquisition – we need joint endeavours and partnering arrangements to achieve better results.

How do you perceive the role of the EDA in this sort of development?

Following on from my comments above, I think the EDA is very helpful in developing the sort of environment and background needed for this kind of initiative to succeed. We need to avoid the 'red tape burden', or any imposed structure that makes it difficult to be in business. EDA and other agencies with similar agendas should continue to communicate to business and to offer ideas and methods of achieving efficiencies.

It's all about providing a nurturing environment. The EDA is doing this and that's great – we certainly want to avoid anything that squelches industry, preventing it from being collaborative and efficient, or everybody loses. The bottom line is – we want to work with the EDA. 📧

Take opportunities to be more proactive



Mieczysław Cieniuch was appointed to the post of Chief of the General Staff of the Polish Armed Forces, the highest military appointment in Poland, on 7 May 2010 and was promoted to the rank of General in August of the same year. He recently gave this interview to Eric Platteau and Tim Mahon

How do Poland's armed forces contribute to European defence operations?

European-led operations are very important to us. We are active and wish to be active in the future. Let me mention our contribution to European Union (EU) operations in Macedonia, the Congo, Kosovo, Bosnia-Herzegovina, Chad and the Balkans and we are currently in Georgia, where one of my colleagues, Ambassador Andrzej Tyszkiewicz, is the Head of the EU Monitoring Mission. We contribute what we can to the EU and the North Atlantic Treaty Organization (NATO), while trying hard not to duplicate any military efforts.

Following the breakup of the Warsaw Pact, Poland integrated into EU and NATO structures quite quickly. What lessons have you learned from this?

This process was not easy for my country and for the armed forces in particular. Although it may have been seen as a smooth process from the outside, the integration was quite complicated. It was a very important step in our history and one from which we derived only benefits. I believe that in a process of creating stable security we ought to seek something more than only shared values. It is important to unite efforts and this is possible after the identification of shared interests. So, the best and most important lesson we have learned is that of unity of interests. The Polish armed forces had previously been aligned to a series of quite different missions from those we face today: which is why, in order to completely fulfil NATO and EU requirements, we have had to undertake quite a long programme. We have had to change everything – training, armament, equipment and doctrine, not to mention mentalities. Thanks to the officers, NCOs and soldiers' very strong determination, we have arrived at our capability level. I am generally happy with what we have achieved: we participate in a number of operations, provide for the defence of our home territory and

support the EU's defence objectives.

Historically, Poland has occupied a strategic position in Europe. How does that history inform and affect the evolution of current defence policy?

There is a common understanding that our defence is strictly and inseparably linked to broader security and defence-related issues of not only the nation but also the EU Member States. Today you ought not to perceive security only from a military-industrial complex perspective. Consequently, we do not separate our defence policy from our defence industrial complex and we also make sure that we maintain a stable and competitive socio-economic base. We have a legislative and governmental system in Poland that is entirely

compatible with our international peers and partners and this, I think, helps us to achieve our goals much more easily. Our armed forces have transformed to the point at which they can engage in asymmetrical operations with confidence. We cooperate internationally to achieve common goals with our partners – but our primary mission remains defence of our own territory and citizens.

"My impression, however, is that at the moment we react too much and do not take the opportunity to be proactive where possible"

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As the host nation for major training facilities such as those at Bydgoszcz, what lessons does Poland draw from training with other nations?

Bydgoszcz is the home to a number of NATO bodies, including the Joint Force Training Centre

(JFTC). NATO's communications battalion is headquartered in the city and we have recently established the Centre of Excellence for Military Police there as well. Our lesson is that common training among allies is particularly valuable, just as multinational military commands, centres and HQs are. We have a very good level of cooperation with the commander of the JFTC (Major General Pavel Macko of the Slovak Republic) and conduct significant joint activities, not only with our NATO allies but also with other nations: we are currently training with the Afghan National Army there. Common training enhances interoperability, established procedures and provides a common understanding. We derive significant benefit from meeting and working with counterparts from other cultures and learning from their different procedures and doctrines. The consequent improvement of our knowledge and experience is very important. It's also a very healthy competition, because inherently everybody wants to get better than the others. This way allies strive for excellence, and the Alliance increases its efficiency.

What steps towards interoperability are being made in Poland, with regard to equipment, training, doctrine, language and so on?

Interoperability is a vitally important issue for us, because without it the job of our armed forces becomes an impossible task and certainly a more dangerous one. We make sure we spend quite a large portion of our training efforts on multinational exercises, both in Poland and abroad. For example, our air force just recently took part in the demanding Red Flag air exercise over Alaska.

Our procurement department ensures that our equipment meets NATO standards from the perspective of compliance with all relevant NATO standardisation agreements (STANAGs). And we do not want to buy any equipment that does not meet these. The adherence to STANAGs is a feature of all our activities in this area, especially in our various

training centres, the academies and our National Defence University. The Doctrine and Training Centre has been created as a result of the requirement to have within the entire armed forces a joint institution, which would be able to conduct analyses of lessons learned and have the capability to create training documents on the basis of the changing reality.

And finally language is something what we consider important as well. This is no longer a big problem in Polish society – especially among the young, where English is a very common second language. We gradually build a solid body of language skills among our professional cadre and I think we have conquered this area as far as the armed forces as a whole are concerned.

What are your views regarding the utility of pooling and sharing, harmonisation of equipment or service requirements and smarter equipment procedures?

These concepts are certainly very important. There is a lot of talk about an economic crisis in Europe and, while Poland is in a better state than some countries, there are some countries that find it difficult to manufacture or procure all the capabilities required for regular warfare. So pooling and sharing meets the requirement for them to be able to reach at least part of these capabilities and also better contribute to common defence.

In Poland we have already contributed to some of those capability-building programmes, which we would not have been able to achieve in the same manner on our own. I refer specifically to issues such as strategic air transport, in-flight refuelling and areas of the space industry, which we would have found difficult to finance unilaterally. Participation in this type of activity allows us to build capabilities together with our partners and leads to other developments, such as our decision to join the NATO Alliance Ground Surveillance System (AGS).

The European Defence Agency (EDA) has an important role to play in helping States to participate in, and benefit from, this kind of activity and we have already benefited from collaboration in this area. As a result, we have already joined the Organisation for the Joint Collaboration of Armaments (OCCAR) as an observer and will become a full member in the near future – this will help us especially in the area of research and development. When viewing the currently run OCCAR programmes, Poland is actively participating in one particular project, the European Secure Software defined Radio (ESSOR) which, as a multinational joint venture, comprises defence industrial partners from six European countries.

Overall, our modernisation portion within the defence budget currently exceeds 20% and is anticipated to grow over the coming years to reach 25%; and we still maintain a level of spending of 1.95% of gross domestic product (GDP), which is not



a bad average in comparison with some countries. We have the resources, but pooling and sharing in this way enables us to use those resources more cleverly. We need to keep in mind, however, that there is also an operational requirement that those pooled and shared capabilities must be available to us, once the situation really requires them.

How do you see European defence policy evolving over the next ten years? What part will Poland play in that evolution?

We wish to play a significant role, but it is difficult to predict the future ten years from now – or even in a shorter term. This, of course, is part of my job, but it really is quite a complex issue, especially with today's global dynamics. My impression, however, is that at the moment we react too much and do not take the opportunity to be proactive where possible – which is not a very good thing. Even as recently as 2011 who would have predicted the scope and nature of events in the Middle East and North Africa earlier this year? I think in ten years time we will have a peaceful situation in Europe – which is important to our citizens. Generally speaking, I think we will have a well organised Europe, with a European Security and Defence Policy evolving in the right direction. I hope we will also see a significant contingent of EU armed forces by that time.

I am not too enthusiastic in all areas, however. The problems of the Middle East are very unlikely to be solved during the next ten years. I think we will also have continuing involvement in Afghanistan in one form or another and there will be other areas where our concerns for security and stability will perhaps be challenged. The Arctic area, for instance, is one of the issues of global warming and resource exploitation and the management of it will be important to all European states.

Are there specific capabilities or areas of competence that the Polish armed forces can

share (or do share) with their European partners?

We have quite a lot of expertise in the area of Special Forces – especially in the command and control of Special Forces operations. We have taken efforts to create the Military Police Centre of Excellence in Bydgoszcz to share with Allies our experiences from this area and we contribute to a number of Chemical, Biological, Radiological and Nuclear (CBRN) operational exercises and developments. We have also been quite active in supporting our neighbours in the Baltic States, providing access to our training areas and to our air force bases for common use by their forces as well. I may say that we are well prepared to share our capabilities of training and military education with other interested nations by offering professional courses and access to training facilities.

The Foreign Ministers Group on the Future of Europe (which includes the Polish Foreign Minister) recently produced a joint paper entitled 'The time for a debate on the future of Europe is now'. Would you care to comment on European defence from your perspective?

Well, this particular paper is a political initiative from the Foreign Ministers and as such is perhaps not a very good area for a military person to comment on. However, it is very important that the future Common Security and Defence Policy (CSDP) will be far more dynamic and energetic.

It seems to me that it certainly should be – and that we can do far more than we are doing right now. The issue of European battle-groups is also a very important one for Poland. We are already the lead nation in one, we will be participating in another with France and Germany from January 2013 and, looking a little further ahead, we will be the lead nation in a third battle-group from July 2016.

We have invested into the battle-group concept very much and they give us an opportunity to contribute what we can and what we are good at. 

> "We should leverage synergies rather than act competitively"



Lieutenant General Claudio Debertolis is Director General of Italy's Ministry of Defence. He talks here with Philip Butterworth-Hayes about the defence priorities for Italy and the strategies under way to achieve these

What will be your capability priorities for the next five years? How do you plan to evolve operations to take account of new threats such as cyber security and a blurring of the lines between traditional military and homeland security threats?

My priorities have already been set by the Minister of Defence. They include: the improvement of C4I (command, control, communications, computers and intelligence) capabilities and of the Special Forces; the acquisition of cyber capabilities; the digitization of land manoeuvre units; the modernization of vessels, aircraft and helicopters; and the enhancement of ISTAR (intelligence, surveillance, target acquisition and reconnaissance) capabilities.

The purpose of these goals is to increase the quality – and optimize the technology – of our military institutions.

Our defence policy aims to establish a military force which, while smaller in size, will be more capable of leveraging synergies. It should be better integrated in the European multinational framework

What is your view on working with colleagues in different defence departments within Europe on joint procurement programmes? Have you analysed any savings and capability enhancements which could be made through pooling and sharing?

It is my understanding that since Italy has joined major European multinational programmes through ad hoc partnerships with the United Kingdom, France, Germany and Spain, our defence department has always tried to apply the pooling and sharing concept. Eurofighter, Tornado and FREMM (Fregata multi-missione/multi-mission frigate) programmes are good examples of this. Regrettably, in the past several opportunities to make further economies have failed to be fully leveraged, due to the need to meet specific national requirements. Such requirements raised additional costs and partly neutralized the advantages of cooperation.

For future investments my Armament Director colleagues agree that we should try not to deviate from common requirements. We should leverage

synergies rather than act competitively. Moreover, we must deal jointly with activities of common interest such as training, transport and air-to-air refuelling, thus reconciling the inevitable requirements to find further economies while fulfilling permanent national defence requirements. My colleagues and I agree that we must identify concrete activities to put into practice theoretical concepts, and we are determined to pursue the three areas I have mentioned.

How are you addressing the issue of financial shortfalls? Are you re-thinking the way systems are procured and supported, perhaps by changing the relationship with industrial suppliers?

In Italy the defence sector is making a coordinated effort to maximise the use of limited available resources. In addition we are developing a sort of partnership with industries to reduce costs. This allows us to jointly maintain the purchased materiel, efficiently combining our in-house logistic capabilities with those of industry.

The Eurofighter logistic support system brilliantly exemplifies this new method. Through this kind of partnership the efficiency of the aircraft in operation is maintained at the highest levels. Now we want to extend this method to other





 "we must deal jointly with activities of common interest such as training, transport and air-to-air refuelling, thus reconciling the inevitable requirements to find further economies while fulfilling permanent national defence requirements."



development activities, where military users could contribute to the design phase. This would reduce costs and allow for an immediate analysis of what the most cost-effective way to meet the project's requirements – and for their on-going optimization – might be. We have had to overcome some initial problems and a certain resistance but now the advantages of this modus operandi have become manifest.

What role do you see the EDA playing to support Member States defence activities?

I think that the EDA's role is of utmost importance in facilitating international cooperative activities. And even though not all countries recognize it the Agency is de facto and institutionally playing this role. Of course, to gain full recognition it must continue to work proactively and coordinate as much as possible with similar NATO activities. In my opinion, the current Chief Executive Ms Claude-France Arnould is pursuing this policy with determination and effectiveness.

With regard to coordination with NATO I am convinced that the EDA is not duplicating activities. On the contrary, it can contribute to supporting and improving transatlantic activities, since, in many respects, these necessitate the development of a single European vision.

Can you give me an example of how 'smart procurement' has worked - new ways to buy, operate and support extremely complex weapons systems over a long period of time?

Support to the Eurofighter programme is a good example of this. We are also now paying greater attention to the implementation of a 'design-to-cost' approach. In the past, requirement-change procedures used to take a lot of time to implement and were costly. Now users are providing timely feedbacks on their cost-effectiveness assessments. This allows for requirements to be updated almost in real time.

From your experience in Italy how can we as Europeans do more, in the defence arena, with fewer resources?

This is a no-brainer. As I've already pointed out we're keen to establish real cooperative activities in investment areas and we are determined to keep requirements strictly common, while implementing new flexible, design-to-cost, procurement methods. In addition we want to develop the capability of optimizing basic capabilities by combining our resources. In the field of training, for example, a nation or a group of nations could become specialists in different stages of pilot training. 

> "Moving forward together"

Daniel Calleja is Director General of the European Commission's DG Enterprise and Industry which is actively involved in developing a new defence industrial strategy for Europe. He talks here with Philip Butterworth-Hayes and Eric Platteau

Last year the Commission set up a Task Force to examine how the industry can be brought within the single market while ensuring key capabilities are retained. What progress has it made?

The Task Force has a very clear objective: to strengthen the European defence market and industries. The work is co-chaired by DG Enterprise and by DG Internal Market under the authority of Vice-President Tajani and Commissioner Barnier. We have already identified three priority issues. First is the implementation of the Internal Market Directives for defence – both in terms of the public procurement and the transfer of defence products. The Commission has to ensure that the Internal Market for defence functions effectively. The second priority is the further development of an industrial defence policy. This involves important issues such as supporting small and medium sized enterprises (SMEs), financing and competitiveness – how do we make sure that Europe has a strong and competitive defence industry and a real strategy? The third priority is research, development and innovation. Europe's aviation sector has shown that by exploiting the benefits of a single market and on the basis of enhanced research, development and innovation, you can, from a fragmented industry, create world-leading companies. Underpinning these priorities there is perhaps a fourth one dealing with the very complicated institutional issues that have an impact on defence at the European level.

The Task Force will deliver concrete results. It's not a talk show, what we are working on are pragmatic solutions that can be of a real help to the industry. That is why we are very pleased that the European Defence Agency (EDA) is closely associated with work on the Task Force, alongside the European External Action Service. It would be impossible for the Commission to draw any meaningful conclusions in this area without having all the relevant players involved.

The financial crisis has caused major problems for defence

companies, especially when it comes to funding research at a time when national programmes are being reduced. Does the Commission have a role to play here?

We share this concern because we believe we are on the crossroads today. If Europe remains inactive we run the risk of increased fragmentation aggravated by the difficult economic situation. It is therefore crucial to concentrate our activities on the key elements that we believe can change the situation. We need to build a real internal market for defence products and we need to make a big effort on research and development to support the efforts which industry is making. We have significant resources available in our proposals for the *Horizon 2020* research programme and a very active SME policy which can be put to use by the defence industry.

But restructuring is inevitable and there will be – there has to be – a process of consolidation and restructuring like in other sectors.

The needs of the defence industry can also be better integrated into the Commission's *Mission for Growth* programme, which is aimed at facilitating access to external markets, including co-operation in the area of research and development. For example there are initiatives we are launching on remotely piloted aircraft systems (RPAS), there are the civil military elements of SESAR, and other programmes involving space and Galileo satellite navigation systems. With these, and the support of Member States, I believe we are going in the right direction.

Finally, in October the Commission will be launching a revised strategy for industrial policy, one of the most important initiatives to be submitted by Vice-President Tajani. We are finalising this work and there will be a specific section on the defence industry.



If Europe remains inactive we run the risk of increased fragmentation aggravated by the difficult economic situation. It is therefore crucial to concentrate our activities on the key elements that we believe can change the situation

We want to make sure that Europe remains an important player in this area, notwithstanding the difficulties we are facing because of the economic crisis. If we want to preserve our industrial base and skills we need a strategic and comprehensive approach.

Can you help European industry to sell equipment to the United States?

The transatlantic dimension, the transatlantic partnership, is essential because we are like-minded partners. We have developed very successful co-operation with the US in many specific sectors but we believe that we have to go into another step – and this step has been stressed in the Los Cabos Declaration of a few weeks ago of President Obama, President Barroso and President Van Rompuy. Once we have the final report from the high-level group for growth and jobs – and if the recommendations go in this direction – we would like to launch a comprehensive agreement with the US where we could address issues of regulatory operations in all sectors.

What happens if one of the conclusions of the Task Force is that national sovereignty is one of the main blockers of a Single European market, in other words the reluctance of national

governments to look outside their own supplier base?

The Commission will analyse the situation and draw its own conclusions. If the Task Force identifies obstacles for the development of the internal market we will address them in our report and to the other institutions. The Commission participates actively in the EDA, Foreign Affairs Council when it meets in Defence Ministers formation, and the Competitiveness Council.

The lines between security and defence continue to blur - what opportunities does the Commission's framework

research programme, which has an important security dimension, offer defence companies?

With FP7 we had an important security dimension which we are managing at DG Enterprise. In the context of the *Horizon 2020* research programme security will also be addressed specifically. An Extraordinary European Council of the Heads of State and Government will be held in November in which President Van Rompuy wants to reach agreement on the EU financial package for 2014 to 2020.

Some of the particular areas where FP research is underway include chemical, biological, radiological and nuclear (CBRN), remotely piloted aircraft systems and cyber threats. But our programme from 2014 to 2020 should also allow flexibility because there may be new threats for which we need to develop research.

On the other hand, there is the responsibility which Europe and its Member States have in relation to defence budgets. I want to also underline the key role of EDA in this area, to pursue closer and more integrated co-operation in these area between Member States.

How do you see the relationship between the Commission and EDA evolving?

We are very, very positive about the relationship. EDA is a key player for the development of European defence. The EDA is participating in our Task Force and the Commission is participating in Foreign Affairs Councils when it meets in Defence Ministers formation. EDA is also very closely linked to developments in the UAVs initiative, the Single European Sky programme and SESAR. We know our roles are different; the Commission does not have a military competence but we need to further develop the industrial and research dimensions. In the future this co-operation will, in my view, be further reinforced.

I strongly believe we should be very pragmatic and avoid complicated institutional discussions which take a lot of time and are not always productive. ☒

"The Task Force will deliver concrete results. It's not a talk show, what we are working on are pragmatic solutions that can be of a real help to the industry"

> "The real problem is time"

Lieutenant General Ton van Osch was appointed Director General of the European Union Military Staff (EUMS) in May 2010. His career in the Royal Netherlands Army included a tour as an operational planner with US Central Command in the early days of the conflict in Afghanistan. He was also the first Commandant of the Netherlands Higher Defence Academy. He talks here with Tim Mahon

How do you see the role of the EUMS in capability development?

You can compare us with a Defence Staff: we work in direct contact with the national Chiefs of Defence (CHoD) and under the direct authority of the High Representative and the Vice President of the Commission. We therefore fit in very neatly with the overall structure [of military authority in Europe] and have a role to fulfil in providing a context for military operations – both current and future – from the perspective of both operational analysis and in terms of lessons learned. Importantly, we apply this analysis to future tasks and translate the result into operational requirements.

The European Defence Agency (EDA) receives many more inputs from different areas, such as technological and defence industry considerations and the political motivation for many of our communal actions. Our role is to give a very clear military input – to ensure that the military perspective is not lost among all the other interests at work.

It is our responsibility to develop concepts – but I want to stress there is absolutely no duplication of effort here with NATO. We focus on issues specific to the EU, one of which, of course, is the question of civil/military cooperation.

One of the specific roles we have is to help

organise training and exercises for the Member States. We support the training of the EU Battle Groups in concert with the Member States, helping to develop the organisation of these forces and establishing what are the norms against which progress can be measured and evaluated. We bring teams from the EUMS in to support these activities, recognising that although we can do much to facilitate the exchange of best practices and provide good support at a policy level, the ultimate responsibility rests with the Member States.

What we are doing here is to focus, not only on the unit level requirements, but also – and very importantly – on the individuals who will have to work in EU Operational Headquarters. Our quest is to determine how we can find more efficiency, how we can make the future work of these individuals and teams more effective. I may say we have had some modest success in this area. Italy has taken a Lead Nation role in the area of airborne operations and military police and Germany has worked very hard in the area of operational planning exercises.

Does pooling and sharing offer an appropriate platform for capability development? How do the EUMS and the EDA collaborate in this domain?

I fully agree with many of the statements that

have been made regarding pooling and sharing as a partial solution to the challenges we face in collaborative capability development. At the EUMS we recognise that every Member State has needs – some common, some unique – and that there is a danger of wasting that scarcest of commodities – money – unless a tool such as pooling and sharing is available. So we help to stimulate the issues (such as demand harmonisation and common requirement development) via the CHoDs. We are involved in a marriage, if you like, between the political momentum and that coming from the CHoDs.

Pooling and sharing is an important tool – perhaps a very important one – but we also need to recognise its limitations. It is certainly true that if you need a capability that you cannot provide for yourself, practically the only way to achieve that is to do it in collaboration with others. But it is not always necessary to pool and share if there are alternative solutions. For example, the creation of multinational units or the establishment of a force mix that is specifically focused on an urgent operational necessity. In some circumstances this is a much more difficult thing to achieve – but it might be the right thing to do to address a specific objective.

There are many obstacles along the path to the




 "So pooling and sharing is a powerful addition to the toolbox because it actually increases sovereignty by providing a better balance between freedom to act and the responsibility to act"

various solutions to this problem and pooling and sharing faces some of them, too. The question of sovereignty is always mentioned, for example, but for me this is something of a non-issue. Sovereignty is really about a Member State having the freedom to decide how to use a particular capability and having the freedom of decision to be able to act. But if you want to be free to use a capability you must actually have it, whether in collaborative development of a common response or in the framework of international cooperation of forces. So pooling and sharing is a powerful addition to the toolbox because it actually increases sovereignty by providing a better balance between freedom to act and the responsibility to act.

In some cases the CHoDs may be reluctant to move in a particular direction because there are concerns regarding preservation of national industrial capability and that can be seen by some as one of the negative consequences of pooling and sharing: by collaborating there could be some erosion of national industrial capability. Again, I think there is an answer here that needs to be addressed directly. Pooling and sharing enable nations to develop capability and it also potentially saves them money. If those savings are reinvested – as opposed to being lost in wholesale budget cuts – there is an obvious positive effect on that

nation's capabilities in other areas – areas that might be equally important and which current resources may be insufficient to address fully. Madame Claude-France Arnould at the EDA has been quite outspoken in pointing out this aspect of pooling and sharing and the benefits of reinvestment.

What are the principal obstacles to achieving better, more effective collaborative capability development?

From my point of view we can be very positive in the field of pooling and sharing. This year has seen some very concrete and tangible results, especially in the area of training and education, for example. The EDA has been quite effective in translating the CHoDs' vision in this regard.

I am also very concerned, however. At a rough estimate there are only some hundreds of millions of Euros to be saved in adopting pooling and sharing initiatives. In some cases there is a requirement to invest in the creation of new capability – and therefore no immediate savings to be realised. Defence cuts, on the other hand, have been measured in billions of Euros. So my point is that pooling and sharing alone does not fully compensate. The concept has become something of a political buzzword. That is not wholly a bad

thing – the momentum is needed – and we fully recognise the importance and value of the initiative, but in reality – in the big picture, if you like – this is a relatively minor and partial solution to a much bigger and more complex problem.

What do you think the immediate future holds?

The security requirements of the EU are developing continually – there is a rapid worsening of the Defence situation and although we already have processes in place to deal with some of these issues, the real problem is time. We do not always have the time for the full level of coordination required for effective action before the consequences overtake us: for example, how to deal with the immediate future pain of budget cuts.

The bottom line – and a major area of concern for me – is that we need to do everything we can in order to be much more efficient with the money and the resources we still have available to us. And we can only work to help make that happen in an effective manner if the Member States want us to do it – whether 'it' is the creation of multinational or task-specific units or pooling and sharing to create a required capability. There are some good initiatives under way – but we need to act in light of the big picture, and there is a lot more work still to be done. 



Making cooperation the norm not the exception

Tom Wein reports from a recent European Union defence seminar which highlighted the need to change mindsets before collaboration becomes standard practice for European defence ministries

“What do you want to be remembered for in fifty years? Do you want to be remembered for reviving European defence or for letting it die?” Christian Mölling, International Security Associate at the German Institute for International and Security Affairs (Stiftung Wissenschaft und Politik - SWP), had a stark question to European Union (EU) high level defence representatives at a defence seminar in Brussels in September organized by Cyprus as part of its presidency of the Council of the European Union.

Cyprus hopes to build momentum in defence cooperation over the six months of its presidency and is organizing a series of seminars to address some of the issues around pooling and sharing. At this, the first such event entitled *Innovative European Defence Cooperation - Pooling and Consolidating Demand* the Cypriot defence minister Demetris Eliades underlined the importance of defence cooperation to small states like Cyprus, saying: "Since small Member States, like Cyprus, do not have a defence industry, cooperation... was one of their top priorities. Thus, thanks to the EDA, smaller member states are given the opportunity to actively co-operate and contribute in a number of areas."

An address by Claude-France Arnould, Chief Executive of the EDA, laid out the familiar scenario: each European nation must defend itself, but few can afford to do so. At the invitation of the Cypriot Presidency of the European Council, with EDA and the Egmont Institute, participants were examining pooling demand and joint procurement as one way to bridge that gap.

Swedish Major-General Karl Engelbrektson modeled a helmet that had saved Sweden millions of Krona. He explained that it had done so not

because it was special but by virtue of its very ordinariness. It had not been customized or perfected but bought off the shelf in partnership with Norway. He said the helmet was a small example of the savings on offer when the institutional bias was towards common procurement. Frank Haun, Chief Executive Officer (CEO) of German defence firm Krauss-Maffei Wegmann (KMW), agreed, and underlined the waste and inefficiency of each country demanding its own equipment when one design would do.

The institutional building blocks for implementing demand pooling were largely in place, agreed most delegates. Patrick Bellouard, Director of OCCAR, pointed to the cooperation between his agency and the EDA and to the recently-signed agreement to enhance that joint

matching commitment to cooperation at all levels within defence ministries and militaries – the commitment needed to keep initiatives rolling forward past regulatory and cultural obstacles. In essence, the participants called for a change of mindset so that pooling demand becomes the norm. Holding up his helmet, Maj-Gen Engelbrektson said: "This is not about national sovereignty. It is about organizational mindset."

Another keynote address was given by General Håkan Syrén, Chairman of the EU Military Committee. For him procurement is "nothing but mathematics" but he recognized that the bias against cooperation is deeply ingrained. Security of information is a concern and so is security of supply. National regulations differ widely. The present path of least resistance is to procure apart, and changing that mindset will be hard, slow work. In General Syrén's phrase: "The most difficult thing is not planes or ships or main battle tanks. It is we here round this table – our mindsets."

One proposal was to change minds through regulation. Swedish procurement officials have a legal requirement to procure jointly, or justify why they cannot. Finland has a similar system. General Syrén argued for flexibility, explaining "we have to start in clusters: geographical clusters, technical clusters" that could serve as examples as to the rest.

One attendee recalled that in the year 2000, Javier Solana said that European defence cooperation was moving "at the speed of light." The quote brought some wry smiles and nobody promised anything so ambitious; all were aware of the challenges that defence cooperation faces. But there was also awareness that the financial crisis would determine budgets for years to come and many delegates were resolved to find savings by making cooperation the norm rather than the exception.

But changing those mindsets will require a sustained effort. **K**



"The most difficult thing is not planes or ships or main battle tanks. It is we here round this table – our mindsets"

General Håkan Syrén
Chairman, EU Military Committee

work. Antti Peltomäki, Deputy Director-General of the Enterprise and Industry Directorate-General, reaffirmed the European Commission's interest in defence and its support for European defence cooperation. As Christian Mölling pointed out, what was missing was the will to use those institutions.

Christos Malikkides, the Cypriot Permanent Secretary of Defence, affirmed his will to use them. So too did Jukka Juusti, National Armaments Director of Finland. Detlef Selhausen, Germany's National Armaments Director, concurred. At the top levels of EU defence ministries the political will was clearly there. Frank Haun and other defence industry representatives said they welcomed the move. What was needed, the speakers felt, was a

Multinational response underway to providing battlefield medical care

➤ The EDA is heavily engaged in developing a multinational medical facility to respond to both military and disaster relief operational requirements, reports Tim Mahon

The experience of European nations and their coalition partners during operations in Bosnia, Kosovo, Chad, Iraq and Afghanistan has highlighted the need for fully-equipped and easily reached full-spectrum medical facilities in theatre. But as Luciano Accogli, the European Defence Agency's (EDA) Medical Project Officer, points out: "such facilities are expensive to buy and difficult to maintain. To guarantee the rotation of specialist personnel, a critical mass is needed and not every nation always has such numbers available."

The EDA's response, in collaboration with contributing Member States, has been to investigate methods of reducing redundancy in national assets and proposing to share equipment and pool personnel. "Some nations may not have the right number of specialised physicians while others may lack state-of-the-art equipment – so why not share these assets?" asked Accogli.

In creating a system that can be applied to the operational realities faced by deployed medical teams, individual nations play differing roles. Italy is the host nation for the initial pilot case, providing facilities such as command and control, logistical support and communications. Other contributing nations will then supply various modules of equipment and capability, according to the resources available.

"Fourteen nations signed a declaration of intent in March 2012 and Bulgaria has recently joined the programme as the fifteenth contributing nation," said Accogli. Work is now continuing on the development and agreement of a Common Staff Target (CST) which will be the instrument around which contracting and procurement will then take place. "Work is going very well on the CST and we expect to complete that before the end of the year.

Next year will be dedicated to developing the agreements between the nations – determining to what concrete offerings each participant will commit. In 2014 we will enter the procurement phase and the establishment of a training centre dedicated to pre-deployment training activities," Accogli said, adding that training will focus on harmonisation of procedures and the generation of a common 'language' of military medical doctrine.

Italy will host the first pre-deployment training centre in Rome with other nations possibly providing a similar facility after the pilot programme. "This means the first multinational medical facility will probably reach an initial operating capability some time in 2015," Accogli added.

The main aim of the project is to provide military capability but the nations also recognise the potential synergies with other activities such as disaster relief. A solution proposed by the EDA is the creation of EU Multinational Integrated Medical Units (MIMU), structured in such a manner as to be immediately available for a broad spectrum of medical emergencies, not necessarily limited to military scenarios.

A MIMU is a multinational medical unit integrated into an EU chain of command and consists of three principal components: an operational component (command functions and security), the medical functions (modules/surgical teams); and the service support component. The lead, or framework, nation would provide all support functions and some surgical teams/specialised modules. Troop contributing nations would then

supplement this core functionality with medical function modules, such as diagnostic or surgical units.

The question of speed of response will be critical to the success of the MIMU and any other modular structures that evolve from the work currently being conducted. Experience in EU and NATO operations over the last two decades has highlighted the benefits of speed and the salutary effects it can have on casualty survival and recovery. Evacuating a casualty – particularly one who has suffered traumatic injuries – to a field hospital within an hour can raise the possibility of survival by an order of magnitude. The forward



"This means the first multinational medical facility will probably reach an initial operating capability some time in 2015"

Luciano Accogli
Medical Project Officer, EDA

deployment of multinational units with the capability to provide broad-spectrum trauma treatment prior to reaching the hospital will be a major step forward in deployed medical capability.

Challenges being overcome include differences in standards of medical care among nations, although EU members benefit from an existing degree of commonality in this regard, and the effects of the economic crisis on available budgets.

Accogli sees this as a positive though: "Lack of budget to act alone makes the nations more willing to pool capabilities and share costs." ❏



"My job is not to produce a huge amount of papers but to assist member states to take the right decisions in capability development and by that help to deliver the right equipment, training or concepts in support of our troops in operations"

> Passing on the lessons of Bonn Madrid, Kabul and Brussels



Project officers at the EDA need special skill sets if they are to make a real difference to enhancing Member States military capabilities and help close the gaps that can hamper joint operations.

Operational experience, a firm grasp of the blockers and enablers to improved capabilities and a determination to succeed, no matter how complex the problems might seem, are often key ingredients. Like all EDA staff members Axel Butenschön will be with the Agency only temporarily before returning to a national post in the German armed forces in four, or at most six, years.

"If you come from operational background and a national capability development unit, as I did in the Ministry of Defence in Germany, you see the benefits of national processes but also see their limitations," he said, "Especially in operations – we had some situations where we had very good national equipment but we were not able to interact the best way we could with other Member States.

"For example the coordination with units of other nations especially in a high intensity situation was challenging during my slot in 2010 due to different national communication systems and procedures. So that was my motivation to join the EDA – I realised there were definite limits of national capability development and at some stage you need coordination from something like this Agency to really build something together."

The Capability Development Plan (CPD) is a key EDA initiative to overcome the challenge of increasing collaboration between EU countries and improving capabilities. Axel Butenschön moderates and organises with his team the set-up of the CPD between Member States on closing the capability gaps. "It's up to the Member States to assess future threats. Then we can integrate our experts from the Agency with those of the Member States. For example, in the future we most probably will see – due to various strategic drivers like global warming, new technologies or shortages of resources – new areas and modalities of conflicts and new threats and challenges. First we look at this from the point of view of a possible adversary



– what can he or she do with that? As a second step we assess what we would then need to counter it and ask what should we start to develop now to be fit for purpose in time. The CDP gives an objective orientation and supports our Member States in the assessment of whether future challenges can be met by existing assets or whether a new capability needs to be developed now and, preferably, jointly.

"The strength of the CDP is that Member States work on this assessment together and agree on a common picture of the future threats as the starting point for cooperative answers to that."

The findings of the CDP can highlight the area where Member States should invest, said Axel Butenschön. "In cooperation with them the Agency has to prepare and offer as a follow-on step substantial actions to convince its members to participate to their real benefit. As an example of this, recalling my time as a national representative until 2008, let me mention the helicopter initiative. Although already highlighted as a CDP prioritized area, only the concrete EDA proposal of a helicopter pilot training initiative convinced my national stakeholders to participate in a significant manner to prepare aircrew before sending them to real operations such as Afghanistan."

Axel Butenschön is a German General Staff Officer with expertise in logistics. As well as staff officer training in Germany he joined the Spanish General Staff Course in Madrid for 12 months and had a chance there to learn about the multinational perspective on defence matters. When he returned to Germany he was the national German representative to several EDA activities.

He also served three tours of duty in Afghanistan, one of it as a Battalion Commander.

"I commanded quite a complex battalion in Afghanistan composed of logistic, communication, reconnaissance and engineer assets, which is useful to the job I am doing now as it gives me a kind of intellectual reality check on all the theoretical things I do on a daily basis," he said. "I think it's important that in an Agency like the EDA you have more credibility if you can show Member States that besides your

technical skills you also know what is going on operationally. Not each operation is the same; Atalanta is a different story from Afghanistan and the Afghanistan as I experienced is a very different story to the Afghanistan of today and tomorrow.

"However, if you make clear that what the Agency does is to support troops in missions it gives you more credibility if you have had time out there. To understand what the overall aim is. My job is not to produce a huge amount of papers – but to assist Member States to take the right decisions in capability development and by that help to deliver the right equipment, training or concepts in support of our troops in operations".

This experience helps him to analyse national capability plans with colleagues from Member States and to look for what is missing. "For example, you can look at the cyber or nano technology areas, assess how this will change future war fighting, look what Member States have already planned to develop and then assess with experts how to the best way to approach the issue in a cooperative manner.

"We look at the issues from the European side of what is needed and try to match that with what Member States have and what are the shortfalls to be matched by collaborative actions."

The financial crisis across Europe has increased the willingness of national ministries of defence to cooperate and Axel Butenschön detects a more positive attitude to the EDA initiative than ever before. "The CDP has received more importance now than maybe in its initial stage when we came up with the first priorities in 2008. If you look at pooling and sharing in a more structured way and really think not only about cooperation for cooperation's sake, but really start tackling the important things, then you do start to see the added value. And that's what Member States are interested in." 

Profile: Axel Butenschön joined the EDA as a Capability Development Plan (CDP) project officer in March this year – his experience in the field has given him an invaluable insight into the realities of what is really needed to boost Member States operational capabilities, writes Philip Butterworth-Hayes



> New harmonised military aviation requirements: safer, faster, cheaper

There are multiple benefits to applying a single set of military airworthiness standards throughout the European Union and the EDA has started, with its partners, to deliver them, writes Philip Butterworth-Hayes

The concept is simple: all military aircraft operated by European Union (EU) Member States will have a single Military Type Certificate issued by the relevant airworthiness authority which is recognised across Europe. With the introduction of common harmonised EU military airworthiness requirements, the time and cost of certifying new military aircraft types would be significantly reduced. A European-wide network of military and commercial Maintenance, Repair and Overhaul (MRO) organisations staffed by engineers whose qualifications and training are licensed to a single regime would result in lower MRO costs. These benefits are already enjoyed by civil aircraft operators who have an open market of approved MROs. Supporting military aircraft operations in-theatre could also become more effective, with a potential wide pool of transnational engineering staff and a shared common spares pool available. These would deliver a positive effect on the levels of safety of European military aircraft due to the utilisation of harmonised best practice. Commercial organisations would bring the disciplines of the market to military aircraft support activities and trained military engineers would be able to find a wide range of job opportunities to choose from once they leave military service.

Essentially, the participating Member States

retain their sovereign responsibilities for the airworthiness and support of their military assets, but day-to-day operations can be pooled and shared with their European allies. Over the last few years the European Defence Agency (EDA) and its participating Member States have taken the first important steps to realising this concept.

"Achieving and ensuring Airworthiness costs money but doing it wrong costs more than money," said Carl Garvie, EDA Airworthiness and Certification Officer and one of three agency staff working full-time to bring this concept to reality. "Those of us in military aviation have known for some time that there must be smarter ways of doing our activities than relying on bespoke national ways of working. We look at the way civil aircraft operators and authorities have developed more efficient and harmonised airworthiness and maintenance regulations and the obvious question is: why can't the military reap similar benefits?"

In 2007 the EDA was tasked with looking at ways of improving the certification and maintenance activities associated with military aircraft. The outcome of this work highlighted the potential for improving safety standards while lowering costs and timescales. In 2008 the National Armaments Directors of the participating Member States (pMS) tasked the EDA to set up an *ad-hoc* group to prepare a roadmap of activities and objectives to be

achieved. Providing detailed estimates of potential savings is complex, as each pMS has its own processes for achieving the certification of military aircraft and the way in which they provide operational support. But potential savings on aircraft certification costs alone are considerable and the adoption of a single harmonised framework across Europe could dramatically cut the time taken to certify a new aircraft type.

This led in November 2008 to the EDA Ministerial Steering Board decision to create the Military Airworthiness Authorities (MAWA) Forum (see box). The agreed starting point was to utilise the excellent work that had already taken place in harmonising the regulations within the civilian environment and then to transfer the principles to the military. Dave Harding, Airworthiness and Certification Officer, explained: "A civilian operator can take an Airbus A320 and have it maintained in any organisation which holds the appropriate EASA organisational approval. However, in the military world the reality is that you can have five C-130s from different nations parked alongside each other, all with the same engines and similar configurations, but we can't pool and share maintenance personnel or even spares. If one of these aircraft needs a spare part, or if maintenance personnel are not available, they are invariably flown out from the participating Member State, even though there may be a perfectly suitable part or

maintenance personnel available on site."

"The MAWA Forum has the mandate from Ministers to establish common standards and requirements, along with putting in place the arrangements for the recognition of Military Aircraft Type Certificates together with the approval of production, design and maintenance organisations," said Jan Plevka, Principal Airworthiness Officer at the EDA, who heads the work in this area at the agency. The MAWA Forum is overseeing the development of European Military Airworthiness Requirements (EMARs), which must be approved by participating Member States and then implemented into their own national law before they can be classified as 'regulations'.

So far three EMARS have been released: EMAR 21 for the certification of new aircraft – including the approval of the design and production organisations, EMAR145 covering the approval of maintenance organisations and the activities they undertake and EMAR147 detailing the responsibilities of organisations responsible for the training of maintenance personnel. The requirements have a similar look and feel to the EASA regulations that they are drawn from, but have been re-interpreted for the military context – which has been a complex and in-depth process.

"For example, when we look at approving maintenance organisations we have to ensure that, as in the civil world, there is adequate lighting, heating and shelter from the elements," said Dave Harding. "But at sea in an aircraft carrier or on operations in-theatre, for example, this is not always possible to the same level so you have to include alternative wording to cover their application to military operations."

The drafting of EMARs is undertaken mainly by Subject Matter Experts from the participating Member States in smaller groups known as 'Task Forces', usually with 8-10 people involved. The EDA facilitates the Task Force discussions and provides technical support where required. The harmonisation process can sometimes be challenging for some participating Member States who may have decades of experience in certifying and supporting many military aircraft types and they can be very focused on what should be, and what should not be, included in the final requirements. "There is a risk that unless you are careful you will end up with the lowest common denominator and a set of requirements which does not deliver what is needed," said Dave Harding. "But the Task Force members are all passionate about airworthiness and there is a clear focus on delivering the right output."

"The EDA can also assist by bringing-in expertise and undertaking specialist studies," said Jan Plevka, "such as the one we are currently undertaking on the development of the European Military Airworthiness Certification Criteria (EMACC) that can be used as the basis for certifying newly developed and/or modified military aircraft. This

collaborative activity between the EDA, participating Member States and a contractor provided by the EDA has taken the US Military Handbook 516B as the framework and then assessed and harmonised all appropriate certification criteria, including those from civil airworthiness codes and military standards. These individual criteria are then analysed with the support of specific national airworthiness experts to achieve a fully coherent set of certification criteria that can be used for existing and future military aircraft programmes. We have a fantastic relationship with them and it's essential that we do, because it benefits all stakeholders."

The drafting and subsequent approval of an EMAR is not the end of the process. "It is a complex issue introducing the Requirements from the EMARs into national regulation because Member States have to understand how these new Requirements may impact their legacy regulations, especially those nations that need to support aircraft that may have been in service for many years. Very careful transition planning is involved," said Jan Plevka – who is also the MAWA Forum Chair.

The EDA's small team of three compares to the extensive staff working on similar activities in the civil environment – so the process they use has to be highly collaborative and draws extensively on the excellent support received from the experts from the pMS. The work programme is also due to intensify over the coming months with the possible application of EMAR145 – via an Anglo-French agreement – to the support arrangements for the A400M which is due to enter service with the French Air Force later this year. Discussions are well-underway about how these two nations will work together on maintaining the A400M in service, potentially utilising EMAR145 as the harmonised maintenance requirements.

There is also the development of a new 'Recognition' document that will provide the framework within which National Military Airworthiness Authorities will be able to recognise each other's airworthiness processes, thereby removing the duplication of activities such as the issue of Military Type Certificates and the approval of design and maintenance organisations.

Given the importance of the work it is not surprising the team is attracting interest in its activities from outside the EU. One of the MAWA Forum members is also the Chairman of the NATO Airworthiness Working Group, for example, and attendees from the US, South Korea, Canada, Australia and a number of other nations are regular attendees at the EDA Military Airworthiness Conferences, underlining that this is a global issue. The work also has the growing support of industry, whose representatives attend the MAWA Forum and contribute to the work of the Task Forces, providing a further specialist perspective to their activities.

But it is not just about keeping down costs. "Governments have a duty of care to ensure their military personnel are transported safely in the air,

and this is at the heart of what we do," said Dave Harding. "A harmonised airworthiness baseline is the fundamental building block across Europe for all aviation-related 'pooling and sharing' initiatives, which is essential if governments are to increasingly allow their personnel to be flown in aircraft of different nations." ❏



David Harding, Jan Plevka and Carl Garvie

The MAWA forum – aims and tasks

The Military Airworthiness Authorities (MAWA) Forum was established to harmonise airworthiness requirements and processes of the participating Member States. It consists of representatives from pMS' National Military Airworthiness Authorities and is chaired by EDA, which also provides the organisational and administrative support. Task Forces consisting of national Subject Matter Experts have been established to draft the relevant EMARs and EDA has also initiated a feasibility study into the formation of a European Military Joint Airworthiness Authorities Organisation (EMJAAO) that would provide a valuable central coordination function to maximise the potential benefits available to the nations utilising the harmonised requirements.

The goals of the MAWA Forum are to develop and recommend the following for adoption by pMS National Military Airworthiness Authorities:

- common regulatory framework;
- common certification processes;
- common approach to organisational approvals;
- common certification/design codes;
- common approach to preservation of airworthiness;
- arrangements for mutual recognition;
- formation of a European Military Joint Airworthiness Authorities Organisation.

Speeding the response to CBRN threats

The EDA is becoming ever more active as a focal point for European Union nations looking for technical solutions to the growing challenge of chemical, biological, radiological and nuclear (CBRN) threats, writes Tim Mahon

Military and civil emergency management planners face a significant and constantly evolving threat with the potential terrorist use of chemical, biological and radiological weapons. Detection and identification of agents – quickly and efficiently, to allow incident commanders to take appropriate remedial action – is the basis of efficient defence in this domain. And the European Defence Agency (EDA) has responded by generating a multinational research and technology programme aimed at making that easier.

As a paradigm for pooling and sharing of knowledge, the current category A¹ programme for CBRN protection technologies is a four-year, €12-million Joint Investment Programme (JIP CBRN) aimed at examining and developing the next generation of technologies for detection and identification of chemical, biological and similar threats – in both military and civil environments. The project has been running since 2010 and is moving rapidly towards its second highly active phase.

"We are aiming far beyond the current status quo for the next generation of technologies," said Gerlof De Wilde, EDA's Assistant Director for Research and Technology and the JIP CBRN programme manager, adding that this means harnessing and deploying technologies beyond the 2015 timeframe. Although on the surface the programme differs little from other research and technology (R&T) programmes in the Agency's remit, in fact there are some characteristics of the CBRN Joint Investment Programme that set it apart.

"One of the specific characteristics of this project is that we are aligning our work with that of the European Commission in this area," said De Wilde. Cooperation with the European Commission's research Framework Programme (FP) has focused on

detection and identification of chemical and biological agents and should empower better use of resources which will inevitably lead to more far-reaching results, in De Wilde's view. "We have agreed the objectives and procedures – this is the first action in which we have done this under the so-called European Framework Cooperation – we have been involved in joint workshops and are conducting consultation with the Commission at every stage," he said.

The Agency's programme is thus being supported by 13 contributing Members – Austria, Belgium, Czech Republic, Germany, France, Spain, Ireland, Italy, the Netherlands, Poland, Portugal, Sweden and Norway. The first Call for Proposals resulted in 22 separate submissions being made from industry, academia and research institutes, which are now being evaluated with contracts to be let before the end of this year, according to De Wilde. The first call focused on technologies for detection and identification, modelling and simulation of CBRN architectures and methodologies for handling a broad spectrum of unknown samples, an area in which De Wilde says there is a significant capability gap in Europe. The second call for proposals, due to take place in the spring of 2013, will focus on next generation decontamination and personal and collective protection technology. To discuss with all the involved parties and align the work with the civil research, a dedicated workshop around the second call for proposals topics will be organised with the Commission in the first quarter of 2013.

Nations have serious concerns about the need for adequate detection and diagnostic capabilities for potential CBRN threats. Although over 150 nations subscribe to treaties governing the non-proliferation of such weapons, there are significant evolving threats involving non-State actors. "After all, terrorists

(for example) don't care about treaties," said De Wilde. Combined with the effects of budget constraints and pressure on limited resources, these concerns mean that an opportunity to pool and share in the development of a next generation response to these threats is attractive to many nations.

The technical challenges are complex. Detection needs to be quick, accurate and tied to a fast-time simulation model which can assess the spread of the threat in a given environment. The result is that the next generation of detection technologies will feature a high degree of automation. The capability to evaluate mixed samples is something that simply does not exist in a robust format today, according to De Wilde.

Improvements in Modelling and Simulation – in which the Agency has proposed use of software it developed under the BIOEDP programme (*see box*) – will also provide CBRN professionals with vastly improved capability to evaluate and optimise the CBRN protection architectures.

In a challenging and politically sensitive area of research and technology, EDA's CBRN programme is resonating with a broad spectrum of community members. Perhaps the single most important outcome to date, however, has been the recognition of the benefits accruing to contributing Members, especially from the collaboration with non-military research with the European Commission. "We have become part of a broader family with this project and it promises to become a true generator of useful and exploitable knowledge," said De Wilde. 

¹ A category A programme is when one or more participating Member States (pMS) or the Agency's Chief Executive can propose this type of cooperation and presume general participation of all 26 participating Member States (pMS) unless they decide to 'opt-out'. These programmes tend to have a larger number of participants than other types.



Meeting the threat

The biological threat detection, identification, monitoring equipment, development and enhancement programme (BIODEP) is a highly complex project underway at the EDA to provide a collaborative response to multi-faceted threat.

"In May 2009 a decision was taken to launch a Category B² ad hoc programme to address the biological threats to soldiers and civilians," said Daniel Klein, Senior Armaments Cooperation Officer at the EDA. "This is one overarching 'system of systems' project with seven subsidiary projects addressing individual technology areas," he said. In a huge effort involving coordination between several of the EDA's directorates, eight separate Common Staff Requirements were agreed between ten contributing nations, nine of which have also signed up to the information exchange agreement that was developed in parallel. The essential nature of a Cat B project, he said, is that "you invest money and resources in your own industry and technology, but commit to sharing the outcome with the partner member states."

The estimated cost of the project currently stands at €100 million plus and five of the individual projects will be integrated into a demonstrator. One of the remaining two – decontamination – will be dealt with in a research and technology process and one – looking at the standardisation of stand-off detection – "an area that is not yet mature," according to Klein. This will be incorporated into an EDA operational budget study.

What will the nations receive and benefit from at the end of the process? "There will be several aspects of the demonstrator programme that will provide benefits to the Member States: a laboratory demonstrator, a reconnaissance armoured vehicle and a point detection system among them. Afterwards we will most probably integrate technologies not yet mature, such as decontamination and a stand-off detection system for biological agents," Klein said.

The first phase – completion of the requirements harmonisation and the building of a compelling business case – will be complete by the end of 2012. The investment decisions and agreement to proceed to the contracting and demonstrator phases will then be dealt with by the Organisation for the Joint

Collaboration of Armaments (OCCAR) – this is the first major project that will be handled in this manner under the newly signed administrative arrangement between EDA and OCCAR.

² Category B R&T Projects are initiated by at least two contributing Members, which may offer other Member States the possibility to join ('opt-in'). Funding is provided on a voluntary basis by contributing Members. Each contributing Member also appoints a representative to the Management Group.



"We have become part of a broader family with this project and it promises to become a true generator of useful and exploitable knowledge"

Gerlof De Wilde
Assistant Director for R & T, EDA



"Faster benefits

Giampaolo Lillo, EDA's Armaments Director, detects a positive change in attitude to collaboration and cooperation over the last few years, a change which will become broader and deeper, writes Tim Mahon

What are your priorities for improving Member States' (MS) capabilities? How can you make real changes to the military capabilities of European Union States within a short period of time?

We work on two different aspects: our enabling activities are focused on ensuring the EDA itself can better establish and support cooperation while our other focus is to support Member States establish concrete armaments capability projects. A good example of the former is our work on airworthiness (see also, *New harmonised military aviation requirements: safer, faster, cheaper*, this issue) where we are working hard to bring consistency and synchronisation while enabling further work to be done in areas related to the aeronautical sector.

We have already been successful in producing a degree of standardisation and an organisation that is going to be used by our Member States. We are looking to expand our enabling activities since we believe strongly there is room for improvement in this area. We have seen a measure of redundancy in all our Member States, replicating functionality that could be achieved more efficiently and cheaper in collaboration.

On the second pillar – preparing and supporting our Member States to establish new armaments capabilities programmes – our traditional activity centres on the preparation phase. This begins, from our perspective, with the definition of capability requirements which are

consolidated in the form of a common staff target. Our work in this area is carried out jointly with our colleagues from the Agency's Capabilities and Industry & Markets directorates. Working together to explore different options to fulfill the capability requirement we can develop business cases and eventually sign contracts on behalf of Member States, or support MS to transfer the contracting responsibility to external Organisations, first of all to the Organisation for the Joint Collaboration



of Armaments (OCCAR). For that reason we have recently signed an administrative agreement with OCCAR which should allow us to implement a smoother, easier and faster transition from the preparation phase to the contractual one.

What sort of savings in time and money are possible by taking this approach?

In the 'enabling activities' area such as Airworthiness process harmonization, it is extremely difficult to define costs and savings accurately, as the cost drivers are different in nature and from MS to MS. We have recently launched an internal study aimed at providing answers to this question, in order to present our Member States with concrete examples of the added value of our work here.

In the programme preparation phase it is important to state that cost savings are not the only factor. In most cases the real added value to cooperation is the very possibility to realize programmes that a single MS could simply not afford alone.

Have you noticed a change in the attitudes of Member States in the last three to four years to pooling and sharing of capabilities and working with partners and neighbours? Do you think there is now a greater appetite for this?

Yes, we have noticed this change in attitude. I am expecting further positive changes soon, too,



 "Working together to explore different options to fulfil the capability requirement we can develop business cases and eventually sign contracts on behalf of Member States"



to our Member States"

because we have received indications from several sources - including from the ministerial level - that Member States are going to reinforce this change in attitude. I believe that during the first attempts of pooling and sharing there was a degree of reluctance to go outside for assistance on certain elements, for a number of reasons. Now, after the initial experiences there is a greater will to evaluate the benefits of collaboration, because new military requirements continue to be proposed and there are advantages to common development and procurement. There are also advantages in visibility. In other words it is good to be seen to collaborate and cooperate.

Another positive factor is the extent to which communication between all Member States is increasing on collaborative programmes - and the EDA is recognised as an important facilitator in this respect. We have flexible tools to enable us to do more or less everything our Member States wish us to do, in the fields of both technical and administrative support. And we can use our flexible approach to facilitate the establishment of any kind of programmes in any kind of international configuration. In other words, EDA instruments are more and more available to support bilateral, trilateral, multilateral or any other scaled collaboration that our MS wish to launch.

Can you give me some examples of this?

The biological threat detection, identification,

monitoring equipment, development and enhancement programme BIO-EDEP (see also *Speeding the response to CBRN threats*, this issue) provides clear evidence of the capacity that EDA has in this regard, and is a good test case for identifying the challenges that have to be addressed in supporting our Member States.

BIO-EDEP is, in fact, an excellent example of the way in which nations can pool and share



capability development. With support from the ministerial level down through the operational requirements branches, a very complex project has been broken down into workable packages. The challenge of conducting eight separate requirements harmonisation exercises should not be underestimated and this is a major achievement.

There is also the added dimension of cooperation with the European Commission, to identify some of the synergies and the common requirements for this type of capability in the non-military governmental area. The aspect of civil-military coordination, which is present in many of our activities, is of paramount importance in this particular area.

Another good example of the areas in which this type of work is bringing considerable benefits is the maritime mine countermeasures project. This is a bilateral programme between France and the UK, which is going to be contracted by OCCAR. It is based on the preparatory work performed in an EDA Category B project. The two nations have agreed to cooperate to meet their urgent requirement, building on a Common Staff Requirement defined within an EDA facilitated multinational project team. The cooperation agreement we have with OCCAR will make our work in this area more and more effective and will bring faster benefits to our Member States as new capabilities are developed. 

➤ Building capabilities by going green

Most collaborative defence projects are aimed at finding cost-effective ways of increasing capabilities and spending money together - but the EDA's GO GREEN project has an entirely different aim: to earn money for cooperative projects of defence ministries and lower their carbon footprint, writes Philip Butterworth-Hayes

“Europe's military spends around €1 billion on electricity; the armed forces of a single large country spend as much on energy as a large city,” said Martin Stoussavljewitsch, the European Defence Agency's (EDA) GO GREEN project officer. “The idea is to explore the potential of renewable energy connected with the armed forces, who are the largest land owners in Europe and responsible for around 1% of the surface area of the Union. Armed forces in Europe also have one of the largest stocks of government-owned buildings in Europe – in the case of Germany roughly up to 32,000 buildings. We are now looking at using buildings and land in several European countries for more than just sleeping and training - we can use them to produce electricity.”

By installing photovoltaic (solar) power, EU armed forces can sell energy and deploy cleaner, cheaper energy alternatives. The EDA applies a commercial business model to the process, using private contractors to provide the photovoltaic installations while funding comes from banks rather than national budgets. Industry converts spare land and roof space into energy production sites and sells the energy while the armed forces take a share of the profits.

There have been similar schemes at national level before but any profit tends to flow back to the Treasury so there is no real incentive. But with a trans-national scheme the EDA can bring different Member States together to make it happen on a much larger scale with a more direct profit-sharing model and allowing armed forces to directly contribute to the EU's renewable energy targets.

As Colonel Erich Lang, Branch Chief within the German defence ministry and chairman of the group explains: “As far as I know it's the only defence programme under-way which generates money for cooperative projects instead of only spending it together.”

A pilot scheme involving seven nations – Austria, the Czech Republic, Cyprus, Germany, Greece, Luxembourg and Romania - has been set up, with each nation nominating a site for development. Romania, for example, contributes to the project with a 400,000sq m site for generating solar energy. In Greece, it is a large part in an air-base. “We expect roughly 60-70 megawatts power output as a minimum from this project,” said Col Lang. “That's a conservative estimate. You can supply about 23,000 households with this energy and this is just a demonstration project.”

The multi-national dimension gives the project added validity because it exploits the sunshine in Greece and Cyprus with the (relatively) easier access to capital from the northern countries. “And, by acting as a group of countries, we have much more leverage,” said Martin Stoussavljewitsch. “There will not be seven national tenders but one, and up to six prime contractors or consortia will be selected by the Member States to compete. At the end of the process, that means three finalists will make an offer.”



“EDA is the ideal location for this,” said Colonel Lang, “because it's in Brussels, which means we have all the expertise here and we are close to the European Commission. Because in 'green business' there are structural funds available, which you cannot easily investigate nationally. EDA is an ideal location, especially if you think in re-investing the collected revenues in cooperative CSDP (Common Security and Defence Policy) projects instead of transferring your national profit share into your home capital. Nevertheless, both procedures are applicable.”

Military Green – an innovative EDA initiative

Besides this pragmatic and innovative approach, the EDA has established an overarching approach to reducing the military fuel bill and environmental footprint. Drawing on the expert resources in Member States and the EDA itself, the *Military Green* (see box) umbrella has been developed to reduce the environmental impact while strengthening defence and crisis management capabilities across a wide variety of services for air, sea and land applications.

“Green issues in the past have not been a core concern of the defence community,” said Dinesh H C Rempling, the EDA's lead on *Military Green*. “In addition energy and the environment have been looked at as two separate issues but that's changing. One of the key drivers is the high cost of energy. In Afghanistan, for example, delivering fuel

"In Afghanistan, for example, delivering fuel to the front line is a logistical Achilles Heel with the deployment of long military convoys, which adversaries see as targets. But energy needs to be viewed as a capability in its own right because it is the backbone of crisis management and defence"

to the front line is a logistical Achilles Heel with the deployment of long military convoys, which adversaries see as targets. But energy needs to be viewed as a capability in its own right because it is the backbone of crisis management and defence."

US forces in Afghanistan have lowered their energy bill and reduced their logistical burden by introducing solar energy to power small radio transmitters or charge batteries, and wind turbines to generate electricity at remotely located bases. The EDA has launched a series of studies and projects contributing to the aims of *Military Green* exploring similar possibilities of reducing energy consumption by EU military organisations. The UMS programme is for example investigating the use of new types of fuel cells and batteries for robotic maritime applications. A study on fuel dependency is due to be completed this year, looking at energy consumption in European crisis situations, compiling detailed statistics on fuel use at various military bases and modelling energy use in different operational scenarios. The EDA is also working with a private contractor on a computer modelling system which will allow Member States to develop energy efficient military camps for main operating base, forward operating base and patrol base applications.

"In general we want to establish common requirements and guidelines for how you can design in an optimal way and the pilot for this is camps," said Rempling," and, as an extension of that, how overall you can make your operation greener. It will

be up to Member States to decide how and whether they want to use it but the first step is to create awareness among all stakeholders."

Further work is taking place in the area of munitions – looking at how 'best practice' in developing and deploying new types of green munitions can be rolled out across Member States. Other work in this area includes studies to reduce collateral damage on the battlefield with increased precision and ways in which manufacturers can keep to a minimum the use of hazardous products in the production stage.

This is an area in which Europe is taking a pioneering role – developing the technologies and the institutions to manage energy efficiency and climate change issues in all areas. For example, the UK has appointed a Special Envoy for Climate Change and Energy Security to involve security agencies in severe weather events and to tackle the consequences of intensified competition over scarce resources.

"The defence and crisis management communities have a unique opportunity today to make a difference," said Rempling. "It's not all about going into war-zones, making peace and then leaving; our work is also about prevention and reconstruction. In theatres such as Afghanistan, for example, we could put in more permanent structures for better energy, waste and water management that can handle more than we need – and leave the infrastructure behind once we've gone, hence contributing to regional sustainability." 

The benefits of clean, green military power

The EDA's *Military Green* initiative is a strategic platform to:

- Support shaping of responsible policies
- Incentivise opting for greener solutions
- Maximise civil-military synergies and identify where specific investments on systems and technologies are required

Adopting a through-life approach, planning is essential to mitigate adverse environmental effects in all phases of the life-cycle. The scope includes among other things:

- Achieving energy efficiency by combining novel and conventional energy supply technologies covering all systems levels down to the nano-level
- Reducing the logistical footprint for both waste and water
- Introducing smarter engagement through greener munitions
- Minimising through-life hazardous effects associated with materials
- Studying the impact on climate and ecology, gathering statistical data on impact and providing guidance for eco-friendly designs

➤ Helping secure the spectrum for military operations

The European Defence Agency is playing an increasingly important role in helping Member States confront the challenges of – and exploit the opportunities to – growing pressure on radio frequency allocations, reports Philip Butterworth-Hayes

The challenge: throughout Europe defence departments are planning to insert new networked operational capabilities and more accurate digital surveillance and communication systems. At the same time governments are looking to exploit the financial opportunities from the sale of radio frequencies to a growing number of commercial organisations such as mobile telephone companies who have millions of euros to invest. As a result, unless they can secure appropriate bandwidth into the medium and long term, Europe's defence departments face losing access to vital radio services on which current and future systems depend.

The solution: Increasing cooperation among European Member States, via the EDA or other bodies, to monitor international regulatory bodies' planned allocation of future radio frequencies and work together on technical and procedural improvements to make better use of the frequencies available.

"Spectrum planning is a long term business," according to Gerard Lapierre, Radio Spectrum Project Officer at the EDA. "Spectrum issues need to be resolved up to ten years before new radar or aircraft enter into service and you need to decide at the definition phase what frequencies range you will address, ensuring those frequencies will be available years from now. Industry, too, will need to invest in new antennas and associated systems so they will need to know which regulatory framework will be in place." Failure in spectrum planning can result in significant cost overruns. For example, the release by the French government of the 830-862 MHz band by the military led to a 15% increase (€118 million) in the FELIN programme (Fantassin à Équipements et Liaisons Intégrés), the French future

infantry soldier system.

Military departments are major users of the spectrum but less and less in regions with commercial interest, below 3 GHz. A recent benchmarking exercise undertaken by Logica for the EDA on several EU Member States showed that more than 82% of the spectrum used by the military is on a shared basis with other users. Therefore, any regulatory evolution of the spectrum use is likely to concern the defence community. But recent cuts to military budgets have seen a loss of personnel involved in spectrum planning issues. Radio spectrum is a public good, a matter of national sovereignty, but Member States are, among other initiatives, looking to the EDA increasingly to monitor events on spectrum management at global and regional levels, and to act as a central repository for data collection and dissemination.

The EDA, through its project team on Radio Spectrum currently chaired by France, began work in this area in 2008 with the SIGAT (Spectrum requirement for the Insertion of UAS into General Air Traffic) study, a technical study which involved 20 industry and government stakeholders and covered the spectrum needs of UAS platforms. Since then, the work has broadened into a more political focus.

In 2010 the EDA began to analyse the impact on Member State defence departments of EU policies with potential impact for the military, among which is the radio spectrum policy. The EDA put forward important amendments to the Commission's proposed Radio Spectrum Policy Programme – which entered into force earlier this year – to have defence and Common Security and Defence Policy (CSDP) spectrum requirements recognised. In parallel, the Agency also initiated work on an enhanced understanding of spectrum use by participating Member States - to what extent they

share spectrum, and optimise their use of frequencies. The idea behind the Military Radio Spectrum Needs (MRSN) study was to provide decision-makers with a comprehensive overview of the bandwidth needs for the full range of military operations, from aircraft carriers to armoured vehicles, and the consequences in terms of capabilities if bandwidth were reduced or lost. This constitutes useful information to advertise the defence use of spectrum.

"We are a watchtower of all regulatory developments, especially in EU area, and report back to Member States so each defence department can assess the consequences of these policies on their own national development. Ideally, this could trigger coordinated action," said Gerard Lapierre. These activities are also driven by the agenda of the World Radiocommunication Conference (WRC) of the International Telecommunication Union (ITU), which takes place every three to four years to revise the Radio Regulations international treaty. At the regional level work on the harmonised use of spectrum and preparatory work for the WRC are discussed in the framework of the European Conference of Postal and Telecommunications Administrations (CEPT). "This implies too many meetings for defence departments to attend or contribute to. participating Member States, in general, all have similar concerns so it is worth sharing the workload to solve these. In that respect, the EDA provides its contribution to this process by developing studies so that Member States have the appropriate materials to develop

their own policies, through a framework contract put in place for four years."

This should safeguard the current spectrum requirements for defence systems but the defence community also needs to look forward. "We'll need more and more bandwidth over the coming years - radars will need more bandwidth for great accuracy, communication systems for higher bitrate and satellites for clearer resolution," said Gerard Lapierre. For example, the next WRC in 2015 will decide on a possible extension of satcom bandwidth in the 7/8 GHz band used by the military. Access to more frequencies is one solution but European militaries will probably find they will have to do more with less. Some research and technology projects are already focused on this dimension - for example, the Faradays, Corasma, Wolf and HDR-HF programmes. "In which case we will have to define a more efficient way of using what we have through more efficient coding, better signal processing and finding numerous other ways of using the current bandwidth," said Lapierre.

Having access to radio frequencies is a prerequisite but this is no longer enough. There is also an important standardisation activity to make signals harmonised and interoperable. The EDA is engaged also in this dimension through projects handled by the R&T and armament directorates like the UAS joint investment programme or software defined / cognitive radio

such as the Essor programme.

So what is the best way to optimise spectrum use, a finite and scarce resource? Due to its important contribution to economic growth some European Member States are now engaged in incentive actions to foster stakeholders to optimise their spectrum usage. For example, the UK Ministry of Defence is engaged in a reform plan with the introduction of market mechanisms into spectrum management. The UK MoD pays the government

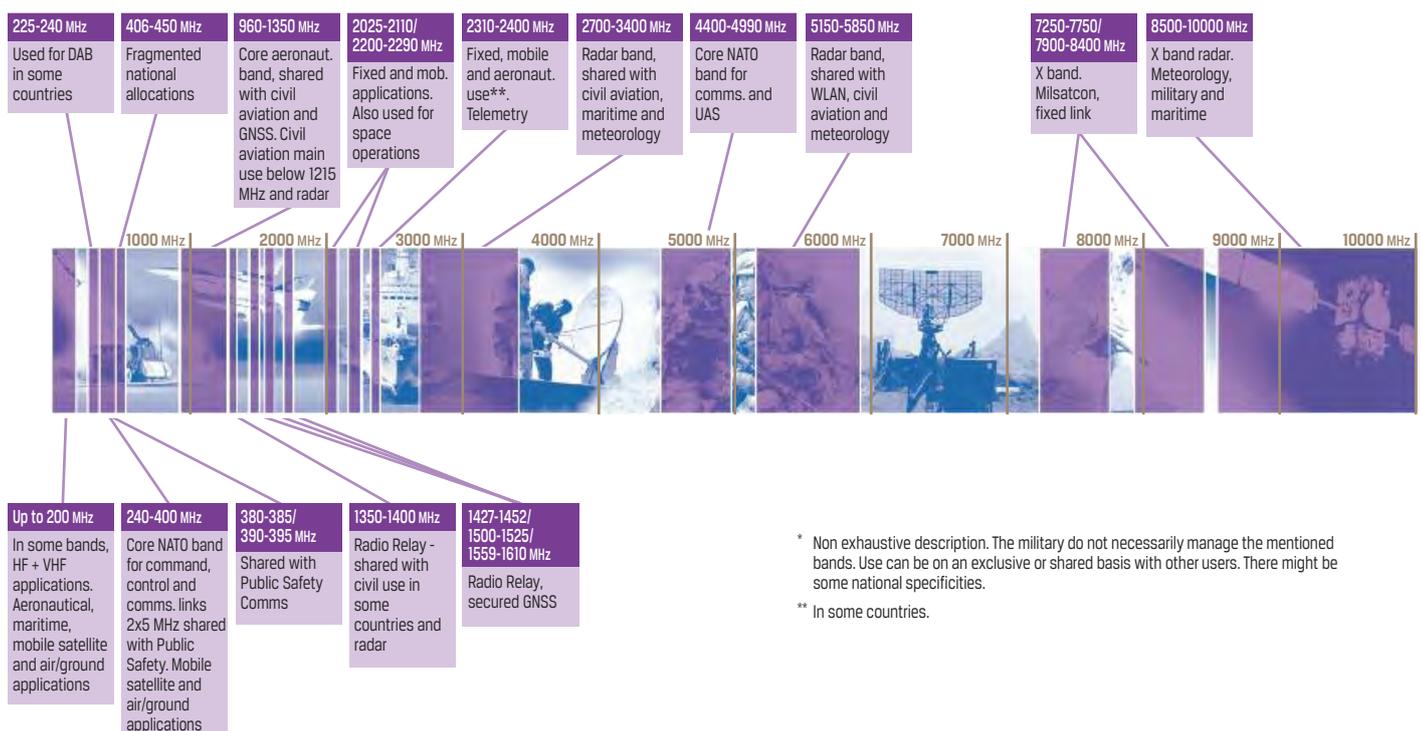


"Spectrum issues need to be resolved up to ten years before new radar or aircraft enter into service"
Gerard Lapierre
 Radio Spectrum Project Officer, EDA

several tens of millions of euros a year for its spectrum use and some frequency bands have to be released or traded.

The EDA is supporting its participating Member States by assessing short, medium and long term technical and regulatory evolution in the radio spectrum domain so that States can properly plan the frequency resource needed for their missions and future systems developments. The EDA is also helping facilitate coordination to sustain common essential defence spectrum requirement. In that respect, radio spectrum management was recognised as a core driver in the EDA Capability Development Plan.

Typical spectrum needs for the military below 10 GHz*



* Non exhaustive description. The military do not necessarily manage the mentioned bands. Use can be on an exclusive or shared basis with other users. There might be some national specificities.

** In some countries.



"Every explosive has a chemical signature, identification of which is extremely useful,"

› Counter-IED lab is saving lives in Afghanistan

The EDA funded and managed the development and fielding of a Counter-IED (C-IED) Theatre Exploitation Laboratory (TEL) in late 2011, with the assistance of several Member States, writes Tim Mahon

Of all the weapons deployed by terrorists the improvised explosive device (IED) is the most effective, causing more combat casualties than any other method of attack in Afghanistan.

NATO Exploitation Level Two for C-IED requires intermediate processing of information in theatre for investigation of IED events. This implies a forward deployed asset with sufficient capacity to deal with a wide variety of data input and a team of specialists to analyse, interpret and disseminate the product derived from such investigation. That is exactly what the European Defence Agency (EDA) laboratory, built by Indra in Spain, has provided for the Multinational TEL (MN TEL) deployed last year.

The laboratory was deployed to the International Security Assistance Force (ISAF) theatre of operations under the management of France, which assumed Lead Nation responsibility for the project.

Captain Jean-Charles Dhyser of the French corps of military engineers was tasked by the Direction Générale de l'Armement (DGA – France's defence procurement management authority) with overseeing the development of the laboratory in collaboration with the EDA. Once deployed, he acted in the capacity of technical advisor and EOD expert to the commander of the MN TEL.

"It is important to note that this is a long term project and what we have deployed so far is just a trial version. Nevertheless, we have managed a marriage of all the principles involved and can already identify at least five individuals who have been caught making IEDs as a result of the TEL's activity. Which is what this project is all about – the ultimate objective is the saving of lives," he said.

The laboratory itself, consisting of a number

of standard ISO containers jammed with equipment, provides a wide range of facilities for the gathering of IED event-related information and the processing of that information into actionable intelligence for use by local commanders.

In addition to photographic facilities and what Dhyser calls a "triage and security" functionality, the TEL consists of four main modules: biometric analysis (latent fingerprint recovery) electrical circuitry (primarily radio parts); media recovery (focused on the mobile phones often used as IED triggering devices); and chemical analysis. "Every



"We have managed a marriage of all the principles involved and can already identify at least five individuals who have been caught making IEDs as a result of the TEL's activity"



explosive has a chemical signature, identification of which is extremely useful," said Dhyser.

Level Two accreditation of the laboratory is a major step forward. "This gives us the capability for a more comprehensive and rapid analysis after an IED event and enables us to develop intelligence that allows us to get inside the enemy's decision chain – it's really about entering the mindset of the terrorist and interrupting his production process; being able to take action before the next event," he said. Very few nations have a Level Two capability at the moment – the United States and United Kingdom foremost among them – so the development of a European TEL is an extremely important asset.

In a novel approach to pooling and sharing, the EDA's approach to the MN TEL was to manage the project through its own operational budget and to procure the asset for use by any participating Member State (pMS). Although France, as lead nation, was joined by Austria, Italy, Luxembourg, the Netherlands, Spain, Sweden, Romania and Poland in directly supporting the project, any pMS can request deployment of the TEL, conditional on its accepting responsibility as lead nation for the deployment period.

The major advantages of the MN TEL, according to Dhyser, are the features of "portability and above all flexibility – the ability to develop and disseminate information in a very short period of time". The rapid nature of activity is not limited to the operational level, however: the speed with which the procurement and deployment process is quite impressive, even by comparison with other urgent operational requirements (UOR) coming from the Afghan theatre of operations.

"This was true de facto collaboration and we were able to contribute significantly to the activities of Combined Joint Task Force Paladin in areas not covered by purely national assets," said Antoine Torres, spokesman for the DGA. He adds that some of the immediate results of the initial deployment point to the "true benefits stemming from combining national technological capabilities with an international team of experts and a secure working environment."

Having analysts on the spot, from a variety of nations, with different but complimentary experience and a depth of knowledge that can be applied to a situation as it evolves, rather than at the end of a long communication chain back to a laboratory in mainland Europe, has already proven to be an asset worth every cent of the funding that has gone into making the TEL demonstrator available for operations. 



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➤ Towards more efficient and effective European land systems

Land-based defence systems dominate the type of expeditionary warfare facing Europe's armed forces. But the community surrounding them – procurement authorities, design, development and manufacturing entities and military users – is fragmented. Tim Mahon investigates the nature and objectives of the EDA's Future Land Systems initiative, which addresses this situation in detail

The land sector accounts for 25% of all defence expenditure and land systems are the most frequently and extensively deployed of all defence assets, according to EDA's Chief Executive Claude-France Arnould, speaking at an EDA conference held at this June's EuroSatory exhibition. But the fragmentation of the sector and overcapacity in some key areas has been a cause for concern for some time. The conference *The European Land Sector: Preparing the Future* was a milestone of an EDA initiative to bring together all relevant stakeholders to develop a roadmap for its future direction.

The Chief Executive's opening remarks highlighted just how important the sector is for the European economy, providing some €16 billion in revenues and directly supporting over 90,000 jobs. But the sector suffers from some fundamental challenges. "We definitely need cooperation, but we still lack it to a great degree," said Claude-France Arnould. "There is a need for consolidation of demand. We need to identify the research and technology challenges that lie before us and to determine what possibility exists for greater and more effective cooperation."

She also stressed that the early experience of pooling and sharing of capabilities has been broadly successful, with concrete examples of collaboration in areas such as training after action reviews, medical support and enhanced logistics.

But much of the debate hitherto has been inhibited by the lack of a comprehensive knowledge base on which better long-term decisions can be based. In response, the EDA launched

its *Future Land Systems* study in 2012.

The study is a comprehensive review of the land systems industrial sector, examining the issues that confront the manufacturing, service and support communities and suggesting ways to remedy them. The objective is to develop a series of recommendations and an action plan to make the sector a more cohesive, effective and stronger contributor to European defence.

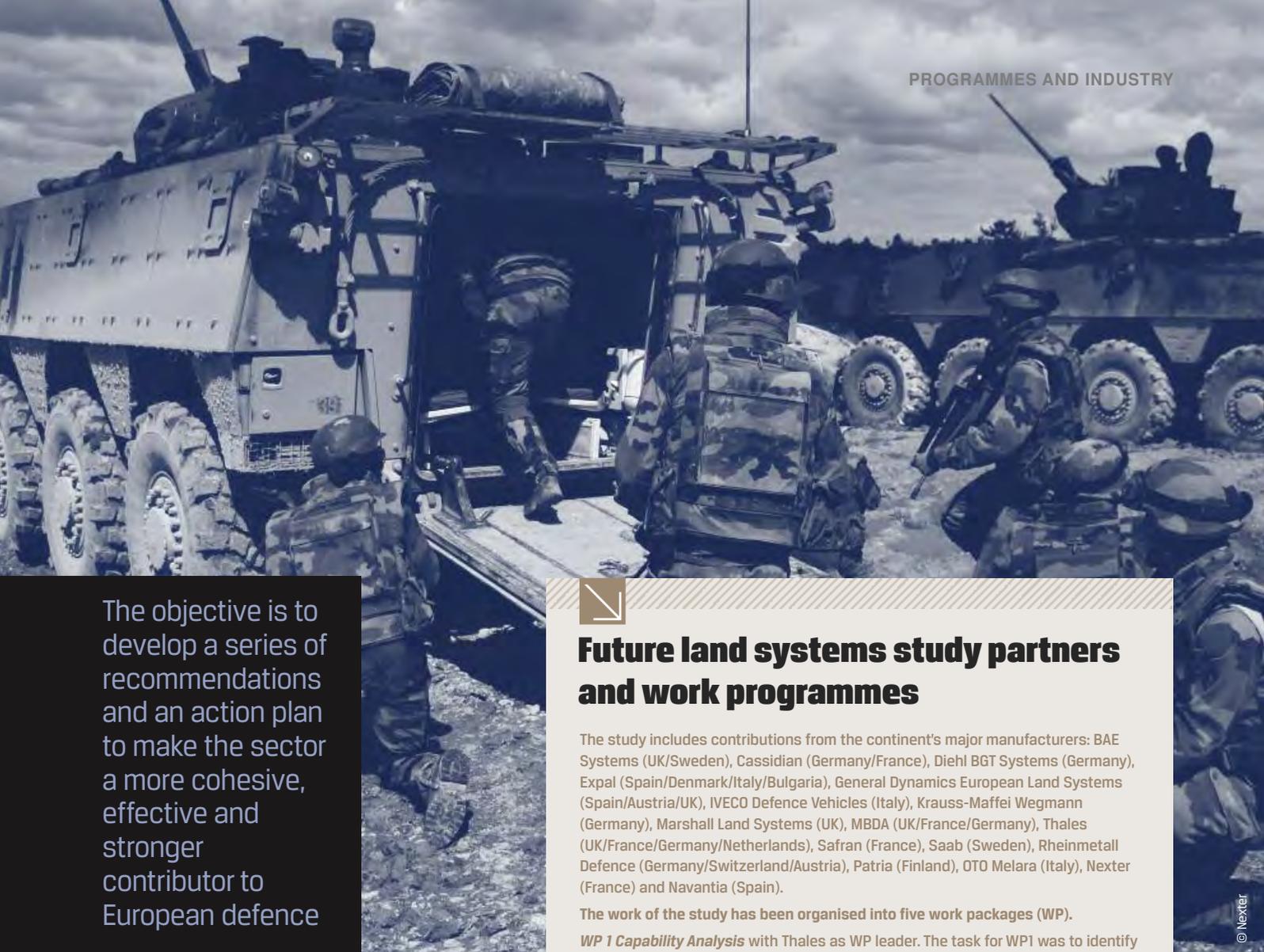
The study, *Roadmap and Implementation Plan for the Key Industrial Capabilities on Future Land Systems*, is being conducted by a consortium of 17 industrial partners, led by BAE Systems (see box). "The roadmap is to be delivered by the end of 2012" said Vassilis Tsiamis, an EDA Senior Officer

for Defence Industry, expert on Land Systems. According to Tsiamis "The EDA has facilitated close contact between the Member States as well as the European Union (EU) Military Staff, the Commission's DG Enterprise and many other interested parties. We conducted a milestone workshop in July, after the conference we held during EuroSatory, and will be meeting shortly with Finabel, the European organisation responsible for developing interoperability of Land Forces in a joint environment. "A key driver for EDA's work within the land



"The EDA's role in the project has not merely been limited to that of a coach and referee"

Isabelle Desjeux
Project officer, EDA



The objective is to develop a series of recommendations and an action plan to make the sector a more cohesive, effective and stronger contributor to European defence

industrial sector is to address first the military capabilities of the European Armed Forces", said Vassilis Tsiamis.

The study comes at a time when "the nations are much more open to the concept of sharing resources and discussing improved efficiencies than they have ever been," said Tsiamis. The real step forward is that the industrial dimension – which has always been a potential blocker to reducing over-capacity in the sector – is an integral part of the study, with manufacturers fully engaged in its work.

In the middle of 2013 an updated roadmap will be published, following consultation with the Member States and this will be used as the basis for further discussion and alignment. "We know we don't want list of 'wishful thinking' items; it is important to stress that although this report embodies at least 17 differing points of view it is a single report," said Tsiamis.

The comprehensive nature of the study is important. The existence of national capabilities – in, for example, battlefield armoured fighting and utility vehicles, modern radio communications, optical and infra red sensors or integrated weapon systems in multiple national industrial bases – contributes to the fragmentation and lack of cohesion the industry currently faces. The plethora of soldier modernisation programmes – of which there are at least 17 examples within Europe currently – is a situation where harmonisation of requirements and pooling and sharing of resources are urgently needed. These and other aspects are being taken into account in the detailed investigative work and discussions taking →



Future land systems study partners and work programmes

The study includes contributions from the continent's major manufacturers: BAE Systems (UK/Sweden), Cassidian (Germany/France), Diehl BGT Systems (Germany), Expal (Spain/Denmark/Italy/Bulgaria), General Dynamics European Land Systems (Spain/Austria/UK), IVECO Defence Vehicles (Italy), Krauss-Maffei Wegmann (Germany), Marshall Land Systems (UK), MBDA (UK/France/Germany), Thales (UK/France/Germany/Netherlands), Safran (France), Saab (Sweden), Rheinmetall Defence (Germany/Switzerland/Austria), Patria (Finland), OTO Melara (Italy), Nexter (France) and Navantia (Spain).

The work of the study has been organised into five work packages (WP).

WP 1 Capability Analysis with Thales as WP leader. The task for WP1 was to identify key military capability requirements in the land environment over the next 30 years in order to determine the key industrial implications for the European Defence Technological and Industrial Base (EDTIB). A Draft Capability Analysis Report has now been delivered and updates are on-going to Member States, EDA and relevant stakeholders such as Finabel and European Union Military Staff (EUMS).

WP 2 State of Play Analysis with Rheinmetall Waffe Munitions as WP leader. The task has been wide-ranging, incorporating a global analysis, a determination of key relevant technology sectors, an industrial landscaping exercise, an analysis of past, present and planned activities across Europe and a determination of the civil trends that will have tangible effects. A draft State of Play Report has already been submitted and is now in the evaluation and comment/feedback stage.

WP 3 Analysis phase with BAE Systems Bofors as WP leader. Early conclusions from this WP indicate that the European Defence Technological and Industrial Base (EDTIB) is indeed fragmented but has acceptable skills and capacity to provide EU with the required capabilities in the near- and mid-term. In the long term, however, the study foresees a loss of capacity, given that the technology, industrial and programme areas are not being handled adequately. Much effort requires to be invested in the area of 'key,' 'pacing' and 'emerging' technologies to leverage effect on the long term evolution of the market and the group of 'generic' technologies must be improved, not only to ensure interoperability but also to secure effect on near, mid- and long-term prospects.

WP 4 Roadmap and Implementation plan with MBDA as WP Leader, a phase of the project due to reach conclusion in the last quarter of 2012. The process is driven by the output of WP3 and the shortfalls in the EDTIB identified therein. A detailed questionnaire and interview programme, due to have been completed in early October 2012, will also contribute substantively to the evolution of the roadmap.

WP 5 Pilot Projects and Programmes with Rheinmetall Waffe Munitions as WP leader. The Future Land Systems project includes a tangible demonstration of benefits in the form of a recommended list of pilot programmes for implementation immediately after the conclusion of the study.



"We have certainly worked hard to investigate, evaluate and add our own recommendations for the potential future shape of the land systems sector"

place around the core of the study programme.

Although the timescale for such an ambitious undertaking is relatively short – the entire project will be completed by the end of 2014, within a three-year timeframe – the background against which the study is taking place is in flux, with many companies contemplating consolidation and merger.

The EDA's role in the project has not merely been limited to that of a coach and referee, said Isabelle Desjeux, an EDA Project officer on Industry and Market, working as well in this particular area. "We have certainly worked hard to investigate, evaluate and add our own recommendations for the potential future shape of the land systems sector," she said, adding that delegations from the EDA have been working on the project with representatives of several national governments. "Industry follows the money, for obvious reasons, but we are also concerned to ensure that issues – such as security of supply and the maintenance of secure capability in sensitive areas such as nuclear and cryptography – are of high importance, linked to essential security interests of the Member States and thus excluded from the scope of the study work" she said.

The challenge for the teams working on the study is to ensure that the recommended way forward takes all these issues into account and presents a report that is action-oriented and aimed at improving effectiveness and harmonising capability. "We have to challenge conventional wisdom and make sure that what we recommend is not only effective, but realistic and achievable in the market conditions

Ammunition qualification moves towards a single European standard

An example of the type of pooling and sharing enablers that the *Future Land Systems* project might be expected to recommend can be found in the work to harmonise national activities in the arena of ammunition qualification. The fact that all EU Member States adhere fundamentally to a single series of standards for ammunition and munitions implies the issue of qualifying supplies for individual nations is a relatively simple and homogenous one. Not so, according to Vassilis Tsiamis, EDA's Senior Officer for Defence Industry. "Qualification in theory takes place to the same standard, but there are in reality 26 separate interpretations of that standard," he said.

This has consequences not only for duplication of effort among Member States, with a consequential waste of money and resources, but also imposes a largely unnecessary regulatory burden on the ammunition manufacturer. Each manufacturer must apply subtly different qualification procedures to each client nation. This results in considerable additional expense passed on to the customer, thus artificially increasing the unit cost and overall expenditure – something that is anathema to efficiency planners at a time of economic and budget austerity but can and should be eradicated anyway, in Tsiamis' view.

Recent operations have highlighted the need for partner nations in multinational operations to exchange ammunition. But if safety-related standards are not implemented in a common, or at least similar, manner by nations, the issue of procuring, stockpiling, exchanging or transporting ammunition together becomes moot. A Dutch cargo aircraft loadmaster, for example, may be forbidden by his own nation's regulations from accepting quantities of ammunition for carriage to the point-of-need if the ammunition has not been certified by the Dutch authorities.

As early as 2009 the National Armaments Directors (NAD) established the harmonisation of ammunition qualification as a priority area for EDA's action. A year later the European Network of National Safety Authorities on Ammunition (ENNSA) was established and the Minister's steering board tasked EDA to work on ammunition certification and qualification in March 2012, aiming at mutual recognition of national documentation and certification procedures.

Four months later, in July 2012, EDA delivered the results of a study on *Harmonisation of Ammunition Qualification*. Having addressed already gun-launched ammunition, the EDA is now issuing a call for tender for a study on air-launched smart munitions as well. Issues already recognised and reported-on include a lack of qualified and experienced safety system engineers and general erosion in the quality of national and governmental expertise in the area of explosives and ammunition safety. Further complications arise from seeking transparency regarding intellectual property rights and the need to obtain an independent view on achieving greater efficiency.

So the EDA's approach is a pragmatic one. "We have identified the issues that block harmonisation in the qualification and certification procedures and have some positive recommendations for future action, to be presented in autumn's Ministerial steering board" said Tsiamis.

we foresee. Remember this is a study that is looking out to a 30 year horizon," said Tsiamis.

"We believe – and we have evidence to support this belief – that the single greatest benefit the EDA brings to this work is that we are the only impartial body with the requisite operational and capability perspectives to make the work meaningful," Tsiamis said. 

> "All partners... need to re-think and discuss objectives"

Frank Haun, Chief Executive Officer of Germany's Krauss-Maffei Wegmann spoke to Reinhard Marak about the benefits to industry that pooling and sharing among nations can deliver

You spoke at the High Level Seminar on Pooling and Consolidating Demand, co-organized by the Cyprus EU Council Presidency, the Egmont Institute and the European Defence Agency (EDA) in September. Why do you think this is an important topic?

In times of declining budgets and the massive re-allocation of financial resources, all partners in the defence market need to rethink and discuss objectives, structures, and processes. We all act within a system of interdependencies. Creating win-win situations should be our common denominator. Thus – representing the supply side – I feel personally responsible to contribute and listen on this occasion.

When the EDA started to prepare the effective procurement methods work strand as one of the main vehicles to implement pooling and consolidating demand, our research revealed that the potential savings for governments, depending on the degree of demand consolidation, can be more than 30 per cent. The advantages seem to be rather on the demand side. Yet, European defence industries are constantly calling for it. Can you explain the benefits of pooling and consolidating demand for the supply side?

Well, it finally comes down to economies of scale. Assuming that the European Union's (EU) nations by and large will have to face the same challenges in land warfare for the time being is there really a need for six types of 8x8 vehicles

developed and produced within the EU? Or put it another way - do different operators of one and the same vehicle really need different specifications, levels of protection, and so forth? Being an engineering-driven company, KMW loves to supply leading-edge technologies. We are really good at that; but we would do even better if the breadth of demand could be reduced in favour of consolidated high-tech depth.

The benefits of pooling and consolidating demand seem so obvious and yet it is still an exception rather than a rule. From your point of view, what are the main obstacles to it?

In defence, as in many other respects, Europe is still a patchwork. Aiming at pooling and consolidating demand none of us may start with a blank sheet of paper. Today, military equipment varies from nation to nation. To a certain extent and for some time ahead this constitutes part of the reference frame for new procurements. Another major obstacle, of course, is national thinking. As Europeans we share the same values; most of us share the same currency and we co-ordinate our foreign policy – but in defence issues and in defence industries, things remain pretty domestic. The European Union's package of directives in the field of defence and security is a significant step in the right direction. However, competition on this platform can only be fair and cost-efficient if governments step back from various ways of supporting or owning their national defence industries.

Krauss-Maffei Wegmann has a long-lasting experience with pooling and consolidating demand, for example, through your cooperation with 'weapon systems user clubs' like the one for Leopard Main Battle Tanks. At the same time your company is also offering related training and logistic services. Can you tell us a bit more about your actual experiences and elaborate a bit on where you see further potential for pooling and consolidating demand?

We constantly listen to customers – we facilitate communication among them. Thus, all involved may benefit from each other's experiences. With the Leopard user club we have a platform to define and devise common supply concepts, further development and plans for adaptations. At KMW, this is an integral part of customer relationship management. If we talk about pooling and consolidating demand in the European Union, we are talking about something as efficient, but on a much bigger scale and backed-up decisively by national politics.

If you were given the possibility to deliver one key message related to pooling and consolidating demand to European governmental decision makers, what would it be?

Define your needs, discuss them open-minded with your fellow-nations – and have faith in the market. ☒

> Peter Scaruppe

Why invest in defence?

Defence spending is a catalyst for economic growth, innovation and employment, writes Peter Scaruppe, EDA's Industry and Market Director

We live in a world which has been shaped by commercial technology development originating from defence investment. Military research and development funding, defence procurement and the promotion of technology diffusion and industry competition have played a major role in developing a wide range of technologies we know and use on a daily basis. Jet airline travel, satellite telecommunications, mobile phones, digital computers and the internet all had their origins within the defence community.

For centuries knowledge in making weapons has also played an important role in economic growth and employment across a broad spectrum of industries. It was at the origin of the industrial revolution. In England, to drill the condenser cylinders for his steam engines, James Watt had to turn to John Wilkinson, a cannon-borer, "who had invented the one machine in all England that could drill through a block of cast iron with accuracy".¹

Today, more than two and half centuries since the start of the industrial revolution, Europe possesses a widely capable and knowledge-intensive defence technological and industrial base that accounts for an important share of EDA Member States' industrial production. In 2010, it employed directly more than 700,000 people with a turnover over €160 billion and an operating profit margin of 6.8%.² Although this base largely results from historic investments targeting high-tech weapons systems to meet the challenges of the Cold War, Europe still possesses a number of advanced and world-leading technologies. This is particularly evident in the aerospace sector, which accounted for €13 billion of research and development (R&D) expenditures and a 61% share in defence exports outside Europe in 2010.³

However, the situation is far from rosy. From 2006 to 2010, the defence expenditures of our




"Without maintaining adequate defence spending and investing in building defence capabilities both nationally and Europe-wide, the EU will be incapable of defending its strategic interests..."

Member States fell by €15 billion.⁴ In 2010, this was more than the total defence expenditures of 15 Member States.⁵ This is alarming. For example, the BRIC countries – Brazil, Russia, India and China – are expected to increase their defence spending

by 150% to \$391 billion by 2015.⁶ With resource-constrained economies in Europe, the question of defence expenditures and the impact on jobs, innovation and growth is coming to the forefront again, and this time with far more strategic implications.

However, it is clear that the European and global, technological and industrial landscape we live in would be very different without military and defence-related contributions to technology development. Several decades of public support, primarily in the form of military research and development and defence procurement, have resulted in a number of technologies becoming commercially viable and accelerating their development.⁷

Excellent examples of such investment are commercial jet transport, the transition from coal-fired to nuclear power generation plants (in the 1950s), the development of transistors, integrated circuits, microprocessors (in the late 1960s), supercomputers and the internet (in the 1990s), space communications, earth observation systems, 3D design technologies (in the 2000s), and most recently, a gigapixel camera



Mobile communications are just one of the technologies benefitting from defence investment

The Typhoon's industrial footprint

The Eurofighter Typhoon programme has been the largest collaborative military aircraft programme in Europe with the costs estimated at over €70 billion, comprising some 25% on development, over 50% on production and over 20% forecast on support shared between the United Kingdom, Germany, Italy and Spain on the basis of the number of aircraft ordered.

The programme currently supports around 100,000 jobs directly and indirectly in over 400 European companies. Many of the jobs are highly-skilled and high-wage jobs in development, production and support. The Eurofighter Typhoon programme has contributed to establishing world-class European companies in carbon fibre technology, sensor fusion and advanced glass fibre cables for data transmission, in-flight control systems, modular avionics and aero-engine technology.

There have been technology spin-offs to the motor car industry, including Formula 1 racing cars, encompassing carbon fibre technology, anti-skid braking, GPS-related developments, data-bus systems and head-up displays. Technology spin-offs from the Typhoon engine includes applications to civil aero-engines, power generation engines for civil work and electrical motors, construction machining and mining equipment.

And there are exports benefits. The aircraft was successfully exported and the four partner nations did not need to import an alternative aircraft with positive implications for their balance of payment (Keith Hartley, *The Economics of Defence Policy: A New Perspective* [Oxon: Routledge, 2011], pp. 310-312).

creating images with unprecedented detail, unveiled this year. All have their origins in defence technology development, creating a technological infrastructure at the margin from where the civilian industry could grow. In all of these technology innovations spending on defence research, development and procurement has played a major role, mobilizing the scientific, technical and financial resources necessary to sustain rapid technical change and to stimulate growth in the wider economy.

The economic benefits associated with advanced defence industrial production and its impact on growth, innovation and jobs are significant. With the annual cumulative defence budget of the EDA Member States close to €200 billion, defence expenditures are certainly capable of making the defence industry a net beneficial contributor to Europe's economic output.³ But this remains a secondary benefit of defence. The central objective is to promote internal and external security, maintain peace, stability and prosperity, and protect personal freedom and our way of life. This is the biggest net benefit of defence spending on growth in general and on innovation, jobs and

the wider economy in particular.

Without maintaining adequate defence spending and investing in building defence capabilities both nationally and Europe-wide, the EU will be incapable of defending its strategic interests, securing its independence and providing the secure and stable environment which promotes sustainable growth and economic prosperity. Given the United States' pivot towards Asia, the Pacific, and the Indian Ocean, this is no longer a hypothetical worry. It is a reality. And Europe has to stand united to maintain its position of influence in global affairs. 

1 Ruttan, Vernon W. *Is War Necessary for Economic Growth?: Military Procurement and Technology Development* (New York: Oxford University Press, 2006), p. 5.

2 See *ASD Fact and Figures* (Brussels: ASD, 2011), p. 4.

3 See *ibid.*

4 Years 2006 to 2009 inflated to 2010 economic conditions. See *Defence Data* (Brussels: EDA, 2011), p. 3.

5 See *ibid.*, p. 3; and *National Defence Data* (Brussels: EDA, 2011), p. 2.

6 See Guy Anderson, 'Briefing: Global Defence Markets,' *Jane's Defence Weekly*, 20 April 2011, vol. 48, no. 16, p. 27.

7 See Ruttan, pp. 159, 162.

8 See *Defence Data*, p. 2.

➤ The SME view: agility, interoperability and shorter procurement cycles are key



MASA Group, headquartered in Paris, is a small business with a global footprint. It specialises in the development of artificial intelligence-based modelling and simulation software for the defence, security and related markets. Tim Mahon spoke to Chief Executive Juan-Pablo Torres on the role of SMEs in the European defence industry.

A stronger European defence demands greater innovation from industry – better ways of achieving efficiencies. How do you see the small/medium sized enterprise (SME) sector contributing most effectively to this?

We sit in the software sector of the industry which is an increasingly important sector given the complexity and sophistication of the systems now being deployed for military applications. From this perspective we see a strong push towards greater efficiency, greater agility and much greater performance from the software the customer buys. This means that SMEs like MASA can be extremely responsive in face of continuously evolving customer needs; SMEs can do that by providing adaptable solutions, flexible in current applications, interoperable, and agile enough to cater for the future evolution of those and other applications.

To do this we have to address the questions of interoperability and standards – which are sometimes problems, especially in the software sector – and the issues of efficiency in implementation. In short, our most effective contribution is to guarantee future-proof and interoperable state-of-the-art software by innovating. However, SMEs are continuously facing long procurement cycles in the defence industry, which can sometimes be a challenge to promote quicker, more inclusive innovation.

Many observers believe that the European defence industry needs to consolidate. As an SME, do you see consolidation as a threat or an opportunity?

Very much an opportunity, though there are some issues of concern. As an SME, we need to be able to integrate our solutions with almost any existing system, whether it be an end user or a

systems integrator. So, within a consolidation context, SMEs have the agility to be able to provide true value to all different types of stakeholders in the defence sector.

Consolidation, though, may carry with it some aspects relating to the decision-making process in procurement that may have an adverse impact on SMEs. For example, some actors may become too dominant in that process, a situation which often does not help boost innovation. Also, with multinational integrators come multinational issues which are often beyond the capability of an SME to deal with. The evolution and implementation of change within the supply chain for the defence community is absolutely necessary and it can indeed bring production synergies and advantages for the end user. However, we must ensure that it is a change that we can be handled at all levels of the industry, SMEs included.

Simulation is held up to be an alternative to live training by some, but as a complementary activity to live training by others. Where do you see the balance between live training and simulation in the immediate future?

The balance has to be aligned with the need for better and more innovative training, as well as with the availability of resources. There are areas in which the capacity to conduct live training is severely restricted by budget considerations, for example. The use of more and more simulation therefore becomes an imperative, perhaps especially so in the area of command and staff training. There is no absolute substitute for live training, but simulation is becoming and will continue to be a very complementary solution. Not only can simulation offer cost savings, greater efficiency, and more rapid training integration, but it can also definitely

bring a strong contribution to more realistic training. Some scenarios lend themselves much more to simulation – crowd behaviour in civil/military operations, for example – and simulation will therefore be a vital component of future integrated training and mission rehearsal solutions.

From your perspective, what do SMEs in the European defence industry need to be able to grow and prosper?

There are many things we could benefit from, but one of the biggest areas of help would be more active management by the customer of all stages of the development and implementation process. By this I mean not just handing over a concept to an integrator for a five or ten year implementation period, but more active involvement at every stage with the entire supply chain to ensure the capacity to innovate and continue to keep the solution abreast of available technology. We do not need to be providing solutions whose technology is obsolete by the time they are implemented – we need systems that can take advantage of our ability to be agile and responsive. Future system architectures should be designed with the ability to be permanently adapted and upgraded with the latest available technologies.

There is also an issue for SMEs with the length of the sales cycle in this industry. It may not be so much of a problem for larger integrators, but it is often difficult for an SME to have the ability to continue to invest in the business development process for two or three years before winning a contract. That's a lot for some smaller companies and it means the industry needs to find a way to shorten these cycles if we are to be able to contribute effectively through agile, competitive and cutting-edge technological responses to the customer's requirements. ■

› Pooling and sharing: conditions for long-term success



Camille Grand, Director of the Paris-based Fondation Pour La Recherche Stratégique, believes that if pooling and sharing programmes are to reach their long-term goals a number of important conditions will need to be in place

Many observers and senior European officials argue that pooling and sharing is the only way to address the capability shortfalls of Europe in times of fiscal austerity. It is indeed the most promising approach in terms of capability development as it can and should allow participants to develop, acquire and operate assets jointly, generating potential substantial savings. It is however important to set the basis for long-term success. Otherwise pooling and sharing runs the risk of becoming another bumper sticker approach with limited effects in the real world.

Among the keys to long-term success three elements are essential.

Pooling and sharing will succeed if it is developed without a single model and if it follows a pragmatic approach. Projects can be developed by two, three, four or more countries. It is extremely difficult to develop projects that meet the requirements of ten or more countries without generating additional costs when the extra costs can be constrained in smaller groups. Success is also more likely among small groups of like-minded participants sharing a common interest.

It should also deliver in terms of financial savings for the nations. The geographical and political closeness between partners involved in a given project are additional elements for success – it is easier to work jointly for Nordic or Visegrad countries and one of the reasons for the development of Franco-British defence cooperation is the shared strategic culture. For these reasons European Union (EU)-wide projects are unlikely to succeed. But it is now important to maintain the door open to partners willing to join a project at a later stage.

The European Defence Agency (EDA) has a

particular role to play in that context as it serves as a project initiator, a facilitator, and a clearing house for pooling and sharing, beyond its broader mission of promoting the concept.

Because of political constraints, pooling and sharing is likely to prove more complicated as the concept moves closer to combat. In terms of combat assets armies are more likely to rely on capabilities meeting their exact requirements. They will require full availability. Pooling and sharing will have the most significant effect when focusing on key enablers (unmanned air systems and air-to-air refuelling, for example) as European capability shortfalls are the most significant in this field.



"It is however important to set the basis for long-term success. Otherwise pooling and sharing runs the risk of becoming another bumper sticker approach with limited effects in the real world"



Other major areas for developing pooling and sharing are support and training as unnecessary duplications continue to exist. This will also have the second rank benefit of bringing closer the armed forces of involved European nations. Whatever the nature of the programme, an effort to preserve a pooled-and-shared approach throughout the life of the programme should be pursued or the benefits are likely to remain limited.

Last but not least, the availability of capabilities is essential. Ways and means of offering guaranteed access to pooled and shared capabilities is a last essential challenge, or nations might be reluctant to jointly acquire assets which could not be unconditionally accessed when a crisis occurs. This last point should address the constitutional constraints of several European partners and the end result must ensure issues of legal constraints and insured access are dealt with. This challenge is even more significant for the largest EU countries that still have – at least to a certain extent – the option of national developments and purchases.

Without being a precondition for success the good articulation of pooling and sharing with NATO is important. This is not so much to avoid duplications and rivalry between the concepts of 'pooling and sharing' and 'smart defence' or between the organisations themselves – they will always exist and can to a certain extent prove useful – but to ensure that capability development efforts conducted by the EU and NATO are compatible and mutually reinforcing. Permanent exchanges between the EDA and the various structures of NATO – such as the international secretariat and Allied Command for Transformation (ACT) – are probably the best way to de-conflict the potential problems and to develop fruitful cooperation. A successful pooling and sharing project can also deliver capabilities much needed to NATO. A good example of this is the effort associated with air-to-air refuelling.

Pooling and sharing offers a very useful route towards achieving simultaneously a political objective – to create an incentive and a narrative favouring deeper defence integration in Europe – and the financial objective of delivering military capabilities while reducing acquisition and possession costs through cooperation. 

> Time for a comprehensive reform of the European defence sector



Dr. Christian Mölling of the German Institute for International and Security Affairs believes the best way forward is for a more structured approach to pooling and sharing



European Union (EU) Member States still struggle to draw the right conclusions from the impact that the financial crisis is having on their defence sector.

Their measures so far have shown that they have not yet fully grasped the size of the challenge which confronts them. Instead, European states create paradoxical outcomes: although they are focusing on autonomous national decision-making and action Member States are becoming, in practice, increasingly interdependent. Europe may fight less in coming decades. But if Europe is to fight it will be obliged to do so with more, and not less, togetherness.

Since 2009 EU Member States have been seeking, with the support of the EDA, to mitigate the effects of budget cuts on their defence. In doing so, States have created a patchwork of various projects. Instead of primarily alleviating capability shortfalls these projects have tended, above all, to bind political energy and resources, some even duplicating each other or focusing on less important capabilities.

These cooperative efforts are driven by political calendars and the will of the Member States to implement some of their national pet projects rather than by an honest assessment of what they can really achieve today and what they would need to achieve tomorrow.

If Europe wants to ensure, or rather rebuild, a capable defence EU Member States will have to comprehensively reform the defence sector. If they were to start such an endeavour they would need to substantially change the relationship between: the exclusive national right to decide, their military capacity to act and the economic efficiency of their defence sector. The aim of such a reform should be to achieve greater military effectiveness, a greater economic efficiency of the defence sector, a shift in political legitimacy of decision-making and action from the purely national to the multinational and EU levels.

Member States would have to engage with three major challenges if they are to use these principles to transform the defence sector, setting the optimal conditions for EU defence cooperation:

- Decision-making within the political framework of the EU has to overcome the traps of multilateralism in defence – that is, the fear of being left alone, of not being able to keep up, and of 'free-riding'.
- Member States have to maintain or rather rebuild their military capacity to act following a blueprint for military and industrial specialisation based on available and needed capacities.
- Member States have to increase economic efficiency by pointing out saving opportunities and by creating incentives to seize them, for example, through joint investments.

As it is likely that Europeans will cooperate more often on multilateral military activities in the next 20 years, the current national reforms, plans and pooling and sharing projects should primarily allow for joint operations. Hence, Member States should aim for efficient operational European armed forces rather than planning for more unlikely national contingencies.

Hence, a more structured approach to pooling and sharing should include the following interlinked elements.

A Defence Sector Council. As a starting point for such a reform, EU Heads of States and governments should establish an annual Defence Sector Council. It should first consider the following: A European Defence Review: What are the EU's capacities today and what will it be able to accomplish in 2030?

EU level of ambition: Which of their political objectives would the EU and its Member States like to be able to accomplish militarily? Which military capabilities should the Member States maintain, extend or develop and which ones could be downgraded? Which industrial and technological basis is needed? In order to avoid that such a bold political signal like a Defence Review turns into a marginal tweet, the Council should monitor the implementation annually. An independent panel of experts formed jointly with the EDA should advise and inform them about progress.

1. New Headline Goals: The Defence Sector Council should operationalise the results of the European Defence Review, that is, the answers to the above considerations, by developing a Military and Industrial Headline Goals for the horizon 2030 (MHG 2030 and IHG 2030). They would offer guidance to organise the ongoing specialisation in defence and the industrial division of labour. Along these blueprints the EU Member States should jointly plan and assess national cuts and build up military and industrial capabilities in order to bring an end to the current clear-cutting.

2. Overcoming traps of multilateralism: The EU Member States can protect themselves against the traps of multilateralism: They can sign treaties that assure access to capabilities. The Franco-British treaty is only the most recent example for Member States giving cooperation a legal basis. Moreover, they can build a buffer of capabilities in order to prevent harm to the community if one State is not taking part in operations. Partners withdrawing from an operation could commit themselves to take on routine tasks in the air fleet of those providing their aircraft for the intervention. EU states can compensate the dropout of one partner by offering redundancies provided by a capability pool. However, the more redundant and the bigger the pool gets, the less economically efficient it will be. In any case, the defectors will largely have to bear the additional costs that will occur. Another option could be the EU becoming a shareholder of these capabilities. Equipment remains national but the EU is paying a share of, say 20%, it could get part access to these capabilities in return. Inversely, the EU could buy or rent the necessary means and services and then lend them to EU Member States.

3. EU-Brigades: EU Member States should combine the necessary specialisation of their forces with a new impulse for re-energising defence transformation. Therefore EU-Brigades should replace EU-Battle groups (EU-BG). EU-BG have lost their political drive; the Brigade is the most important current and future military formation. Bigger states would have to act as permanent lead nations, small Member States should take over such specific tasks that are militarily relevant and ensure political leverage on a permanent basis. To ensure their routine deployment, the formations could be given a basic task, e.g. being responsible for Kosovo, or other ongoing operations. National contingents could rotate towards the North Atlantic Treaty Organization (NATO) as well.

4. Industrial Saving Potential: While the EU Commission should further ensure and develop the effective regulation of the EU Defence market and appropriate R&T activities, EU Member States should make clear to the defence industry and the Commission where the business opportunities of a developing European pooling and sharing market actually are. The industrial headline goal will offer guidance for this process: what are the industrially and technologically relevant sectors, which investments do they want to make and what are the business

models on the basis of which they want to pursue pooling and sharing (P&S). This will make it possible to tap into the large savings that can potentially be found in the national capacities of Europe's defence industries. Conversely, the current strengths and specialisations of the individual national manufacturers and suppliers provide impetus for a future industrial division of labour in Europe.

5. Set up joint (re)investment pools as an incentive for cooperative savings: EU finance and defence ministers should set up a joint investment pool funded by defence savings. As an incentive to close joint capability gaps, this pool should be available to states for joint projects if they contribute equal amounts of their own budgets and the projects lead to savings. Compared with individual acquisitions, EU defence ministers would then have twice as much funding available. However, this implies that they need to agree on joint acquisitions. The savings from this joint procurement should be returned to the pool. The states would benefit from the resulting increased operational and logistic efficiency and interoperability.

6. Use price tags: Anyone wanting to save money first needs to know how much he is spending. For the most part, it is not possible to prove the savings that have been attributed to P&S. It is also difficult to provide figures for the costs of non-cooperation. Every task undertaken in or by Europe's armed forces therefore needs to have a price tag. It is not easy to calculate prices – then again, it is not impossible. NATO has already presented a list of savings made through P&S projects.

7. Integrate parliaments into pooling and sharing: National parliaments often play an important role at crucial phases of pooling and sharing, for example: defence budgeting and procurement approvals, but also with respect to the closure of bases or production sites and with respect to national regulations on mergers, procurement and exports. The European Parliament increases its power over industrial and budgetary issues. Hence, the EDA and national Ministries of Defence (MoDs) should enter into a more active dialogue with parliaments on their roles and responsibilities for better defence cooperation; and seek flanking measures from other Ministries and EU-Instruments to create incentives for converting a military infrastructure into a civilian one, thus contributing to the local and national economy.

8. EDA as an exchange network and partnering agency for European defence equipment: The EU Member States should exchange advanced surplus equipment through an exchange network. EDA could underpin this exchange by acting as a partnering agency and supporting the identification and implementation. The same applies for common procurement, where EDA may even be the key to securing savings through abandoning VAT overhead from the overall prices.

These elements form a pyramid: the boldest decision figures are at the top and it provides a vision of a new framework for the defence sector. Its flanks provide the necessary conceptual and material conditions to reach the base of this pyramid, which is effective, efficient and politically accepted defence cooperation. Pooling and sharing is not the beginning, it is rather the outcome of a comprehensive defence reform.

This is pretty much what we need to do but there is not much time left – do you see a viable alternative? 



 *"Instead of primarily alleviating capability shortfalls these projects have tended, above all, to bind political energy and resources"*

> "Pooling of demand is an antidote to fragmentation"



In the wake of the informal Ministerial meeting in Cyprus in September, pooling and sharing has remained centre stage. The Agency's Chief Executive, Claude-France Arnould, discusses some of the implications with Tim Mahon

Pooling and sharing is currently at the heart of every political discussion after the interest expressed by Ministers during their meeting in Cyprus last week. Can you explain what this means for the EDA?

It means that we have to take forward our activities in two parallel tracks. One, the relevance of which remains very strong, is to demonstrate the credibility and value of pooling and sharing through concrete projects. We will provide an update on progress on these projects to Defence Ministers in November, including air-to-air refuelling, hospitals, satellite communications and training. We will also propose some new potential areas for pooling and sharing such as ammunition and cyber defence. The second activity focuses on how to sustain the initiative in the longer-term; how to make pooling and sharing more systematic. With this in mind, we propose a Code of Conduct, which comprises a number of specific measures and principles to be implemented by Member States on a voluntary basis.

A central one is that Member States consider cooperation – pooling and sharing – as the preferred option when they examine national requirements. The EDA believes that this approach should be mainstreamed across the EU. The proposed Code of Conduct received widespread support at the informal ministerial in Cyprus. Ministers will be invited to adopt it in November. Linked to this more structured approach, we work on how to expand the synergies with the EU policies, and we do so in cooperation with the European Commission.

Can you expand on the Code of Conduct and what it might mean in practical terms?

First, it is important to note that it is a Code of Conduct that is voluntary. It will be for Member States to determine how they implement it. It is a full package of measures. As I said before, one element proposes the adoption of pooling and sharing as the preferred first option. There are already some good examples of this: in Sweden, for instance, there is an internal decision that any time a capability programme is under consideration, the first option is how to do it through cooperation.

The Code also proposes that pooling and sharing be implemented through the whole life cycle of an equipment or

capability – what our British colleagues call the 'cradle to grave' approach. We also propose that when a pooling and sharing approach to a programme is adopted, that programme should be accorded a higher degree of protection from budgetary cuts.

Another element is to look systematically for synergies with wider EU policies – research and technology, the Future Horizon 2020 programme, space policy – by looking at the funding available from the EU budget. All these synergies will build on dual use technologies, for civil as well as military applications. Many of the capabilities on which we are working fall into this category – space, cyber, chemical, biological, radiological and nuclear (CBRN), maritime surveillance, unmanned aerial systems, etc.

The reality of pooling and sharing is that cooperation will often be based on small groups of nations, regionally or even bilaterally. But the EDA is also there to support these collaborations – the reality is that we already work *à la carte*, from groupings of two or more Member States upwards. In other words not all 26 Member States need to agree to do something together. This is also the experience in NATO – they use different language, like "strategic clusters" but their experience mirrors ours. This is for many reasons – it is simpler to harmonise an operational requirement between a smaller number of states, easier to define the industrial background to fit that requirement and far easier to harmonise timelines.

It is important to underline that pooling and sharing should not be a pretext to reduce efforts. It is a way to harness and maximize investment. My message is that pooling and sharing is not an excuse to invest less; rather, that it offers a way to acquire together what is out of reach individually and get more efficiency in the deployment of these capabilities. Defence efforts must remain at the right level in order to ensure European defence is strong and sustainable.

The expression 'à la carte' fits very well with the image many have of the EDA as a small and agile organisation. Do you think the size and nature of the Agency contributes to your ability to manage and drive this sort of programme?

I am absolutely convinced. The very fact that we are small is an element of flexibility and it is one of our collective objectives within the EDA to improve our flexibility further still.

Also, because we are small there is no room for bureaucracy. Nor do we aspire to be all things to all people: we connect with the exact expertise within Member States. This fits very well with the lean nature of the EDA.

A la carte is good – but it is not enough in itself – we also need coherence. This is achieved in many ways, for example, in national defence reviews. The EDA identifies the capability gaps that exist and their possible consequences as well as the risks regarding harnessing key technologies and industrial know-how, but it is up to the Member States to decide how to tackle them. However, when a nation is considering its defence policy it can get from us the broader landscape of what is happening elsewhere in Europe. The French, for example, invited three 'foreigners' to take part of their commission on their *'Livre Blanc,'* – the UK, Germany and the EDA. We have a measure of knowledge and expertise available to Member States and I think they should use it. Returning to the theme of regional cooperation for a moment, there is an obvious need for providing the broader picture of European capabilities – and that is a role we are well equipped to perform. One thing we will do to reinforce this transparency and ongoing assessment is the creation of a Yearbook on pooling and sharing.

But not everything should be *à la carte*. EDA is also addressing a number of transversal issues such as standardisation and certification. One good example is military airworthiness: in the civil sector in Europe there is one single certification authority – EASA, the European Aviation Safety Agency. In the military domain, however, each Member State has its own national authority. And in many cases these national authorities are certifying the very same platform, such as the Eurofighter. There is scope for rationalisation, increased efficiency and considerable savings of money and time.

What are the greatest challenges the Agency faces in the pooling and sharing initiative?

For me the greatest challenge is to translate the political momentum we have right now, from the Ministerial level, into real commitment at all relevant levels in the Ministries of Defence, not only at the political level. This means engaging people in capability development, requirements development, programme management, training, research and technology and so on. It is important that we have buy-in from our Member States.

We must approach pooling and sharing in a more systematic and structured way through concrete projects. We must transform what is currently a political initiative into the routine, accepted way of doing business. This will involve changing behaviour in the national capitals and also adapting our process in the EDA to best serve this new approach.



Green Blade brought together operational military chiefs - Europe-wide

The Defence Ministers of France and Finland and the German and Polish State Secretaries have all recently visited the EDA for discussions. Does this indicate a new political momentum?

The facts speak for themselves – the answer is "yes". It is very important that the Ministers consider the EDA as *their* instrument – it's *their* home here in Brussels. I hope there will be more such visits and it is worth noting that we have the same level of interest and engagement from industry – we are just as relevant for them as well. Members of national parliaments and European Parliament also come to visit us – there is a political momentum, but an industrial one also. I also make a point of visiting a number of Member States and taking the opportunity to meet with local industrial stakeholders every year.

In light of the work you conduct with industry, for which the future land systems project is a very good example, how do you see the Agency's role in helping industry to become more efficient and rationalise?

We are not an actor *per se* in any restructuring. What industry mainly expects from the EDA is that we produce harmonised requirements. That is the message we get from all the chief executive officers (CEOs) with whom we have a dialogue. They also look to us for help with the breadth of standardisation and regulatory issues they face and to be a catalyst for cooperative R&T. We talk, incidentally, to industry

at all levels – tier one suppliers and small/medium-sized enterprises (SMEs) also. It requires more effort to reach the SMEs in the same way, but this is one of my very specific objectives.

Pooling of demand is a key element for industry and is an antidote to fragmentation. If we have a less fragmented demand, we have a less fragmented market. A few years ago industry had less interest in pooling of demand; now they recognise they often face a choice between one harmonised programme or none at all; and that producing twenty different versions of essentially the same equipment is a handicap.

There are already some bilateral and small regional collaborative projects that are working well – among the Benelux States, the Nordic and Baltic nations - how do you see the EDA's role in continuing to promote and support this type of activity?

There are two answers. One is that this is a realistic model for the future and it functions well. Some of the programmes you mention are very good examples of trust and efficiency in cooperation. One of my objectives is to demonstrate how the EDA can support this type of activity and complement it by offering coherence, transparency and know-how. This was strongly supported by the Ministers in their recent meeting in Cyprus.

I think there is still a strong imperative, however, for increased cooperation between Member States of differing critical masses: between medium sized States and the larger ones, to ensure that the level of interoperability remains high. If only the smaller nations cooperate, it could lower the level of operational capability. Interoperability with the British and the French, for example, should be kept. There is a need for regional cooperation – but at the same time there is also a strong need for cooperation with those States that spend the greatest amount on defence. These nations can drive levels of cooperation that we might otherwise not achieve – we need the demanding nature of their input, experience and contribution – otherwise we might have a two tier system of collaboration.

The exercise programme organised and supported by the EDA, which features as the cover story in this issue, has encompassed many nations and many personnel. What has been achieved through this?

Just look at the images of European soldiers operating together. It's what we need – it is really all about action taken together. As one member of the Agency put it in the most recent exercise at Kleine Brogel – "in a financially constrained environment, people are your force multiplier." That is the message: enabling and supporting people in Europe operating and acting together for our security and defence. 🇪🇺

Key Quotes

Pages 9 and 30



"Achieving and ensuring Airworthiness costs money but doing it wrong costs more than money. Those of us in military aviation have known for some time that there must be smarter ways of doing our activities than relying on bespoke national ways of working.

We look at the way civil aircraft operators and authorities have developed more efficient and harmonised airworthiness and maintenance regulations and the obvious question is: why can't the military reap similar benefits?"

Carl Garvie, EDA Airworthiness and Certification Officer

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There are at least 17 different examples of soldier modernisation programmes underway in Europe

Page 46

Brazil, Russia, India and China are expected to increase their defence spending by **150%** to **\$391billion** by 2015

Page 15

"The Agency plays a key role in supporting Member States to step up pooling and sharing of defence capabilities. Of course the capabilities will always belong to the Member States but the EDA can support the process, identify opportunities and act as a matchmaker."

Catherine Ashton, Head of the EDA

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"Sovereignty is really about a Member State having the freedom to decide how to use a particular capability and having the freedom of decision to be able to act. But if you want to be free to use a capability you must actually have it, whether in collaborative development of a common response or in the framework of international cooperation of forces."

Lieutenant General Ton van Osch, Director General of the European Union Military Staff (EUMS)

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"We are now looking at using buildings and land in several European countries for more than just sleeping and training – we can use them to produce electricity."

Martin Stoussavljewitsch, EDA's GO GREEN project officer

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"We have managed a marriage of all the principles involved and can already identify at least five individuals who have been caught making IEDs as a result of the TEL's activity."

Captain Jean-Charles Dhyser, French corps of military engineers features in an update on the operational status of the EDA-funded counter-IED laboratory which appeared in issue one of European Defence Matters.

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