European Defence Matters

A magazine of the European Defence Agency

Taking pooling and sharing to the next level
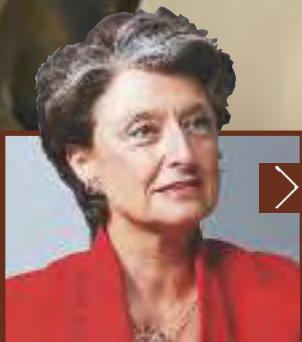
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New perspectives for a new world of defence and security challenges

European defence faces challenges in the coming decade, challenges that will require new approaches. With more diverse threats, fewer resources, and more complex weapon systems, informed debate will be more vital than ever

One approach to these challenges is increased collaboration between European militaries. The European Defence Agency (EDA) is proving an important catalyst to pooling and sharing defence and security capabilities.

European Defence Matters – a publication from the European Defence Agency – will offer fresh perspectives on Europe's defence and security, highlighting the complex issues involved in defence cooperation, and some of the solutions under way to ensure the continent can meet its domestic and global defence challenges. The magazine is being circulated throughout Europe to national defence departments, armed forces, industry, research agencies – all the key institutions with responsibility for securing the welfare of our continent's citizens – in order to become a growing focus of analysis and opinion on European defence matters.

In this first issue we help set the agenda, with a feature interview with EDA's Chief Executive Claude-France Arnould on the challenges that lay ahead for the continent, and the steps the EDA is taking to meet them. European Commissioner Michel Barnier sheds light on the objectives and modus operandi of the Commission's Task Force on Defence. We also hear from the Director General of the European Space Agency Jean-Jacques Dordain, OCCAR's Director Patrick Bellouard, and Patrick Ky, Executive Director of the SESAR Joint Undertaking on how their worlds are being reshaped by the new defence and security environment. General Håkan Erik Gunnar Syrén, chairman of the European Union Military Committee, issues a call for more cooperation, for something 'brave'. The magazine also features the views of some of the leaders of the continent's industry and influential academics, from inside and outside Europe.

But the magazine is also concerned with more operational challenges. It covers initiatives which ensure sorely-needed capabilities – such as unmanned systems, helicopter crew training and counter-IED technologies – can be rapidly and effectively deployed.

Defence is an insurance policy. Like all such policies, there is a premium to be paid, the cost of which escalates in line with technological and commercial pressures.

European Defence Matters sets out to provide better information on how strained defence budgets can be more efficiently spent, and to raise the level of debate and discussion as to how current achievements can be better exploited for the future.

So welcome to this first issue. We hope you find it valuable. If you would like to offer feedback, or your own perspective, please do get in touch. ◀

News:

EDA steering board advances pooling and sharing programmes

European Union defence ministers, meeting as part of the European Defence Agency's Steering Board in March, have endorsed a political declaration on air-to-air refuelling (AAR) and signed a Declaration of Intent on medical field hospitals.

The ministers considered that AAR capabilities should be developed in Europe as a matter of priority; and that these capabilities should be made available for potential use on EU, NATO, or other operations.

For the 2020 time-frame and beyond, increasing strategic tanker capacity is attracting significant commitment from EU Member States, especially following recent experiences of capability shortfalls in Libya. EDA is developing potential solutions including a Strategic Air Command-type model, which will allow for flexibility, cost-effectiveness, greater inter-operability and operational effect. Further economies and efficiencies would be achieved through rationalisation, aircraft-basing and providing AAR tanker hours for wider use.

The Ministerial Steering Board, chaired by the Head of the Agency, Catherine Ashton, also noted the good progress being made on pooling and sharing opportunities in domains such as AAR, medical support, training, the European SATCOM Procurement Cell (ESCPC) and maritime surveillance.

A Declaration of Intent for the establishment of multinational modular medical units was signed by 13 ministers to be deployed both into military operations or civilian disaster relief missions. Six ministers also launched an innovative cost-effective cooperation project: 'Go Green' to introduce renewable energy sources at military establishments.

Ministers approved the Second Joint Investment Programme on Innovative Concepts and Emerging Technologies, which is expected to have a two-year duration and a budget of about €10 million and signed the Programme Arrangement of the R&T Joint Investment Programme on CBRN Protection (JIP CBRN), aiming at maximising complementarity and synergy of defence and civilian security-related research programmes between EDA, the European Commission and the European Space Agency.

News in brief

Future Air Systems study: 'action needed now'

The Future Air Systems for Europe (FAS4Europe) group research study, commissioned by the EDA, has concluded that without additional investment and a greater degree of cooperation Europe risks losing the capability to develop future manned, unmanned combat aircraft and attack helicopters.

Almost 30 European industrial entities completed the 12-month study under the leadership of Saab. The study is aimed at helping maintain Europe's ability to independently provide competitive Future Air Systems (FAS) to meet future military capability requirements.

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EU Atalanta mission extended

The Council of the European Union has confirmed its intention to extend the EU Naval Force (EU NAVFOR) counter-piracy mission, Operation Atalanta off the Somali coast, until December 2014. The Council has also extended the area of operations to include Somali coastal territory and internal waters.

Rear Admiral Duncan Potts, Operational Commander of the EU Naval Force, said: "The extension of the mandate until the end of 2014 confirms the EU's commitment to fighting piracy off the Horn of Africa. Piracy has caused so much misery to the Somali people and to the crews of ships transiting the area and it is right that we continue to move forward in our efforts."

In April 2012 the Dutch Government approved the expansion of its Atalanta counter-piracy mission and the multipurpose frigate HNLMS Van Amstel, currently at sea just off the coast of East Africa, is deployed in the area until June 2012. The French navy frigate FS Guépratte joined the fleet on 25 April 2012. In June 2012 the EU NAVFOR fleet will comprise up to six surface combat vessels and five maritime patrol and reconnaissance aircraft (MPRA).

2012 EDA training exercises to add operational skills

As part of the agency's Helicopter Training Programme, Portugal will host Hot Blade 2012 - a multinational helicopter exercise delivered by the Portuguese Air Force and funded by Luxembourg - from 4 to 18 July 2012, based at Ovar Military Airfield, near Porto, Portugal.

The exercise is being designed to allow European helicopter crews to practice operations in a hot, high and dusty environment, simulating the challenge and the dynamic conditions that participant forces will encounter when they deploy to a current theatre of operation.

Besides the focus on flying in challenging environmental conditions, the exercise will be developed to implement 'joint interoperability training' and efforts will be made to maximize integration of joint interoperability tasks, including Air Assault (AA), Special Operations Aviation (SOA), Combat Service Support (CSS), Close Air Support (CAS) including Urban CAS and Emergency CAS, Convoy/helicopter escorts, Reconnaissance and Security (R&S) operations, Combat Search and Rescue (CSAR), Personnel Recovery (PR), Military/Non Military extractions (NEO Ops), Medical Evacuation (MEDEVAC) and Casualty Evacuation (CASEVAC).

The Green Blade 12 exercise is a joint and combined exercise which will be organised by the Belgian Department of Defence, supported by Luxembourg, from 18 September until 5 October 2012 under the auspices of the EDA Helicopter Training Programme. The Leopoldsburg barracks, home of the 1 (Belgium) Medium Brigade, as well as the adjacent airfield of Sanicole, will serve as the Deployed Operating Base (DOB) for this exercise. Furthermore, the airfield of Kleine-Brogel, home of the 10th Tactical Fighter Wing and situated about 13 km in the north-east of Belgium, will serve as a hub for all fixed-wing type operations.

Pegasus 2012 is an exercise organised by the Belgian Special Forces Group in the same timeframe and relying heavily on helicopter assets of all types, will provide a unique opportunity to collaborate with multiple Special Operations Task Units (SOTs) of different nationalities. The emphasis will be placed on typical Special Forces (SOF) related missions, such as insertion/extraction, hostage rescue, direct action, personnel recovery…, by day as by night, in a single – or multi-ship configuration.

Meanwhile the European Air Transport Fleet (EATF) Ad Hoc Working Group Tactical Air Transport (AHWG TAT) organisation deals with training at an operational level and includes two European air transport training (EATT) flying events, scheduled in 2012 and 2013. EATT 2012 is an EDA initiative designed to provide an opportunity of crew training for participant nations, improving interoperability between tactical airlifters such as C-130, C-160 and C-295 aircraft. It will take place between June 4 to 15 2012 at Zaragoza Air Base in Spain.

On the ground the EDA has facilitated a joint procurement arrangement under its Effective Procurement Methods programme to acquire training and exercise services for a multilateral counter-IED exercise to be held in Austria from 11 to 22 June 2012. The exercise, focused on high-end explosive ordnance disposal techniques and procedures, will build on work already conducted by EDA in this area under its counter-IED project.

A groundside situational awareness exercise took place in Ireland in April and other counter-IED exercise course is planned to take place towards the end of this year, in Italy. ◄

News in brief

European multi-national maritime missile defence system success

In April 2012 the French Navy's air-defence frigate Forbin successfully trialled its PAAMS (Principal Anti-Air Missile System) by intercepting a supersonic aerial target simulating an incoming supersonic sea-skimming anti-ship missile. The test was carried out under the joint supervision of the navy and the Directorate General of Armaments (DGA).

This was a European first and demonstrated the ability of the PAAMS anti-aircraft system to protect a carrier battle group. The PAAMS defence systems has been developed under a tripartite cooperation programme by France, Italy and the UK. It has been fitted to four French Horizon-class air-defence frigates and the Royal Navy's six Type 45 air-defence destroyers.

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EDA reviews cyber capabilities

The EDA has begun work on a review of cyber defence capabilities across the EU and NATO, to identify possible capability gaps. The study began in October 2011 and will deliver results in November 2012. At an EDA-hosted meeting in May 2012, which was attended by many cyber defence experts from national capitals, the project team chairmanship was formalized; Italy and Estonia will rotate on the chair on an annual basis. A strategic framework was also put in place for the coming four years, based on an EDA-produced concept paper. Three strands of work have already begun or will begin in the very near future: a study of European cyber defence training needs; conceptual work to improve European cyber defence capabilities; and the formulation of a cyber defence research agenda.

The research agenda will focus especially on areas not covered by the European Commission's current research plans. One particular area is likely to be human factors in cyber defence.

On cyber defence issues the EDA is working closely with the European Commission, the Council, the External Action Service, the European Union Military Staff, the European Network and Information Security Agency and the Computer Emergency Response Team of the EU institutions (CERT-EU).

News: /continued

Belgium, Netherlands and Luxembourg intensify defence cooperative efforts

The Netherlands, Belgium and Luxembourg have signed an agreement to step up further defence cooperation. The Ministers of Defence of the Netherlands and Belgium, Hans Hillen and Pieter de Crem, and the Minister of the Interior of Luxembourg, Jean-Marie Halsdorf, signed an agreement in Brussels on 18 April which outlined plans for their armed forces to train and exercise together more frequently.

The agreement also paved the way for the three countries' air forces to make use of each other's airfields, for Belgian and Dutch navies to intensify combined operations and for Belgium's paratroopers and the Netherlands' Airmobile Brigade to cooperate more intensively.

"Nowadays, no country can defend itself on its own and that is why we must seek cooperation. In these times of forced cutbacks, this kind of cooperation is a good way of ensuring one's striking power", said Hans Hillen, the Dutch defence minister. His Belgian counterpart Pieter De Crem agreed: "We are heading towards a completely new structure, with tri-national command. This is a first step towards full integration of material and towards joint deployability."

Minister Hillen also expressed a desire for closer cooperation with Norway and Denmark, with the joint protection of airspace by F-16s as a possible field of cooperation. Together with Denmark and Norway, he is examining the possibilities for collective purchase, maintenance and training of the F-35 Lightning II, the successor to the F-16s currently in service.

The Dutch and Belgian navies have been working in close cooperation for 15 years in areas such as the operational readiness of the fleet, maintenance, training and an integrated operational command. The two countries both operate the same types of frigate and mine-hunter and are both in the process of introducing the NH90-helicopter. ◄

News in brief

France, Germany and the Netherlands take AAR lead

The Ministers of defence of France, Germany and the Netherlands have offered to take the lead in developing a coordinated European approach to enhancing air-to-air refuelling (AAR) capabilities. During the last EDA ministerial steering board meeting Member States endorsed a political declaration to enhance European AAR capabilities to respond to European critical capability shortfalls and demonstrate the EU's determination to face up to its responsibilities to address today's security challenges. According to a joint communiqué from the three countries' defence departments: "France, Germany and the Netherlands are strongly and firmly committed to this project, and stand ready to take leading responsibilities with the support of the EDA... Capabilities resulting from these efforts shall be made available for potential use in EU, NATO and other operations."

The three Member States will organise two workshops on this issue in the near future – one dedicated to acquisition aspects and the second to operational employment aspects.

NATO 25th summit in Chicago

NATO's 25th summit in Chicago (USA) on 20-21 May 2012 will feature 'smart defence' – greater prioritisation, specialisation and cooperation – as a key topic for debate. According to the organisation: "This strategy comprises three major components: firstly, a tangible package of multinational projects to address critical capability shortfalls; secondly, longer-term multinational projects that include missile defence, Alliance Ground Surveillance and air policing; and thirdly, strategic projects for 2020 covering areas such as Joint Intelligence, Surveillance and Reconnaissance and air-to-air refuelling."

The summit will principally focus on three main themes: the Alliance's commitment to Afghanistan through transition and beyond, ensuring that NATO has the capabilities it needs to defend its population and territory and to deal with the challenges of the twenty-first century, and strengthening NATO's network of partners across the globe.

European Council President Herman Van Rompuy, European Commission President Jose Manuel Barroso and Cathy Ashton, High Representative of the Union for Foreign Affairs and Security Policy, will attend the summit.

Claude-France Arnould
Chief executive
European Defence Agency

EDA's key mission is delivering capabilities

This is a critical time for the European Defence Agency. Defence departments of European Union member states are facing a perfect storm: declining government revenues, an increasingly unstable world, a shift in US focus and a domestic industry struggling to retain its technical know-how as major programmes are cut or delayed

While the political will to cooperate among Member States has never been stronger translating this will into direct positive action is complex, yet this is the key function of the European Defence Agency (EDA).

If Europe's governments are to protect their citizens from future threats they will have to rely on the agency to help develop wider and deeper collaborative initiatives - the only way sovereign states will be able to deploy enhanced capabilities while controlling their defence and security budgets. This is the considerable challenge facing the agency's chief executive Claude-France Arnould. She took the time to speak with *European Defence Matters*.

What is the current state of the EU's defence capabilities?

We are at a crucial moment where we risk degrading our strategic, industrial and technical abilities. Our operations in Libya revealed again that even though Europe spends quite a lot of money on defence, there are crucial capabilities missing, and this risks being degraded even further as governments look for savings.

But this also a time of opportunity – as Americans like to say "never waste a crisis".

We should not miss this difficult moment to work more efficiently together. I'm concerned but optimistic; I think cooperation is the way forward in defence, and I think more and more people are recognizing that. You only have to look at the results of our Steering Board meetings, where defence ministers have repeatedly asked us to take on new areas of responsibility, such as training and air-to-air refuelling.

So what has the EDA done so far on cooperation? What are the Agency's major accomplishments?

We've made some great progress. We've had very real successes in the field of training helicopter crews – we've trained 152 crews to date, and half of those have been deployed on operations; none of the Member States would be able to afford alone helicopter exercises on the scale that we've been able to organize.

In countering IEDs we have developed capabilities like the forensic laboratory that can make immediate differences in Afghanistan. In fact, the laboratory is a good example of how the EDA can work: IEDs were identified as a threat, →

"We have to take the tough decisions now, or face dire consequences in the coming decades"

and so our Steering Board instructed us to investigate it. We put together a Project Team, and pretty well immediately we were facilitating discussions and expert advice to the Member States, as well as running training courses from 2009. Then we started our first procurement action in April 2010, to form this laboratory – and by July 2011 the lab and the team were on their way to Afghanistan.

One of the things I'm most satisfied with about the EDA is our ability to deliver concrete results quickly, so that we can really make a difference in operations. Past European defence projects have got stuck in years of bilateral negotiations, which hurts everyone – I think the EDA helps avoid that.

So let's move on – what is the Agency working on at the moment?

Above all, we are working on pooling and sharing. That's absolutely at the heart of what we do. And now our work is showing more and more concrete results. Embedded in every project we undertake, there has to be an under-standing of how it will benefit soldiers in the field, how it will save money and lives in the real world.

I mentioned the counter-IED laboratory before. We're devel-oping field hospitals for our troops in-theatre, and working to improve maritime surveillance and naval training. All of these are real capabilities that our Member States need. They are big areas, and it will be tough – but we have the political will and expertise to drive them forward.

At the March 2012 Steering Board meeting of EU defence ministers, pooling and sharing was the focus again, and there were also really significant discussions about what we could do to meet a critical capability shortfall in air-to-air refuelling, leading to a firm declaration to do more. The Netherlands, Germany and France are strongly and firmly committed to this project, and stand ready to take leading responsibilities with the support of the EDA. This initiative builds on the political declaration adopted by the EU defence ministers on the 22nd March.

It's just these kind of serious discussions about our military challenges that demonstrate the political commitment behind defence cooperation, and that's resulting in real-world achievements. When we complete a project in these areas, it reduces the friction surrounding military action, and makes it simpler and more cost-effective to complete these vital tasks.

There is less newsworthy work too, but it's just as crucial, in areas around certification, airworthiness, and standardisation. We are assessing, with the European Commission and Member States, what the effect of the new measures on defence procurement outside and within Europe will be. We think we've been making good progress on procurement transparency with our European Bulletin Board, but of course there's still a lot more to do, and everybody must acknowledge that the defence market is a sensitive area for everyone, with a global dimension. This can only move forward if we engage all the relevant parties.

Through EDA, defence departments are able to connect to the EU policies which affect them – such as harmonising national and EU research activities or influencing more technical aspects such as radio spectrum allocation. EDA allows defence departments to have a say on these issues, and helps keep them informed. The agency is where defence ministries can identify and champion their interests and interact with EU bodies.

So overall, I think we're making good progress, and really delivering, especially on pooling and sharing. There are lots of nice ideas out there about European defence, but it's our job to translate them into reality, into real capabilities for our Member States to use.

One area of concern for both defence departments and industry is a declining expenditure, especially on research and technology. How are you addressing this challenge?

We already highlighted at our last ministerial meeting that this is a key issue, and the present trends are certainly alarming. Firstly, we propose to find synergies with EU research programmes in technologies such space, cyber and maritime surveillance that affect both the civilian and military worlds. To that end we've signed a partnership agreement to coordinate more closely with the European Space Agency (ESA).

Secondly this is a domain where we have to pioneer cooperation between Member States through developing working demonstrators, getting new technologies quickly from the research laboratory into the field. For example, we're working on anti-collision avoidance systems for unmanned air services, which is a key programme whose significance is recognised throughout industry. In that project, we've worked with the ESA, Member States, industry representatives and all the relevant experts to make sure our expenditure is as effective as possible.

Then we have to make better use of what resources militaries have, and by that I mean looking for areas where we can save and reinvest. In some domains, such as training and maintenance, we can save money and reinvest the savings in research and technology.

We're going to have to do this anyway as in Europe we can no longer rely on the USA to make up for our capability short-falls in key areas such as smart munitions, AAR and ISR. One of the lessons of the Libyan campaign is that although in Europe we have the appropriate technologies, availability and sustainability is not at the required level.

> "Our absolute mantra is that we are here to support the Member States. Everything we do is to help them maximize their sovereign capabilities and deliver value for money for their taxpayers"

I want to get more into how the Agency works. What's your relationship with the Member States?

Well, our absolute mantra is that we are here to support the Member States. Everything we do is to help them maximize their sovereign capabilities and deliver value for money for their taxpayers. They are always in the lead, and we facilitate and help drive things forward.

Now the reasoning behind that is that everyone agrees and understands that in many cases there is no real alternative to coop-eration, but the complexities can be daunting, and the natural tendency is to do this in a bilateral or regional approach. So we accom-modate that, through our 'opt-in' Category B projects, where one state takes the lead, and others join in as they wish.

Take our field hospitals project, for instance – there, Italy is taking the lead, and 12 other states are making fast progress, with several more watching progress closely. The EDA's role is to bring value-added services, lessons and experience to this process in a flexible way.

What I want to demon-strate is that Member States can work through the framework of EDA, but retain absolute sovereignty to deploy the capabilities where they want to.

And how would you describe EDA's relationship with NATO?

It's so important to us to have a potent relationship with NATO, because Member States cannot afford duplication. We focus on pragmatic cooperation, on actions rather than institutional issues. The EDA's concept of pooling and sharing and NATO's later 'smart defence' initiatives are different labels for largely the same objective, and the work is mainly complementary. If you take the medical field, for example, Italy took the lead in the EDA's work programme and Italy and France took the lead in NATO's work in a related area. The capabilities we develop are national capabilities. Member States deploy them whenever and wherever they wish, and they can contribute them to their own missions, to NATO missions and to EU missions as their policies dictate.

So where is the future of European defence?

Improved defence through cooperation, of course. We cannot afford not to do it. We will do it. The Americans say we should not take negatively their focus on Asia - it's positive and has emerged because Europe is a security provider and not a security risk. But the fact is they won't do our job for us. We have to demonstrate we can increase our capability – I don't think we have an alternative.

We will need to think carefully about what levels of capabilities we will need for the strategic challenges facing us in the coming decades. I don't think it's possible to collectively define exactly what sort of conflicts we will face, but I do think we can define the types of capability we will need. The EDA has defined a long-term vision to 2025, which draws on the consensus of numerous experts from across the continent – everybody agrees on the importance of long term planning on pooling and sharing.

Once we plan the technology capabilities we will need, we can react very quickly. For example, there is a new focus on AAR. For the last six years EDA has been working on the technical elements of this and we can now react very quickly to fulfil this need because we had a strong background in this field. I don't see many issues where we don't have the background, including cyber defence.

Training and aware-ness in these areas is one of the issues of the European framework coop-eration strategy with the Commission and is one of the priorities of the Common Security and Defence Policy. If there is the political will to go further in a specific direction we can move quickly.

For example, the future air system. We don't know what the successor to Rafale, Gripen or Eurofighter will be – whether it will be a manned aircraft at all. We will be able to come with some outline proposals on FAS, and once again we can do this because we already have the background, the relevant in-house knowledge and the links to external expertise.

The same is true in the field of UAS, where we've been working with stakeholders to develop our understanding of this field.

Any last thoughts?

We're working with our Member States, with NATO and the US, and with other European cooperative organisations. With budgets so tight, we have to take the tough decisions now, or face dire consequences in the coming decades. We have to work together in the most efficient way possible, or European defence will remain limited.

❯ Pooling and sharing is an art, not a science

In times of economic challenge, as now, European states will seek to grow and intensify military cooperative efforts with their neighbours states – but delivering the expected results will require a streamlined and pragmatic approach to delivering more capabilities at lower cost

"The move from national approaches – like pooling and sharing – is to a large extent about changing culture in administrations. About giving up national control and learning to cope with interdependence on a systematic basis." Belgium's defence minister Pieter de Crem, speaking at the EDA's annual general meeting in January 2012 probably knows as much as anyone about the challenges of sharing military capabilities with neighbours.

The navies of Belgium and the Netherlands have operated under a single integrated command since the 1990s. Its military transport fleet operates within the European Air Transport Command and Belgian military pilots train in France.

But for many the – sometimes ill-founded – threat of a perceived loss of operational autonomy, or sovereignty, which pooling and sharing implies, is still a major obstacle. And once the concept moves to the areas of operational capabilities the reasons for why nations are reluctant to share capabilities can grow exponentially, even though on operations themselves nations are far more pragmatic.

As well as high political considerations co-operative efforts have to overcome a full set of technical, regulatory and structural obstacles.

"After the operations in Libya we looked at why European nations are not able to share ammunition even if they are sometimes using the same

weapons from the same supplier," according to Philippe Rutz, Project Officer for pooling and sharing, at the European Defence Agency (EDA). "Part of the answer is simply regulations – from a regulatory viewpoint we are still unable to exchange, stock or transport ammunition across nations. But that's not the only problem. They are often subject to US International Traffic in Arms Regulations (ITAR) regulations, where a change in the end-user would need to be approved by the US Department of Defense, or Congress. Then there are technical issues, such as different release mechanisms for airborne weapons systems which NATO is trying to resolve with its 'universal interface' programme. And there's a cultural issue, too. States are not always willing to be transparent with each other about which stocks of ammunition they have and when they are going to order more. Even if all the other problems were to be solved that would remain a blocker."

It was clear from the start that converting the political will of defence ministers to pool and share into operational concepts that deliver enhanced capabilities at lower costs would require some unusual skill sets. In delivering the benefits already achieved the EDA has needed more than political backing – it required innovative and pragmatic approaches to cutting through red tape and delivering results.

"Pooling and sharing in EDA started seriously with the Swedish Presidency 2009, which drew up the analytical and practical dimension of the work," →

> "We quickly discovered that once we had the right people around the table things started to happen really quickly"
>
> Jon Mullin
> Capabilities Director, EDA

said Jon Mullin, Capabilities Director at the EDA. "We developed a database of what was going on and the surprise for me was how much was actually happening. We mapped over 70 initiatives initially, which demonstrated that people were cooperating, but not necessarily in a structured way that would maximise potential benefits."

The first question for the EDA was: *what capabilities could be pooled and shared?*

The answer was based on the priorities set by the EDA's Member States. The Agency developed a computer model, the Capability Development Plan, which looked at 144 tasks and tagged them in terms of current and future capability shortfalls, medium term and long term. Member States graded their priorities, the key capability areas for collaborative development were identified and the EDA appointed project teams to start the work of increasing collaboration.

The second question was: *how would issues such as sovereignty impact the cooperative process.*

"Is that sovereignty to act as an individual nation?" said Jon Mullin. "Very few have that capability now. It is more about contributing force elements to operations. In itself sovereignty, but it is not sovereignty to act alone – so we have to do more together."

"One of the early projects we identified where we could really add value was in joint helicopter operations," said Jon Mullin. "We started to look at the blockers and enablers to pooling and sharing and even in the initial work we discovered the legal areas where we thought there might be blockers weren't really blockers at all.

"We quickly discovered that once we had the right people around the table things started to happen really quickly. We put together a website to share training opportunities and then quickly delivered a training simulator in the UK, which we have further developed as part of the Interim Synthetic Helicopter Tactics Course where six countries agreed to pool aspects of their training. The process of collaboration in this area has snowballed while all the time we are introducing "lessons learned" aspects into the curriculum and adding value all the while."

"I think 90 per cent of what we pool and share is about the systems and operations we currently have," said Philippe Rutz. "It's not so much about programme development but taking account of what we have and seeing what we can do better."

An early lesson for the EDA was that although there were severe blockers to the process in some areas, in other areas, once the concept had been proven, Member States were keen to push the concept of pooling and sharing beyond the original project goals.

"In 2008 we received a mandate from defence ministers in how to alleviate transport shortfalls in the European transport fleet," according to Laurent Donnet, Assistant Capability Manager at the EDA. "We started with the nations who wanted to pool their support activities on the A400M but then we started receiving requests from non-A400M states on whether we could enlarge the group to other aircraft types. Of course we said yes, and the number of cooperating States has risen from 12 to 20. The European air transport fleet project has now become a partnership like the airlines' Star Alliance, with 16 different areas of cooperation which members can choose from."

The EDA is now planning to set up a joint tactical military transport pilot training course in 2014, as a European equivalent of the multinational training course in the US which trains pilots from 15 European states. "The benefits are – increased interoperability, improved operational skills with less travel, fewer flying hours to go to the US and less expense," said Laurent Donnet. "The US Air National Guard which has organised the course for the last 30 years liked the idea of a European equivalent as it would be good for interoperability between allies and, as they have a huge transport fleet in Europe, lower training costs for them, too."

EDA project officers tasked with the complex job of developing multinational defence and security capabilities quickly and efficiently have had to develop pragmatic solutions. "The first thing is to raise awareness – not among the experts but the important decision makers who are not aware of the issues," said Philippe Rutz. "Then we have to overcome, or get rid of, the blockers such as national regulations. This normally means overcoming the problems, harmonising the processes and then organising mutual recognition of each other's national processes. Pooling and sharing is difficult. There are cultural issues where most countries consider their ways are the best. The only way to convince them is to use existing successful examples."

And the number of successful examples is growing – quickly in the aviation areas where assets are mobile and a history of cooperation is established but more slowly in the ground and naval arenas. However, with ever tightening defence budgets and a relentless increase in capability demand – especially into areas such as C-IED, joint ISR or cyber defence – even those Member States who have relied on their indigenous capabilities across the defence and security spectrum are now looking at cooperation with their neighbours in a new light. And part of the cultural challenge that Member States are now confronting is not just looking at their neighbours in a new light but looking differently at the EDA, too. For many in the Agency this means recognising the EDA is not part of a slow, European bureaucracy but a reactive hub – with expertise and connections across the military and industry, processes tools and funding mechanisms – for pooling and sharing on an ad hoc as well as a more strategic programme.

"We have a political impulse, and economical constraints: we must now accelerate. It is of the utmost importance that we turn this impulse into concrete results," said Claude-France Arnould, EDA Chief Executive at the Agency's annual general meeting in January.

"'Pooling and sharing is about capability-keeping' was a catch-phrase coined by General Mats Nilsson," said Jon Mullin, "and I think that's just right." ◩

The road from Ghent

At the Ghent summit in September 2010 EU defence ministers agreed to draw up an inventory of projects where they could pool and share their military capabilities. The EDA was tasked to identify the most urgent areas, with the help of a board of experts comprising General Camporini (former Chief of Defence in Italy) Francois Lureau, (former National Armaments Director in France) Eero Lavonen (National Armaments Director in Finland), General Mats Nilsson (Sweden) and Hilmar Linnenkamp (former EDA Deputy Chief Executive).

The initial identified areas of priority cooperation was endorsed by the EDA's Steering Board, comprising EU defence ministers, in November 2011. All have the potential for structured development that will in turn promote further pooling and sharing, and the bulk address key operational capability gaps. It comprises:

- Helicopter training
- Maritime surveillance
- European Satellite Communication Procurement Cell
- Medical field hospitals
- Air-to-air refuelling
- Future military satellite communications
- Intelligence, surveillance, reconnaissance
- Pilot training
- European transport hubs
- Smart munitions
- Naval logistics and training

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First steps into

Of all the areas where European defence and security actors need to cooperate space is, arguably, one of the most complex and challenging ones given its close link with national sovereignty. But over the last few years the EDA has made important strides in reinforcing its relationship with key institutional actors, exploring new space-based services and offering cost-effective solutions in support of Member States defence capabilities

With the entry into force of the Lisbon Treaty space has become a shared competence between the EU and its Member States, putting the European Space Policy in support of wider EU policies, including the Common Security and Defence Policy (CSDP). Space-based assets are indeed of direct relevance for the provision of critical information to decision-makers at strategic, tactical and operational level and for secure communications as well as positioning and timing.

Most recently the importance of timely and precise intelligence, surveillance and reconnaissance has been underlined in the context of the Libyan crisis, during which the European Union Satellite Centre provided important imagery products.

Within that context, the EDA plays a pivotal role as a bridge for Member States' defence establishments towards the policy initiatives and projects conducted by other European actors such as the European Commission, the European Space Agency (ESA) or the European External Action Service. The Agency thereby supports its Member States in identifying defence requirements that could be met by space-based solutions , considering the role of space as a key enabler for military capability development, promotes

the specific interests of the defence community in wider space initiatives, exploiting civil-military synergies to the largest extent possible.

The Agency has included several space-related activities in its work programme, bearing an important potential for cost-effective capability improvements for the defence community. Five key areas have been looked at in particular, ranging from space situational awareness (SSA); communications; observation; and command control of unmanned air systems; to the area of critical space technologies for European non-dependence.

"EDA offers a unique forum to Member States' defence establishments to select activities à la carte,on the basis of cooperation and to benefit from the Agency's close relationship with Brussels-based institutions and beyond. Our objective is not only to support the EU's Common Security and Defence Policy but more broadly to develop Member States' capabilities for security and defence," said Michael Simm, of the EDA's Policy and Planning Unit. "Political will is key. If Member States want to set-up a research activity or technology demonstration within relatively short timeframes, EDA's scheme of ad-hoc projects can generate quick results, relying on legal and contractual support provided by the Agency."

This pragmatic approach has also been adopted with regard to the SSA (Space Situational Awareness) domain where Member States gathered in the EDA to define within little more than a year the military requirements for a future European SSA capability. 26 Member States approved a Common Staff Target document at the EDA Steering Board in March 2010.

Another domain is the integration of Unmanned Aerial Systems (UAS) into general air traffic. Based on a cooperative agreement with the European Space Agency and two previously coordinated feasibility studies, both Agencies are currently preparing a demonstration on "UAS Command and Control over satellite" which will see a number of live demonstration flights taking place in 2013.

As for Satellite Communication (SATCOM), another important project for the Agency is the European SATCOM Procurement Cell (ESCPC), a pilot programme set up to pool demand from several EU national defence departments to reduce costs by

around 10 per cent. Commercial SATCOM are used to link military forces command and control systems to each other and are playing an increasingly important role for the intelligence, surveillance and reconnaissance (ISR) platforms, including unmanned air systems (UAS). Commercial SATCOM can be expensive if fragmented procurement remains and guaranteeing availability without SATCOM capacity early bookings can hardly match unpredictable crisis response and operational planning.

"The SATCOM operator market is highly concentrated in a few global players but on the supply side it is highly fragmented, with each Member State, and different government departments within each State, making their own arrangements," according to Project Officer Rodolphe Paris. "We are acting as a broker for them, pooling and sharing requirements at a European Defence and Security level with the objective of delivering operational SATCOM services on a pay-per-use basis."

The more Member States join the 'club' the lower costs will be for each individual member and the more services will become available. According to Rodolphe Paris the problem is not only fragmentation but size of the overall market. The US Department of Defense spends around $500 million a year on commercial SATCOM services while once aggregated EU Member States' equivalent budget is less than a tenth of this. But with demand for these services expected to rise – driven especially by future UAS fleets – providing SATCOM bandwidth is already becoming mission-critical, especially as military SATCOM might be not designed for it.

The EDA and ESA signed a cooperative agreement in July 2011

Image: ESA - S. Corvaja, 2011

space

EDA's expanding role in the area of space

As regards military SATCOM (MILSATCOM), EDA is promoting the massive opportunity to pool and share the next generation of national assets. The innovative 'SECTELSAT' (Secure Telecom by Satellite) concept is laying out several strands of work within or along with EDA, from research and technology (R&T) common investments to business options and procurement strategy. EDA can be the common place to start elaborating common high level requirements, where sovereignty considerations of some MILSATCOM operating States among France, UK, Italy, Spain, Germany should come along with pooling and sharing significant stakes of the MILSATCOM assets.

EDA is also opening the door to more cooperative ventures as regards Earth Observation where, together with the European Commission and the European Space Agency, it called into life a task force on civil-military synergies. Its findings such as the need to explore the use of common ground segments for both civil and military Earth Observation systems are currently under implementation.

Last but not least EDA has embarked on a trilateral exercise with the European Commission and ESA as regards critical space technologies for European non-dependence with the aim to identify those critical technology areas for which Europe cannot afford to be dependant from outside suppliers without having guaranteed access. "We have designed a two-year coordination cycle to develop a common list of urgent actions across the three organisations, including coordination with industry through EUROSPACE, the Association of European Space Industry," said Michael Simm. "This provides a powerful rationale for identifying synergies among respective research and technology (R&T) activities, thereby also supporting the European defence and technological industrial base."

While coming up with quick wins is challenging given the long development cycles of space-based capabilities, EDA's commitment to building step by step a fully coordinated approach between the EU, ESA and respective Member States, aims at making sure that European security and defence actors continue to have access to the critical capabilities they need for tomorrow's defence needs.

The basis for much of the EDA's work in this area is the Space Policy Resolution issued in November 2010 by the European Council, which invited the European Commission, the European Union (EU) Council assisted by the EDA, together with Member States and the European Space Agency (ESA) to explore ways to support current and future capability needs for crisis management through cost-effective access to robust, secure and reactive space assets and services – integrating global satellite communications, Earth Observation, positioning and timing, taking full advantage of dual-use synergies as appropriate."

In 2011 the EDA's role in space was underlined by a number of institutional milestones. In March, space was acknowledged within the European Capability Development Plan as 'a transversal core driver' for various capability domains such as intelligence, surveillance and reconnaissance or communication. Then in May the Ministerial Steering Board recognised EDA's role in supporting Member States by identifying defence requirements that could be met by space-based solutions. What's more, in June 2011 the EDA and ESA signed an agreement to cooperate by:

- **Identifying capability gaps and shortfalls that could be filled by space assets in support of EU policies**
- **Investigating whether identified capability requirements can be shared by both parties**
- **Coordinating research, technology and demonstration activities**
- **Investigating synergies in EDA and ESA programmes**
- **Coordinating activities in support of industrial competitiveness and European non-dependence issues**

Towards the end of the year, defence ministers included several space related topics such as ISR, the European Satellite Procurement Cell and Future military satellite communication in the overall pooling and sharing initiative, designed to foster the emergence of cost-effective and cooperative capabilities in times of severe financial constraints.

This call was echoed in December 2011 by European Ministers meeting in the Council, reiterating that space assets can contribute significantly to the objectives of the EU's Common Security and Defence Policy (CSDP).

EUROPEAN DEFENCE AGENCY

>"ESA must increasingly demonstrate its capacity to handle security and defence programmes"

Defence and security issues are taking up an increasingly important part of the European Space Agency's work programme agenda, says ESA Director General Jean-Jacques Dordain, which will mean broader and deeper cooperation with the European Defence Agency

Image: ESA

"This increased dialogue... will allow us to further develop the security dimension of the European space policy and to better support Europe's security and defence needs"

As compared to other global players, to what extent is security and defence a driver for the European space sector?

As a matter of fact, security and defence have been, and continue to be, the driver of space in most space powers except in Europe. Civilian and military space systems share most of the technologies and are developed by the same industry, and space-based means are critical tools for a security and defence policy. However, in Europe this has not been the case and science and applications have been the driver for space, together with the awareness of the need for an autonomous access to space. Thus space efforts for security and defence in Europe remain limited in size compared to other major space powers, and are moreover mostly handled at national or multilateral levels in Europe.

Such relative importance given to security and defence as a driver for space in Europe has consequences on the European space industry, which cannot benefit, like all its competitors, from a large captive market, and thus has to rely on its performance on the commercial market to maintain core capacities, which on the one hand forces the European industry to be competitive but, on the other hand, makes it dependent on a commercial market which is cyclic by nature and volatile per moment.

What is ESA's position and role within the overall European space sector and how do you see ESA's relationship with the defence sector further evolving in particular?

ESA is an intergovernmental research and development (R&D) agency that elaborates and manages space programmes for its 19 Member States and third parties, mostly the European Union (EU) and Eumetsat. ESA's budget (€4 billion per year) represents about 60 per cent of the overall European public spending on space in Europe.

Historically the core of ESA's activities is funded through civilian budgets, but ESA is not limited by its convention to civilian activities. Its convention only refers to 'peaceful purposes', which is the wording used in the UN Treaties. Actually ESA is gradually opening to defence communities and is now managing programmes with a defence and/or security component, such as Galileo, GMES and the preparatory programme on space situational awareness (SSA). These programmes will also have military users. As Europe's Common Security and Defence Policy (CSDP) develops, so will the space tools required for this policy, and ESA may be called to develop such tools on the basis of the requirements expressed by the CSDP stakeholders.

Thus, ESA must increasingly demonstrate its capacity to handle programmes in the field of security and defence. ESA's cooperation with EDA represents a first important step in this direction, and the capability of ESA to enter into partnerships with national agencies will also be an important factor.

We have seen the EDA and ESA sign cooperative agreements in June 2011. What has resulted from this and how will the relationship between the two bodies evolve? What are the areas in which you see further room for cooperation?

Before June 2011 EDA and ESA were already cooperating in the framework of the structured dialogue on space and security. The signature of the administrative arrangement between EDA and ESA on June 15 has structured the relationship between the two agencies and offers an overarching framework to strengthen and expand their cooperation. This cooperation includes an increasing number of activities in different fields and with different set-ups building on their complementarity and exploiting synergies between civil and military needs. A first example concerns space-based services for unmanned air systems (UAS) command and control, for which a joint demonstration mission was initiated last January. This joint mission follows two parallel feasibility studies on satellites support to UAS integration in the European airspace that were conducted by each agency respectively and is the first project jointly funded and managed by both agencies.

In Earth Observation, parallel studies on ground segment systems of systems for security services are on-going. As recommended by the taskforce on

civil–military synergies, these studies investigate how security and defence services could be created in a comprehensive approach by networking existing ground segments; while the ESA study focuses on civil security services, the EDA study focuses on defence services. ESA has also recently contributed with its concurrent design facility to an EDA study on intelligence, surveillance and reconnaissance (ISR) capability in support of CSDP. This innovative cooperation was a very concrete example of an integrated approach to ISR.

In the near future, cooperation could be strengthened in those fields and further developed in the field of telecommunications, in particular for mobile/tactical communications.

Finally, one must also recall that EDA and ESA have worked together with the European Commission for over three years on critical space technologies for European non-dependence.

How will future ESA/EDA cooperative efforts benefit European industry?

This increased dialogue and coordination between the space and defence communities will allow us to further develop the security dimension of the European space policy and to better support Europe's security and defence needs. The main objective is to exploit synergies between civil and defence activities and to explore together new fields of activities.

EDA and ESA have different constituencies, respectively civilian and military ones. How difficult is it to coordinate two culturally different worlds?

Indeed, EDA and ESA have different constituencies but also different institutional settings and different Member States. However they have a common interest and they are complementary, as several of their on-going cooperative projects have demonstrated. They must now learn to speak the same language and demonstrate their adaptation to new conditions and requirements. Such adaptation will be gradual: already we have had activities taking place within each agency's framework, and we are starting to implement joint activities. In this sense, the joint UAS demonstration mission will represent a step further as well as a test case.

Telecommunications, navigation and Earth Observation missions all lend themselves to both civil and military purposes – how might these programmes evolve over the coming years to embrace security and non-aggressive military roles?

Meeting Europe's security and defence needs is one of the strategic objectives of the European Space Policy endorsed by all the Member States of the EU and of ESA in May 2007. With the further building-up of a common security and defence policy, space-based services for security and

Image: ESA

defence are likely to develop based on and in complement to the expertise and capabilities developed at national level. The two EU flagship programmes, Galileo and GMES (Global Monitoring for Environment and Security) were designed as civilian programmes under civilian control. They also have a security dimension, which is developing with Galileo's PRS (public regulated service) and GMES' emergency management and security services. EDA and ESA - together with the other European stakeholders – are exploring possible future avenues on these critical topics. A key condition for the expansion of the military use of these programmes will lie in the development of an appropriate data policy and the guarantee of their safety.

Could you explain ESA's role in the context of the international charter 'Space & Major Disasters'?

ESA, together with the French space agency CNES, was the founder of the Charter in 2000. The Charter, which now counts 15 signatories, is an international agreement between space agencies and Earth Observation satellite operators to support relief efforts in case of natural or technological disasters. Like the other signatories ESA activates its satellites and provides free imagery (from its ERS and Envisat satellites, as well as from its archives for reference data) in case of major disasters.

ESA also hosts the call centre (on-duty operator) in the ESA Centre for Earth Observation (ESRIN) in Frascati, Italy. The Charter has so far been activated more than 330 times (51 times in 2010 and 32 times in 2011) and has been extremely useful in particular to support the rapid mapping and damage assessment required for the management of rescue operations. The Charter has supported first responders to major disasters which this year included floods and landslides in Ecuador, cyclone Giovanna in Madagascar and fires in Chile.

What is the impact of the financial crisis on the space sector and ESA's business in particular?

The financial crisis, worldwide and in particular in Europe, is likely to lead to a tightening of institutional budgets in general. In space, reduction of public investments would impact the capacities of European industry and its level of competitiveness

considering the already low level of public spending for space in Europe compared to other major space powers such as the US, Russia or China.

However, the best response to a crisis is success, and Europe has been very successful in the last six months, with the successive launches of the Galileo satellites on board the first Soyuz from French Guyana, the qualification flight of the new launcher Vega and the flawless launch of ATV-3 by Ariane 5 followed by its docking to the international space station (ISS), demonstrating the unique capabilities of European space industry.

Based on these successes, I believe that Europe's Member States will continue to support space as a high-technology business that represents highly qualified employment, a source of innovation and competitiveness, a manufacturing industry that cannot be delocalised and a growing economy representing a ratio of more than 20 compared to the space hardware value. Thus, even if ESA Member States may suffer from budget cuts impacting ESA activities, they are also aware that investing in space may also represent a tool to mitigate the crisis' effects on the European economy.

The crisis may also represent an opportunity to further pool efforts and increase the synergies between the different stakeholders. Finally, ESA is adapting its oper-ations for reducing its internal costs.

In November, ESA will hold its ministerial conference providing orientation for the years to come. Are there security-related activities envisaged of interest to security and defence users?

In a way all the ESA activities to be initiated at the next ministerial council may be of interest to security and defence users, in terms of technology, knowledge and services. More specifically, security and defence users will benefit from the investments of ESA Member States in a number of programmes including R&D for Galileo and GMES evolution, meteorology, the follow-up to current launcher programmes, telecommunications systems (such as the European Data Relay System), integrated applications and critical technologies for European non-dependence. ◄

EUROPEAN DEFENCE AGENCY

❯ Annual conference marks a sea-change in cooperation

The last few months have seen some major changes in the way European defence departments have revisited the concept of cooperation

"If Europe is to be a credible player in the world, it requires more than just soft power"

The idea has moved swiftly, for many, from an aspiration to a necessity. Attendees at the Agency's annual conference in January discussed the benefits and challenges of improving cooperation, now the subject had been propelled up the political agenda throughout the continent by increasing economic austerity.

"Defence ministers have already recognised that it is better to have excellent collective capabilities than unsustainable or unattainable national ones," according to the European Union's High Representative Catherine Ashton at the EDA's Annual Conference. "Since the informal EU Defence Ministerial in Ghent in 2010 there has been a strong political will to pool and share capabilities more systematically."

Ghent has been seen by many as a turning point in the wider political momentum towards smart defence concepts such as pooling and sharing. While the concept has been endorsed by many governments for years there is now a wider political support to speed up the process of collaboration.

"At Ghent, and sub-sequently, defence ministers have demonstrated that there is real political will to change the way we do business," said Pieter de Crem, Belgium's Minister of Defence, who highlighted the European cooperative efforts in the recent Libyan campaign. "On one level, Europe has done very well. However, cooperation between Member States could have been better. Several European countries deployed F-16 aircraft. Despite an existing and permanent multinational cooperation between Member States that use this type of aircraft, each country operated from a separate air force base," said Pieter de Crem.

It is not hard to see why there is a new sense of urgency among Europe's politicians to work more closely

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But the critical nature of the choices in front of governments and industry was brought home to delegates by more than one speaker.

"I think ahead of us is a question of survival, yes or no, for our industry," said Klaus Eberhardt, President of AeroSpace and Defence Industries Association of Europe, in one of the question and answer sessions of the event. "I've seen defence cuts being mentioned in Europe as far more than a challenge. It will lead to a strong consolidation as we have seen in the United States."

The danger, according to Mr Eberhardt, is that the upcoming cuts will decimate the ability of European defence companies to spend on research and technology. And it is innovative technology which is the main selling point of European defence systems.

"A capability driven, competent and competitive European defence technological and industrial base is vital to ensure that Europe is able to respond to today's and tomorrow's security and defence challenges," said Catherine Ashton. "Its reinforcement is not only an economic but also a strategic necessity for Europe. The European Defence Agency (EDA) is currently working on ensuring a more effective strategy to strengthen European defence industry. This will be presented later this year.

"If Europe is to be a credible player in the world, it requires more than just soft power," said Catherine Ashton. "Military capabilities matter and that is why pooling and sharing – allowing the development of key capabilities with limited resources – is so important."

on defence and security issues. Increasing pressure on budgets, a growing number of complex global commitments, huge bills to fund required technology capabilities and a continuing reliance on the US for certain capabilities are all pushing the continent's defence departments closer together. But the risks of downsizing defence assets unilaterally are severe.

"If nations eliminate or reduce capabilities without coordination with allies or within the NATO structure the alliance as a whole will find itself with gaps," said General Stéphane Abrial, NATO Supreme Allied Commander Transformation. "This would result in what I call specialisation by default; 'smart defence' offers an alternative – specialisation by design, remaining sure that collective specialist capabilities will remain sufficient and coherent."

"Austerity does not necessarily have to weaken us. Quite the contrary – it can bond us and set a new course for a more effective defence cooperation" said Ms Claude-France Arnould, EDA Chief Executive.

And cooperation would also have intensify among defence organisations, especially between the EDA and NATO. "It is imperative for NATO to work closely, within the agreed framework, with the European Union," said General Abrial.

Standing room only

More than 350 delegates attended the EDA's annual general meeting on January 31 to discuss the theme "Refocusing Defence: European perspective on Defence cooperation in a time of financial challenge".

Delegates representing governments, parliaments, EU institutions, industry and think tanks took part in a series of interactive discussions which ranged from finding new ways for industry to access the global marketplace to strengthening the European Defence Technology Industrial base, particularly investment in research and technology.

"There is a price to pay for ensuring security"

As the European Commissioner for Internal Market and Services, **Michel Barnier** is responsible for giving new momentum to the Single Market. He has a reputation in Brussels for being passionate and articulate on the subject of Europe's defence and gave this exclusive interview in late March

The Commission created a Task Force on the question of defence last year. What is its role and objective?

We must pursue and consolidate the single market – and defence is an important dimension of this. We have to preserve our industrial base and ensure we are capable of producing goods and services, not just consuming them! We also need to improve competitiveness of the Single Market. This should be our starting point.

In the area of defence, we have two defence directives and we need to integrate these into national policies, while respecting the competence of the individual states, and these directives are still quite new and raise complex issues of sovereignty and defence policy.

We must work openly to provide our support to the Member States in the implementation of these directives. This is a key objective of the Task Force.

The Task Force will also work in four areas: markets, industry, research and institutions. The Task Force will operate with a horizontal approach to ensure we look at all issues in a coherent fashion and don't get stuck in a silo mentality. It is why it is co-chaired by two Directorate Generals, not just one.

What are the principal challenges you face? How will you resolve them?

The challenges are both internal and external. From the internal perspective, defence is a difficult matter to address and the major challenge will be to bring a host of different points of view together, to develop a coherent strategy. We need a common vision. This is of enormous importance. To that end, we need to raise awareness among all the parties with a defence interest. We often forget the importance of defence as an economic sector in its own right.

The external challenge centres on the need to generate confidence in all interested parties. We need all parties to trust that we are following the right course of action. For example, the European Parliament has a role to play in this endeavour. It is a matter of extreme importance that we do this in an intelligent manner, using all our assets and tools.

How do you see the Task Force operating with the EDA in particular?

We have very good relations with the EDA, and so does the DG Industry and Entrepreneurship. We are already working with the agency on issues of research and technology (R&T), but we need a closer working association – a marriage, if you will.

On the basis of the work programme of the Task Force, we will identify with EDA matters in which cooperation will be most beneficial as well as appropriate working methods.

The current global financial crisis has accentuated defence budget constraints. Might the Task Force serve to help convince Member States of the necessity to respond to defence needs through long-term investment?

The EC has no defence budget, but Europe is building its place in defence, especially with regard to policy and equipment. But progress depends on political will. Across the continent some €180 billion is spent on defence annually and there are significant opportunities for common action to make more effective use of such sums.

Now it is time to reinforce Europe's credibility in defence. Indeed, I believe we are obliged to do this – defence is an additional pillar supporting our credibility on the international front. My services, DG MARKT, manages the 'pole' markets of the Task Force and we look in particular at issues of acquisition and procurement.

We have to foster competition and overcome the fragmentation of demand. But we have to be innovative and also explore new avenues. There are initiatives already underway: The EDA Project 'Go Green' for example shows how savings in energy consumption of the armed forces can relieve defence budgets and free additional resources for new military capabilities. This concerns typical EU policies like energy and environment and illustrates the need for our approach to be a horizontal one.

"European defence is not an option – it's a necessity"

Investment in research and development (R&D) is decreasing, with a consequent potential effect on innovation. How might we reverse this trend?

Although it is difficult, we must ensure we do not sacrifice the future to the present. There is a price to pay for ensuring security and technological independence. Reductions in capabilities are being caused by budgetary problems – but there remains a need to develop a European strategy in critical technologies. We need to create a perspective in which technology and strategy are pursued at both the national and European levels – and we need to preserve those technologies which are not only a key factor of our military credibility but also a key element to save and create jobs in the civil industry sector.

And there is potential for a future success story! Combining strong intergovernmental agencies with our industrial strengths will provide us with significant progress in a European perspective.

There are synergies between the security and defence industries. How can we exploit this to the advantage of European defence?

One of our research polls deals with this. The European Framework Cooperation should be reinforced to take into account those technologies that deal with both sets of applications – such as cyber security and unmanned vehicles. Part of this work will involve the necessity to further develop the protection of intellectual property in order to reassure industry.

With our programme Horizon 2020 we have to explore synergies especially in respect of intellectual property right 'valorisation'. There are a number of initiatives aimed at such reinforcement – for example, the creation of a European patent later this year.

What makes a global 'power'? Four things: a strong economy, a common currency, a common foreign policy and a common defence policy

The defence industry today is very fragmented and retains a fundamentally national point of view. How can this fragmentation be overcome?

We need to bring down the barriers, provide structures to coordinate investment at the same time as making sure that consolidation of demand moves forward. If we can do this for both key and critical technologies, the end result will be much more European, while preserving essential capabilities for each state. Some of our industries are currently in great danger.

On the international stage – with China and the United States, for example – we are respected because the European market represents a force of 500 million consumers and 22 million companies. The continued existence of that market – and therefore the maintenance of our position – depends in part on a credible European defence.

How do you see the future of European defence? What are you reflections on such issues as demilitarisation and 'soft power'?

We are right to address the issue of 'soft power', but at the same time we need to safeguard our military capacity – this is a pre-condition for a credible foreign and security policy. Our experience during the 1990s proves we need a traditional military capacity. An independent Europe is a stable Europe: Blair and Chirac laid the foundations for this in their joint statement in Saint Malo. They called for a European defence autonomous and 'solidaire'. European defence is not an option – it's a necessity.

What makes a global 'power'? Four things: a strong economy, a common currency, a common foreign policy and a common defence policy. Those are the crucial elements. An independent Europe, respectful of its alliances and maintaining a credible defence capacity is the goal. We're not quite there yet – but we are making good progress! Are not GMES and Galileo a proven success story?

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❯ OCCAR: The only real option is further collaboration

Organisation Conjointe de Cooperation en matière d'Armement or Organisation for Joint Collaboration in Armaments (OCCAR) is an international body dedicated to the through-life management of collaborative defence equipment programmes. **OCCAR's Director, Patrick Bellouard,** explains some of the guiding principles that govern the organisation's activities in collaboration with agencies such as the European Defence Agency (EDA)

What is the relationship between OCCAR and EDA? What potential exists for joint approaches to European capability development?

The European Defence Agency and OCCAR do not see themselves as competitors, but as natural partners, where OCCAR is situated downstream of the EDA in the capability development process. Within this, EDA's main task consists of promoting cooperation between its Member Nations to create more opportunities for collaborative programmes, while OCCAR is better placed to manage the programmes that arise from this cooperation.

To formalise the existing practical cooperation between EDA and OCCAR, the Council of General Affairs and External Relations invited the EDA, in its statement of 10th November 2008, to establish an administrative arrangement between the two organisations.

The A400M was officially launched and integrated into OCCAR in May 2003

In practice, this cooperation is already evident through two EDA category B ad hoc programmes for which the management has been entrusted to OCCAR; the European Secure Software defined Radio programme (ESSOR) and the Multinational Space-based Imaging System programme (MUSIS). Future opportunities for cooperation have also already been identified with programmes such as equipment development and enhancement of protective equipment against biological hazards (BIO EDEP) and the Maritime Mine Counter Measures programme (MMCM).

Alongside structural 'top-down' initiatives from the European institutions, including the EDA, to strengthen the European industrial base and defence market, OCCAR contributes in a pragmatic 'bottom-up' way to the strengthening of this industrial base and defence market by collaborative programmes that the organisation manages on behalf of its customer nations.

Can you give concrete examples of OCCAR making a difference in harmonising and easing procurement?

The harmonisation of requirements should normally be performed by the Nations before the launch of a collaborative defence programme. OCCAR sees here an important role for EDA, as this harmonisation process is ideally fostered within the framework of a Cat B project for the programme preparation phase. The Nations can also, however, decide to perform this activity outside the EDA environment, in which case OCCAR sees itself more in a supporting role, providing its expertise to smooth the harmonisation process.

For the in service support (ISS) phase of both programmes common support requirements were defined. It is of the utmost importance that Nations succeed at safeguarding the highest possible degree of system configuration commonality, which allows for a common system support which, in turn, will reduce the logistic footprint of the system when deployed in operations.

You describe your core business as through-life management. What difference have you seen in the last decade regarding customers' perception of what this means - and how they can benefit from it?

The OCCAR Through-Life programme management (TLM) concept was established in 2008 and launched with a strategic innovation initiative in 2009. The desired end state is planned to be reached by the end of 2012, so the approach is not yet that old.

OCCAR sees Through-Life programme management, however, in a broader European context of through-life capability management. This has to go hand-in-hand with the involvement of all stakeholders: the users, EDA, OCCAR and of course industry. In this context we see OCCAR mainly focused on through-life management of defence systems, where EDA would be looking after through-life management of the corresponding capability covering possibly more defence systems but certainly also other capability aspects like operational concepts and doctrines, strategies, common training etc. Users play an important role, as they gather first hand experience of the degree to which systems offer the required capability and as they will provide the requirements for new defence systems to enhance capability.

Decisions taken in the very early phases (preparation, definition & development) of a programme determine more than 70 per cent of total system life cycle (LCC) costs. Therefore it is of the utmost importance to address these decisions on a through- life basis, even if the mandate of the management organisation does not yet cover the whole life cycle. Nations are becoming more and more convinced of the need for a TLM approach and the associated early LCC estimation. We already see the start of a process wherein, based on early OCCAR involvement, our LCC expertise is used intensively during the programme preparation phase within the EDA environment.

What do you see the future holds for joint or collaborative procurement?

Over the last five years, only an average of about 20 per cent of total national defence expenditures in Europe was invested in collaborative equipment. The financial crisis should cause this situation to improve, with defence budget cuts in Europe ranging from 10 – 50 per cent.

However Nations are currently experiencing the delivery of a number of complex and expensive weapon systems they ordered ten or more years ago on a national or cooperative basis (fighter aircraft, transport aircraft, helicopters, ships, land systems) absorbing a large part of the budget available for investment. So in the coming years there is not much room left for new important initiatives.

Nations need also to take into account that for closing the identified capability gaps, continuously increasing and always more costly technology levels will be needed. If the European governments want to spend their shrinking defence budgets better, their only real option is to spend a larger part together by stepping into collaborative defence programmes. These programmes can offer economical and technological benefits, scale effects, allow accessibility to state-of-the art skills and techniques and many more. And we consider OCCAR to be well placed and equipped to fulfil the conditions needed to maximise these benefits.

As governments turn increasingly to outsourcing many services as a means of meeting budget austerity targets, do you see a changing role for OCCAR in the future?

We don't really see a huge change in OCCAR's current role, but we do expect to be called upon more in the future. Budgetary flexibility at national level to launch new large defence programmes will remain limited during the next decade, but OCCAR has anticipated this situation and has adapted itself in such a way that the organisation can now also cope with the management of smaller projects and technology demonstrator programmes in the most cost-efficient way.

> "It is of the utmost importance that Nations succeed at safeguarding the highest possible degree of system configuration commonality"

EDA represents military interests in Single European Sky programme

Military aircraft operators can now view the Single European Sky ATM Research programme (SESAR) with a greater understanding of how it will impact their future operations

Over the past few months important strides have been made in changing attitudes within Europe's military aircraft operator community to this complex, civilian-led air traffic management technology programme.

"When I started more than one year ago, the position of the defence community towards SESAR was challenging – even sceptical," said the EDA's Chief Executive Claude-France Arnould at the SESAR Joint Undertaking annual forum at the start of March 2012. "You remember about the 'negative business case of SESAR for the military'. Gradually, this approach is moving towards the right direction. Step by step, slowly, the defence community is changing its mind – showing a constructive approach and a more proactive role on SESAR. The question is not anymore 'why do we have SESAR?' but 'what are the best ways to implement SESAR?'"

Meeting in Brussels in December 2010, European defence ministers tasked the Agency to engage with the SESAR Joint Undertaking (JU) to identify important financial and operational risks as well as emerging opportunities for the defence community, and work is under way in this field.

"So far the EDA has been working on establishing the network, connecting with actors and then providing input in to the process," according to Patrick Rey, the Assistant Director for Armaments Cooperation at the EDA. after being given its mandate the Agency set up

Communication is key – and a cultural change is underway

the SESAR military implementation forum, an informal body comprising NATO, the Military Air Traffic Management Board (MAB), EU Member States, EU military staff, NATO Allies and representatives from the European Commission, Eurocontrol and the SESAR JU. The objective of the forum is to raise awareness about SES and SESAR amongst the military, to share 'best practice' and spread news about the development of effective strategies, as well as to exchange views and to structure and harmonise a military position on specific issues.

This is delivering practical benefits for the organisations involved. The 26 Ministers meeting at the EDA Board have entrusted EDA with assessing how the concerns of the military could best be answered with a specific look at the assets NATO operates and the programmes it manages. With the support of the SESAR JU, EDA is facilitating meetings of experts so that, on some clearly identified technical points, dialogue can take place for the benefit of all and progress be achieved. "The aim is an integration of military traffic into the single European sky but at the same time the price should not be losing military-to-military interoperability," said Patrick Rey. "In terms of the operational risks we are examining what sort of constraints might be put on military operations – which of these would be acceptable and which would be unacceptable. We understand the need for compromise, but we're working to find the best solution for militaries too."

Within the past year the costs and risks of the SESAR programme to military operators have become more defined. An initial cost-benefit study by economic consultants McKinsey & Company had suggested that the costs of fitting 80 per cent of the EU's military aircraft fleet with SESAR-compliant systems could be as much as €9-€10 billion. But more recent estimates are

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pushing down this estimate. By 2014 new aircraft will enter the market with avionics which will have SESAR-compliant systems as standard *(Editor's note: see our interview with Patrick Ky for more on this)*.

Patrick Rey is optimistic that with Member States now more aware of and involved with the SESAR programme, decision-making is going to be easier than originally thought. "Communication is key – and a cultural change is underway."

And when it comes to financing, military aircraft operators may find some support from the civilian side. "The European Commission is planning to fund some incentives into the programme, and although most of these will be to back up loans and support small aircraft operators, the EDA is working to ensure that military systems would not be excluded from this," said Patrick Rey.

In addition, there are other means to reduce the cost burden on the military. SESAR requires certain standards be met, without specifying particular systems to fit; this enables the

military to make the best use of already existing technology on board its platforms and 'demonstrate' equivalence. Should a new system be eventually needed to meet SESAR's requirements, the time window in which this has to be done is an important variable. Here the military will have options: they can decide on

> ## "Step by step, slowly, the defence community is changing its mind – showing a constructive approach"
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> **Claude-France Arnould**
> Chief Executive, EDA

early retirement of platforms, forward-fit aircraft coming off the lines, or opt to introduce SESAR's requirement in planned retrofitting. This flexibility should allow the military to meet this challenge in the most appropriate way for their particular circumstances. Finally, through the promotion of cooperative endeavours, which is the raison d'être of EDA, Member States will be able to reduce acquisition and qualification costs.

Furthermore, the Air Traffic Management Master Plan has been updated to reflect the negative impact of the financial crisis on air traffic, with the effect of loosening the time constraints. This document is built on consensus among all future users and contributors of SES and SESAR.

The ATM Master Plan has become the document of reference for all stakeholders, creating a broader understanding and giving the military the opportunity to participate in negotiating the expectations from SESAR and their associated schedules. "Time constraints have been relaxed, to better reflect both the traffic increase and the time it will take the airlines to qualify and retrofit their fleets. We are now facing a schedule that looks more like what we are used to with military programmes. This should enable the military to use this time to better identify and champion their requirements."

All this is not to downplay the challenges. Most military communications systems rely on classified technology and it will be difficult to migrate from classified to unclassified SESAR-compliant systems. The SESAR JU is researching how the military Link-16 data-link might be adapted to SESAR, but the work is challenging.

"In the end, the economic impact of SESAR will be felt in each state and this should allow military aircraft operators to negotiate the budgeting of the remaining SESAR compliance costs with their national finance and transport departments," said Patrick Rey.

For now the EDA is starting to look at a new stage of cooperation, so EU military aircraft operators will be able to meet the European Commission's expectation of a coordinated approach to systems deployment. "The deployment phase is two years from now and the Commission has set up an interim deployment steering group in which EDA provides the overall defence input, so the interaction with military is already in place," said Patrick Rey. "Time is short. We are working with the Commission and other stakeholders how best this should be done while developing a roadmap for systems deployment."

"Moving towards a more constructive approach makes more sense, it has to work. The Single European Sky is more than SESAR. In 10 to 15 years from now the civil part of the airspace will be well organised and structured. This should be seen as an incentive by the military to try and develop harmonised positions and be able to speak on equal footing with the civil airspace regulator for a true single European sky."

Again speaking at the SESAR JU annual forum, Claude-France Arnould is similarly optimistic: "We do have arguments for the programme: optimized flight, less fuel, faster to the destination, a sky less fragmented, flexible use of airspace. For a military user of the sky, SESAR can also be an opportunity. And it is now starting to be considered this way. We are facilitating the emergence of a military view about SESAR."

Courtesy SESAR JU

Patrick Ky is the Executive Director of the SESAR Joint Undertaking, which is managing the technology research area of the European Union's Single European Sky air traffic management programme

› SESAR: "Opportunities as well as risks"

Could you describe your relationship with the EDA?

Our intention is to formalise our relationship with EDA. When the EDA received the mandate from the Ministers to play a role in SESAR we were very happy because we now had an interlocutor who would deal with those aspects of military issues not covered by Eurocontrol. The EDA has a key role to play in building the appropriate bridges between the two worlds and showing the military stakeholders that they should not think just about the risks but also look at the opportunities of the programme.

What are the benefits of this relationship for SESAR?

To have a single interlocutor for Europe. We made the effort of doing a tour of European capitals, meeting with chiefs of Air Force and defence procurement agencies. This was very fruitful, but we cannot afford to go and meet with all interested parties every time we need to inform or get feed-back. The Agency is the key to this European-wide consultation and support to decision making.

How close are we to having a definitive cost/benefit analysis of SESAR for military aircraft operators?

It's not a black and white situation. In the SESAR definition phase in 2007 there was an estimate of the cost for the military of something like €7 billion; the natural worry was who was going to pay for that? But this was making simplistic assumptions, such as a uniform rate of fleet equipage across Europe. We know that in practice, the decisions to equip or not a military aircraft will be much more complex: how old is the aircraft, how costly is the retrofitting cost, what would be the advantages and penalties if it is not equipped? At the end of the day, I am convinced that the total bill for defence will be much less. But we cannot invent the figures, we need to help the defence authorities in building their own SESAR investment strategy.

In order to further advance the subject, the SESAR Joint Undertaking (SJU) is conducting a study, the results of which will be available in June this year, which assesses the current state of avionics capabilities and estimates in more detail the work which will be needed to bring aircraft of all generations up to the latest standards. With this study, in which the EDA is involved, we will have a better view of what SESAR performance requirements can be matched by existing military systems, and which will need a specific upgrade.

Within the SESAR programme have you considered how unmanned air systems will be integrated within civil airspace?

We are ready to work on this, but first we need to define a common concept of operations of UAS in civil airspace, which does not exist today. We have begun work on this, which should be ready for this autumn.

What will be the benefits of SESAR to military aircraft operators?

There will be a better match between needs and what is delivered, for training in particular. Operational benefits will include shorter flights, optimised trajectories and no delays. In terms of costs it depends on how military ATM is organised and this differs from country to country. In countries where the military pays the costs of ATS services the 50 per cent reduction in ATM costs will have a huge impact. ◄

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Joint efforts for flying UAS in Europe

>> The EDA plays a vital role in working with European Commission on technology issues in flying unmanned aircraft systems (UAS) in Europe

The issue of unmanned aircraft systems (UAS) figures high on the agendas of most European ministries of defence and therefore on that of the EDA also.

As part of the UAS panel, a series of five workshops have been held with a wide variety of stakeholders under the umbrella of the European Commission, in which the EDA has played a vital role. The agency has six people working in the UAS field, of whom two are dedicated full time to the issues.

According to Inge Ceuppens, Programme Manager in the research and technology (R&T) Directorate, the outcome of the fifth and most recent workshop dedicated to research and

> "there is now quite a positive dynamic"
>
> **Inge Ceuppens**
> Programme Manager, R&T Directorate, EDA

development (R&D) for UAS, in which there were more than 250 participants, is that the community "is now fully informed – on the technology challenges, the issues and the state of current research activity." She adds that the tangible results are likely to be "continued sponsorship of further research, an enlargement of the European Aviation Safety Agency (EASA) mandate (for UAS-

associated air traffic management issues) and a will to foster harmonisation of pertinent regulation among the states."

Safety in the deployment of these systems is a critical issue for the Commission, and several projects have already been launched examining the surrounding issues. One of these issues, 'sense and avoid' – the autonomous ability of UAS to avoid mid-air collisions – is the subject of an EDA Category B project entitled MIDCAS.

A flagship programme for the agency, according to Ceuppens, MIDCAS was launched in 2009 and has been funded to the tune of €60 million, with France, Germany, Italy, Spain and Sweden as participating member nations. With regular UAS stakeholder consultations taking place (the most recent in February this year) the first flight of the MIDCAS demonstrator aiming at exhibiting an automated function, is scheduled for 2013. It will then be further developed to a standard proposal.

Along with 'sense and avoid', other critical issues include data-links, communications and training, according to EDA Technology Manager Jérôme Garcia, in charge of aerial systems and their environment. A variety of studies continue, including the EREA4UAS consortium, which includes most European research centres and which is working closely with EDA "to determine those technology gaps that currently prevent the integration of UAS into controlled airspace," says Garcia.

It seems clear that the initiatives taken by the Commission, the EDA and other bodies has led to an environment in which all parties consider themselves more fully informed – and all are prepared to move

> "critical issues include data-links, communications and training"
>
> **Jérôme Garcia**
> Technology Manager, EDA

further forward in addressing the issues that confront developers and users of UAS alike.

In the spirit of a project following a fast-moving roadmap, however, Ceuppens believes there is "a need to grow the project and develop a critical mass that will help to attract some of the funding currently being spent at the national level."

The net result of the workshops and other UAS community initiatives, in most of which the EDA has played a role, has been to establish "a community of interest on a very complex subject in which there is now quite a positive dynamic," according to Ceuppens. She adds that "the EDA is in the driving seat for a while, and we are very interested in pursuing the civil side of the equation also – thereby avoiding any potential duplication of effort and ensuring we share knowledge," a determination that might well serve as an unofficial motto for the agency. ◄

EUROPEAN DEFENCE AGENCY

"Developing technology where it is urgently needed"

The agency's strategic research and technology work is helping to develop capabilities in the defence field which will have a strategic impact across European society

Courtesy SG Marine Systems, LLC

Research and technology (R&T) is big business for EDA: the average volume of contracts awarded between 2007 and 2010 has risen to €100-150 million. These contracts are awarded by EDA to manage and coordinate R&T projects on behalf of the Member States based on shared European R&T priorities.

Christian Bréant, the agency's Research and Technology Director, manages a Directorate organised into 12 capability technology (CapTechs) areas, ranging from technologies that are transversal and multidimensional in character to those whose effect is felt at the system – or even system of systems – level.

One of the cornerstones of the agency's R&T programme is a pragmatic, art-of-the-possible approach to the complex area of collaboration. There is no attempt to engage the attention, support and participation of every Member State for every R&T project, says Bréant. He points out that "for Category B projects, on average, we see maybe five or six Member

States collaborating. In our emerging technologies joint investment programme we currently have 12 and in the force protection programme there are 20 contributing Members."

The R&T directorate projects are organised by three main drivers. Capability-driven projects are the major focus for short and medium term needs. These include projects such as force protection, the European Secure Software defined Radio (ESSOR) demonstrator, the unmanned maritime system programme and the Midair Collision Avoidance System (MIDCAS) demonstrator focused on the issue of 'sense and avoid' for unmanned aircraft systems. Then there are industrial analysis projects aimed at long-term needs. A good example of this approach is the Future Air Systems initiative, in which "we are looking at the necessary investments for 20 to 30 years from now," according to Christian Bréant. There is also a suite of mainly Category B projects: these are generated in the CapTechs and are essentially technology driven, to account for technological evolution and revolutions, and to

contribute to the creation of a network of capabilities in the development of strategic research agendas and technology roadmaps.

"We have worked at pushing the participating Member States to develop a more modular systems approach to development (in unmanned underwater sub-systems); if you like, to develop 'plug and play' sub-systems that will help inject improved performance capability where it is most urgently needed. The next challenge will be to do this in the arena of land systems, where initiatives such as generic vehicle architecture hold significant promise," Christian Bréant said.

The agency does not focus solely on specifically platform – or systems-related tech-nologies, however. "We pay a lot of attention to non-dependent technologies. For example, gallium nitride (GaN) offers vastly improved performance and heat dissipation over current materials and has very significant applications for us in areas such as radar and electronic warfare. Around €80 million has already been invested in research by a few Member States and it leads us to investigate

Courtesy Rheinmetall Defence

The German Puma infantry fighting vehicle - a fully digital platform - is already a collaborative project from an industrial perspective. It could, perhaps, also become one from a user perspective

Artist's impression courtesy Thales

Complex platform acquisition programmes such as the Royal Navy's new aircraft carriers will inevitably give rise to hundreds of ancillary systems acquisition projects for equipment that will have common uses for other non-carrier programmes in other nations. Effective procurement methods can be applied to significant advantage in such programmes

There are industrial analysis projects aimed at long-term needs.

A good example of this approach is the future air systems initiative, in which we are looking at the necessary investments from 20 to 30 years from now

the way in which we can take advantage of such an emerging materials technology," says Bréant.

Nor is the agency's vision artificially limited to pure defence issues. Where technologies have potential dual uses, the minds of the R&T directorate's staff – and their external network of experts and collaborators, which amounts to several hundred individuals from government, industry, research organisations and academia – turn to investigation of the potential alternative benefits. Christian Bréant is keen to point out that "this level of activity is not just about defence, it's about being aware of the strategic impact for Europe – for our entire society." He observes that satellite navigation networks and the Internet were both originally developed with military applications in mind, but that both have had effects on society in general that are little short of transformational.

Most emerging technologies today have potential dual use and EDA is a strong practitioner of bridging technologies between civil and defence

research objectives to make the best and most effective possible use of the European taxpayer's funding. Identifying what he calls "key enabling technologies" and coordinating efforts through "a smart cooperation framework" speaks very strongly to such a goal, in Bréant's view.

In the field of biometrics, a number of important initiatives are underway, at least one of which addresses the dual application issue. RF BIO is a project examining the biological effects of radio frequencies, since military radars use specific genres of signal that need to be seen to be safe for personnel operating and maintaining these systems. The output of the research project, however, could improve our understanding of general public health issues, as the properties and general effects of RF signals will be better understood and modelled.

EDA's important role in promoting, enabling and supporting the European debate on the issue of UAS is also an example of an activity in which there will be multiple payoffs. Pointing to the fact that the Commission will publish a policy paper this spring outlining a strategy for UAS in Europe, Bréant comments that there is significant potential "for a fruitful cooperation with the Commission on UAS, following a series of dedicated workshops in recent months on safety, market, regulation and R&D to prepare the technologies we need in order to insert UAS into general air traffic."

The balancing act of ensuring appropriate weight is given to both short and long-term R&T activity to ensure a coherent approach is one that Christian Bréant and his team have become well used to. "The key (to achieving balance) is to try to have more demonstrations of technology," says Christian Bréant. "We try to work closely with the European Commission on

"it's about being aware of the strategic impact for Europe – for our entire society"

Christian Bréant
Research and Technology Director, EDA

matters that are around mid-level of technology readiness. For example, this year we are launching a major chemical, biological, radiological and nuclear programme, we are working actively in the cyber defence field and always have at the back of our minds the issue of technology migration from security issues to defence and back to security."

Far from being an abstruse and remote series of activities, R&T within EDA is alive, vibrant and producing tangible results to enhance European defence cooperation. ◤

Unmanned systems

as a first line of maritime defence

The European Unmanned Maritime Systems for Mine Counter-Measures and other naval applications represents the first major and concrete success of an ambitious technology programme directly connected to Maritime Mine Counter-Measures (MMCM), one of the 12 priority actions in the EDA's Capability Development Programme.

Ministers endorsed the programme as a Category A programme (open to all EDA Member States) in 2009 and current funding for the four-year programme totals €53 million for 14 projects, in a combination of cash and resources, according to EDA Technical Project Officer Solon Mias.

"This Technology Readiness Level (TRL) programme leverages current knowledge and expands well beyond mine counter-measures," said Solon Mias. Technology Readiness Levels are an accepted measure of the maturity of a technology and its potential for inserting capability in complex current or new applications.

Eleven nations are in the programme umbrella currently (Belgium, Finland, France, Germany, Italy, the Netherlands, Poland, Portugal, Spain and Sweden, with Norway as a contributing member) and are committed to improving the capabilities of unmanned maritime systems (UMS) through a system-of-systems approach. Interoperability, modularity, inter-changeability of modules and standardisation are all key features of the way in which this programme is being conducted.

The Agency has started work on researching maritime unmanned systems as a solution to keeping the sea-lanes and harbours free from mines and other threats

"The whole idea behind research and technology (R&T) of this nature is about de-risking and providing sufficient information to the nations in order to take intelligent decisions on future procurement. At the current financial climate nations can't afford to do (this kind of research) in the traditional national way, so de-risking knowledge through collaboration is a powerful way forward," Solon Mias said.

The programme enables a wide range of entities to become involved, including naval forces, national laboratories, universities and the defence industrial base. Opportunities for exchange of knowledge, information and know-how in close cooperation between nations, coupled with a Systems Integration Group to coordinate the programme and examine future UMS technologies such as launch and recover, torpedo defence and energy supply and management, as well as links to future armaments projects will ensure the programme has concrete and measurable outcomes.

The current UMS projects focus mainly on MMCM issues: influence minesweeping, detection of drifting mines, buried mine detection and neutralisation. At the same time, however, the opportunity is not being lost to address other naval applications, such as harbour protection, and anti-submarine warfare. Three new individual projects or amendments to existing projects are already and waiting for implementation, according to Solon Mias.

Projects with what is termed 'transversal impact' are also being addressed: underwater communications, improved autonomy, network enabled coordination, interfaces and standards – even the safety and regulatory environments for UMS.

EDA's role in the UMS project is key: not only does it provide the research and technology environment for pursuit of one of the Capability Development Plan priority actions (and, perhaps not coincidentally, one of the 22 research and technology priorities agreed by the Member States), it is attempting to improve the current state of collaboration by enabling coordination, reducing administrative burden and decreasing the concept-to-contract period normally associated with R&T project generation.

"This is not just about technical products and services, but also about building connections, synergies and sharing of cost, risk and benefits. Currently there is a defined end to this project in four years – but I really hope it doesn't end there," said Solon Mias.

EDA brings Afghanistan lessons to helicopter crews

>> Throughout the European Union there is a general lack of helicopters to support Common Security and Defence Policy (CSDP) operations, so EDA devised a rapid and cost-effective cross-border training programme to help plug the gap

Just how defence is inextricably linked with politics became evident in 2008 when President Nicolas Sarkozy of France and the UK's then-Prime Minister Gordon Brown came to a joint realisation that there were not enough helicopters in Afghanistan to meet developing operational requirements.

Andy Gray, EDA's Helicopter Project Manager – himself a helicopter pilot and a former commander of fixed wing operations in Afghanistan, explains what this means. "There were enough helicopters in terms of absolute numbers – but some of them were not fit for purpose, the aircrews were not necessarily fit for the roles expected of them and the infrastructure was not fit for what we needed from it," he says.

It soon became clear that if more helicopters were to be made available to coalition forces the EDA would rapidly have to overcome some of the obstacles of national and industrial interests - while changing mind-sets along the way. "It quickly became apparent that training was the available force multiplier. Some may argue we have started at the wrong end of the scale in the way we have addressed the issue, but it is undeniable that the will existed to support what we have done," says Andy Gray, highlighting the agency's 'art of the possible' approach to capability insertion.

EDA therefore launched a study into the feasibility of teaching helicopter tactics using gaming technology. "Having identified the training gap, we were pushing on an open door. The requirement for operational training was clear," says Gray. Pilots knew how to fly – they needed to be taught how to fight.

The whole ethos behind the training initiative – which delivered a study on new capability requirements inside six months for a direct cost of around €450,000 – was focused on crew survival in the threat environment, according to Andy Gray. The initial course delivered training to Czech crews, with Sweden involved as observers.

Having established the principle, the question then became "who wants access to an affordable tactics course?" The United Kingdom, Luxembourg, Sweden, Hungary, the Czech Republic and Slovenia have all taken advantage of the follow-on development of the initial course, the Helicopter Tactics Course (HTC), which is a Category B programme funded to the tune of €4 million. "This has been an ideal method of matching seemingly disparate national requirements in a single programme, although there are obvious elements of national self-interest that have to be different," says Andy Gray. Four additional nations, Germany, Belgium, Finland and Portugal are currently contemplating participation.

Using generic simulators reconfigurable for various types of helicopter, the three week residential HTC course will, over two years, train 80 crews, consisting of 320 individuals, at Linton on Ouse in the United Kingdom. "We elected to represent only the level of fidelity we require in order to teach the tactics and we accepted some limitations in order to move rapidly to a 'ready for training' state – for example, there is no night flying training element currently," says Andy Gray. Some elements of the training may need further consideration at a later date – for example, an investment has been made in making a 'fall of shot' capability visible to the students, but there has not yet been any investment in ballistic modelling.

Nevertheless, the HTC is an example of what the EDA has been able to achieve at speed and low-cost when presented with an urgent requirement for solution. The EDA has also delivered an HTC Operational English Language Course, funded by Luxembourg and conducted by the UK's Defence Language School, which is now being developed further. This could be used to supplement the HTC and enhance the training value. "We have to stay agile and seek all synergies and savings," says Gray. "We know the crews need this training, so we have to keep improving our delivery, but at an affordable price."

"We have to stay agile"

Andy Gray
Helicopter Project Manager, EDA

Profile of a Project Officer

Jim Blackburn considers his most important job to be "being a father of four." That aside, his background prior to coming to EDA in 2007 encompassed a 21-year career as an Ammunition Technical Officer in the Royal Logistics Corps of the British army. "I am now carving a new path for myself, but within the same ethos – I have simply taken the uniform off," he says.

The freedom he has to manoeuvre at EDA is a major contribution to being able to get the job done, in his view. "I now have much more flexibility and have learned the most effective route forward is to establish a consensus at the working level and push it on up the food chain. To be honest, that is pushing on an open door when it comes to projects like this. The major lesson learned is that 'bottom-up' projects work better," he says.

His passion for getting the job done right and in a timeframe that meets the aspirations of EDA's customer base shines through everything he says and does. As an exponent of EDA's ability to transform capability rapidly and in the right areas, the success that he and his collaborators have had, both with the mobile laboratory and the series of C-IED training exercises currently under way, should be held up as an example of what the Agency can do to make a difference, even with limited budget and personnel resources.

"We invented potentially robust processes over a six to seven month period and concentrated on delivering process, not dogma"

Putting counter-IED facilities into theatre at pace

Over the last decade or more, operational experience in Iraq and Afghanistan has brought a new expression to the vocabulary of the popular press back in Europe – the Improvised Explosive Device or IED

Varying in size and nature from the re-purposing of an artillery shell or a legacy mine from the Russian occupation of Afghanistan through the 1980s to a large device constructed of largely home-made explosive, the IED has become the insurgents' weapon of choice.

It is an effective weapon, too. Of all the combat casualties suffered in Afghanistan, something over 90 per cent are caused by the effects of IEDs on vehicle crews and dismounted patrols.

National and multinational counter-measures aimed at mitigating the effects of IEDs as a credible threat have been under way for years. The *'Guidelines for the Development of National Counter-IED Capability,'* written in 2007-2008, became the subject of an official directive from the ministers of defence in Brussels in April 2010. The EDA quickly developed an initiative aimed at providing an essential piece of the counter-IED puzzle – a mobile forensics laboratory capable of supporting the intelligence and countermeasures process.

Commenting on the speed with which the solution was developed and moved into theatre, Jim Blackburn, EDA's Project Officer C-IED, said: "A contract was inked with Indra on 17 December 2010 and the laboratory was delivered in early July 2011. It was deployed in theatre on 28 July, achieved initial operational capability on 24 September and full operational capability by November."

Such speed is increasingly characteristic of the unique operating method that EDA adopts in addressing requirements such as this. "We provide a collaborative platform so the nations can develop a capability in common," explained Jim Blackburn. "The technologies and disciplines leveraged in this case demonstrate the very considerable overlap between civil and military authorities with regard to counter-terror operational philosophy," he added.

The raison d'être of a mobile forensics laboratory is to provide intelligence analysts and local commanders with the ability to get inside the terrorist decision and action loops. What this means, effectively, is the provision of a suite of complex and powerful analytical tools providing capabilities ranging from DNA analysis to electronic media exploitation systems.

Using these tools, in a relatively secure environment close to the scene of events, significantly shortens the process loop and means that commanders on the ground have access to actionable intelligence much faster than has been the case hitherto. Data can be analysed on the spot and in near real time, obviating the need for samples and data to be sent for analysis 'back home' which necessitates a considerable expenditure of valuable time before the information becomes intelligence. "We need the speed to get inside the decision loop," said Jim Blackburn.

The mobile laboratory is a good example of the way in which Member States can pool their resources in order to achieve a communal objective, according to Jim Blackburn. "There was some EDA money in the project, but France, as the lead nation, also devoted considerable resources to smoothing the way we got the system into ISAF.

Both Austria and Sweden also contributed specific equipment that was beyond the original budget resources, and Luxembourg made a very significant financial contribution paying for the physical deployment," he said.

It was also an important feature of the system that it was developed rapidly on the basis of clearly identified requirements. "We invented potentially robust processes over a six to seven month period and concentrated on delivering process, not dogma," he added.

"The laboratory was delivered in early July 2011. It was deployed in theatre on 28 July, achieved initial operational capability on 24 September and full operational capability by November"

As far as moving forward from the current capability is concerned, Blackburn believes there is much that can still be done. "We now have a lively debate on the future of C-IED in an EDA context and, for example, can begin to address the issues surrounding Route Clearance. We need to continue to strike a balance – we are increasingly seen as a trusted service that can provide operators and commanders with all the information they need in order to plan and implement necessary action," he said.

EUROPEAN DEFENCE AGENCY

General Håkan Syrén "time for

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The Chairman of the European Union Military Committee (EUMC) plays a pivotal role in balancing the many influences that bear on the evolution and implementation of military policy in Europe. Swedish General **Håkan Syrén** has been Chairman of the EUMC since November 2009. Prior to this he was Chief of Joint Military Intelligence and Security and then spent five years as Supreme Commander of the Swedish Armed Forces. He is a graduate of the Swedish War College and the US Naval War College

What are your principal roles and objectives in the EUMC, and how close is the working relationship with the European Defence Agency (EDA)?

I am essentially the coordinator for the 27 Member States, elected by the 27 Chiefs of Defence. I meet with the military representatives here in Brussels every week to discuss and monitor the several strategic priorities agreed by the Member States and expressing the views of the Chiefs of Defence. This is very much a two-way street in terms of communication.

I also have a permanent seat on the Political Security Committee, act as the Military Advisor to the High Representative for Foreign Affairs and Security Policy and as the point of contact for EU military commanders on international deployments. I try hard, however, to live in the operational role, not only in the Brussels bureaucracy.

As far as the EDA Is concerned, we have a very good professional relationship that operates at several levels. Among the more important issues in which we both play a part are the pooling and sharing initiative and the SESAR Joint Undertaking (SJU). I think we play a very important role vis-à-vis the EDA's efforts, representing collective views in meetings with both Armaments Directors and Policy Directors. Overall, I have found our cooperation to be very transparent.

What is the role of the Chiefs of Defence with regard to the capabilities of Member States?

The circumstances in different capitals are quite different. I thought I knew a lot about Europe when I came to this job

two and a half years ago, but there are certainly widely differing cultures, views and intellectual premises at work among the Member States. It is therefore difficult to find areas on which all 27 Members States agree – but my view is that finding two countries that agree is a very good start. I often use the word 'clusters' in both a thematic and geographic sense. Good examples of what I mean are the Nordic Defence Cooperation and the Maritime Surveillance initiatives.

This is a question of balance – of making progress with patience, step by step. Sometimes we will run up against an attitude that says "yes in principle – but here is the red line," when sovereignty of the State is somewhat in question. There are also invisible lines we need to consider, where the defence industry is strong and national or commercial interests need to be carefully considered.

There are a thousand answers to methods of international cooperation – not one.

In 2011 an exercise was conducted to identify pooling and sharing opportunities at the EU level. What lessons have been derived from this work?

I think the most positive aspect of this was the fact the message was well understood by all 27 Member States. The methodology for pooling and sharing was understood and accepted and the willingness to participate was overwhelming. We are definitely starting this in exactly the right way.

There were originally some 300 potential initiatives, which we boiled down to about 15 that were feasible, reasonable and

"My job is to overcome the differences between political and military logic"

something new, something brave"

achievable. The Member States together with the EDA have started this process with a 'bottom-up' approach that has given us a firm foundation. What we will now need is a 'top-down' consensus from the Ministers – we need political blessing and pressure to help drive pooling and sharing past the hurdles represented both by sovereignty and the relationship with the defence industry.

I think this has been a very realistic exercise as well. I have an idea of the improvements to operational effectiveness and cost-savings we might achieve, but there is also a clear recognition of the fact we are addressing a moving target. We need to move the initiative to an entirely different level to meet the requirements of the New World, in which the new threats include cyber warfare and climate change – threats to which it is not possible ever to declare an 'end state.'

What are the key issues that need to be tackled, taking budget constraints and security challenges into account?

Budgets are what they are and we cannot just sit here and complain – we need to find new ways of dealing with new realities. There is some €200 billion spent on defence annually in Europe and if we don't get the value we should from this we need to ask why – we need to be self-critical. Can we do without the replication of every facility in every State? Do we need to address defence at a fundamentally new level? Do we need to procure in a more realistic and intelligent manner? These are the sort of questions we are asking and solutions we are seeking.

Europe has about 1.6 million men and women in uniform. Some 66,000 are currently deployed. Allowing for four times that number – one force in theatre, one in preparation, one on its way home and one arguably engaged in research and development (R&D) type activities – the question is whether that is the most effective use of our assets.

I am very critical – not about money, but about the way we are doing business. It is, perhaps, time for 'something new, something brave' – but make no mistake, this is a purely political question for resolution at the highest level. My job is to overcome the differences between political and military logic, to tell the story in a different way and to try to put more lubricant into the machinery.

What is the role played by the EU battlegroups?

They are a very good thing. As Chief of Defence in Sweden I entirely welcomed the 2003 strategy and just a year later the battlegroups became a clear call to action and a clear message to the nations that here was a tool to be used in military transformation. They provide an extremely useful tool for addressing different cultures and values, especially in matters of language, interoperability and procurement. They also provided a catalyst for some nations to examine manning systems and in some cases abolish conscription in favour of all volunteer professional forces.

The question is now how to refine the concept. I have twice tried to initiate new discussions on the matter, but there is no current political acceptance of the necessity →

> "We have addressed the issue of operational effect; the issue of credibility will be more effectively addressed when the political will exists"

"There is some €200 billion spent on defence annually in Europe and if we don't get the value we should from this we need to ask why"

to revisit the battlegroup issue or to do things any differently. We have addressed the issue of operational effect; the issue of credibility will be more effectively addressed when the political will exists.

For many the view of defence in public opinion has transformed in recent years. Some think the word 'defence' is a synonym for 'belligerence'. How would you react to this, given that defence is a primary duty of any government?

A very good question – how do you defend defence? We are the ultimate tool in any violent conflict situation – military people have that task. If this is sometimes misinterpreted – could we articulate the issue in a different way?

The Lisbon Treaty recently opened the door to a way forward, in talking about conflict prevention. How can we be part of this and make a difference? How can we play a positive, supporting and understandable role? Humanitarian aid and disaster relief also offer

areas in which we could be expected to perform well and be respected for our contribution. By using our defence assets in such a manner, we might help the taxpayer become ultimately more motivated to support the roles we play.

Russia has a huge modernisation programme under way, the US is focusing more on Asia than Europe in its defence policy and China is demonstrating ambitions and capabilities for a blue-water navy. What impact do these and similar issues have on European defence?

I find a lot of articles on these subjects focus on figures rather than on what has been or remains to be accomplished. We follow relations with key players very closely. We follow the evolution of political will and military realities very carefully. If you take Russia as an example, their capability is no longer focused on a potential attack on Western Europe, as it once was. We have no immediate concerns on that score.

However, the changing world we live in can change further very quickly. We need to take a long-term view and also need to be aware that the type of transformation we are now working on and may envision for the future takes time. We need to be very, very careful when considering the issue of potentially removing aspects of capability from our current ability to do our job.

Taking on the challenge of the European defence equipment market

Given the complexities involved in creating an open and transparent European defence equipment market it seems strange, at first sight, that one of the positions in the Agency for overseeing the task should be occupied by a Finn, rather than a citizen of France, Germany or the UK.

But Finland's tradition of sourcing from a wide range of suppliers has given Tarja Jaakkola an insight into the issues from various sides.

"Finland has a limited defence industrial base and a long tradition of procuring defence equipment from European and global markets," Tarja Jaakkola says. "Finland is a country with rather limited defence budget and has therefore a tradition of ensuring that the government gets best value for money."

Before joining the EDA Tarja Jaakkola served as Governmental Counsellor at the Ministry of Defence in Finland and was involved with a wide range of defence procurement and armaments related issues, from helping to formulate national defence procurement policies to working on major procurement contracts, outsourcing and transatlantic cooperation. One of her key tasks now is to analyse how the new European regulatory framework impacts a market which is intensely political and regulated.

It's a complex role. "We need to improve the cost-efficiency and effectiveness of military spending by working towards a more open and competitive defence market," she says. "This is essential if Europe is to equip its Armed Forces in future with cutting-edge equipment at an affordable price. EDA´s initiatives in market areas like the Intergovernmental Regime on Defence Procurement have helped to open up the European defence markets for cross-border competition. Our intergovernmental efforts complement the Commission's regulatory initiatives and will continue to boost more transparency and openness in this traditionally very closed market segment. But, at the same time we need to explore means to preserve and develop key defence industrial capabilities. These topics are dependent on each other and need to be addressed in a coordinated and coherent way, like it is done by the EDA."

The task has been made more complex by the financial crisis which has impacted defence spending throughout the continent. At a political level, there is a broader understanding that further European cooperation is necessary to retain and develop the defence capabilities needed for sustaining and enhancing common security and defence policy (CSDP) – but there are downside issues which need to be addressed.

"There's a strong political understanding but turning that will into concrete action is another issue. EDA´s various initiatives, like the pooling and sharing, focus on increasing defence cooperation. Within the Industry and Market Directorate we are focusing on implementing the pooling and sharing initiative by pooling demand in off-the-shelf procurements to benefit economies-of-scale and improve interoperability."

It's a very different role from other colleagues whose successes can be measured in the speed with which they can move defence concepts from the research laboratory into the field or the new channels of communications which can be opened up between partner nations in large-scale exercises.

Profile: Ms Tarja Jaakkola, **Assistant Director, Industry and Market,** is a relative newcomer to the Agency; she joined the EDA in October 2011 and is working on EDA initiatives to help create an open and transparent European defence equipment market (EDEM)

"Even though EDA´s intergovernmental efforts have increased the openness and transparency in the European defence market, we still have work to do. The EDA continues to address the specificities of this unique market segment - like security of supply, security of information and offsets - and develop further our key tools, namely the Code of Conduct on Defence Procurement and the Electronic Bulletin Board. Through the harmonisation of defence procurement policies and practices we can improve market access and foster competition. We also have to take the global market into account. For the European defence industry the increasingly competitive global market has become even more important as the European market is getting smaller with less money for European states to spend on defence," said Tarja Jaakkola.
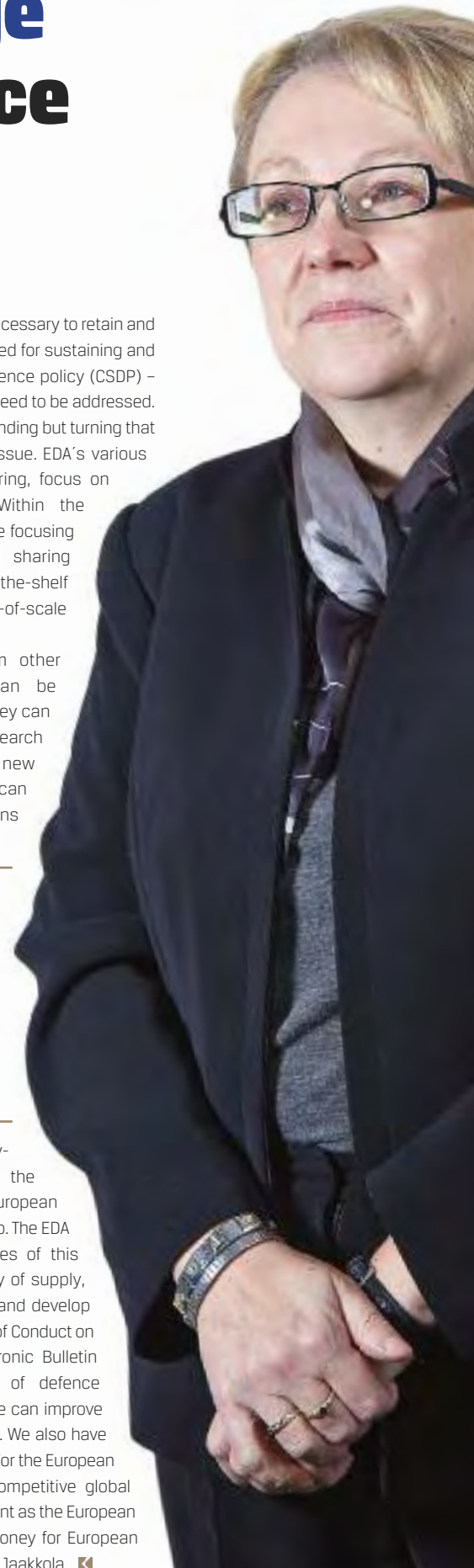
EDA defence data highlights capability challenges

The European Defence Agency's latest report on defence spending trends within Europe shows that defence spending fell from €201 billion in 2008 to €194 billion in 2010

The EDA's annual review of defence spending (www.eda.europa.eu/Defence Data) shows a shifting balance in the world's military capabilities. In 2010 the governments of the 26 EDA Member States spent a total of €194 billion on defence while the USA spent the equivalent of €520 billion (or $689 billion) over the same period.

At the same time defence spending in Asia is rising at more than three per cent a year. "On the current trend, Asian defence spending is likely to exceed that of Europe, in nominal terms, during 2012," according to James Hackett, Editor of The Military Balance, published by the Institute of Strategic Studies in London in March this year. This will be the first time, ever, that Asian states will have outspent Europe in defence and security markets.

Traditionally Europe has measured its defence spending levels against that of the USA, to determine where it sits in the world in terms of capabilities and priorities. The EDA's data shows that while the gap between defence spending in Europe and the USA has been wide for several years – Europe spent roughly half the amount of the USA on defence between 2006 and 2008 – it is now becoming wider. In Europe defence spending fell from €201 billion in 2008 to €194 billion in 2010 while in the USA expenditure increased from €416 billion ($612 billion) to €520 billion ($689 billion) in the same period.

"In Europe defence budgets remain under pressure and cuts continue to affect procurement programmes, equipment holdings and defence organisations," according to James Hackett. "Between 2008 and 2010, there have been reductions in defence spending in at least 16 European NATO Member States. In a significant proportion of these, real-terms declines have exceeded 10 per cent, he added."

In Europe, only the UK, France, Turkey and Greece have reached the NATO goal of spending at least two per cent of their gross domestic product (GDP) on defence.

According to the EDA data in 2010 US defence expenditure represented 4.8 per cent of GDP and 11.2 per cent of overall government expenditure. In the European Union these ratios were, respectively, 1.6 per cent and 3.2 per cent. As for defence expenditure in relation to the total population, the US spent €1,676 ($2,222) per capita in 2010, while the EU spent on average €390.
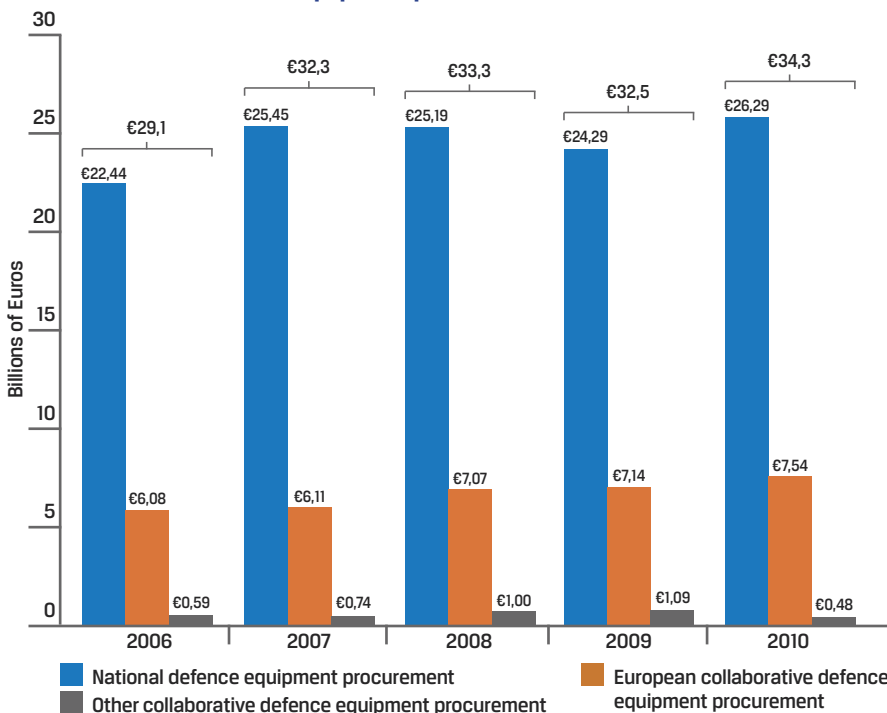
The worry for many defence industry experts is that decreasing spending threatens to cut the capability of governments to protect their citizens and their soldiers. Without sufficient projects to support complex and expensive research and technology, the continent's industry will not be able to counter new generations of threats and the gap between what the military and security communities require and what Europe's industry can provide will grow.

In Europe, compared to the USA, a relatively high percentage of the defence budget goes on personnel rather than equipment. The EDA data shows that between 2006 and 2010 EDA Member States spent half of their aggregated defence budget on personnel (civilian and military staff). In the USA, personnel costs represented slightly less than one-third of total defence spending during the same period. Military personnel represents 80 per cent of total personnel in the EU while in the US the proportion is 66 per cent. These proportions remained constant between 2006 and 2010. In terms of absolute figures, the USA has twice as many civilian defence staff as the EU (778,000 and 390,000), whereas the EU has more military staff than the USA - 1.6 million in the EU against 1.4 million in the USA.

This is an important figure – even though the EU spends less than half of the USA on overall defence it has more soldiers in uniform. But are they as well equipped as their US counterparts?

"The numbers spent on soldiers with bayonets is going down, and spending per soldier in Europe is also either steady or going down, too," according to Dr John Louth Deputy Head, Defence, Industries

European collaboration – Equipment procurement
National and collaborative equipment procurement – absolute values

Legend:
- National defence equipment procurement (blue)
- European collaborative defence equipment procurement (orange)
- Other collaborative defence equipment procurement (grey)

Defence expenditure breakdown in absolute values – real comparison*

Legend:
- Personnel
- Operations and maintenance
- Investment (equipment procurement including R&D/R&T)
- Other expenditure

* Years 2006 to 2009 have been inflated to 2010 economic conditions
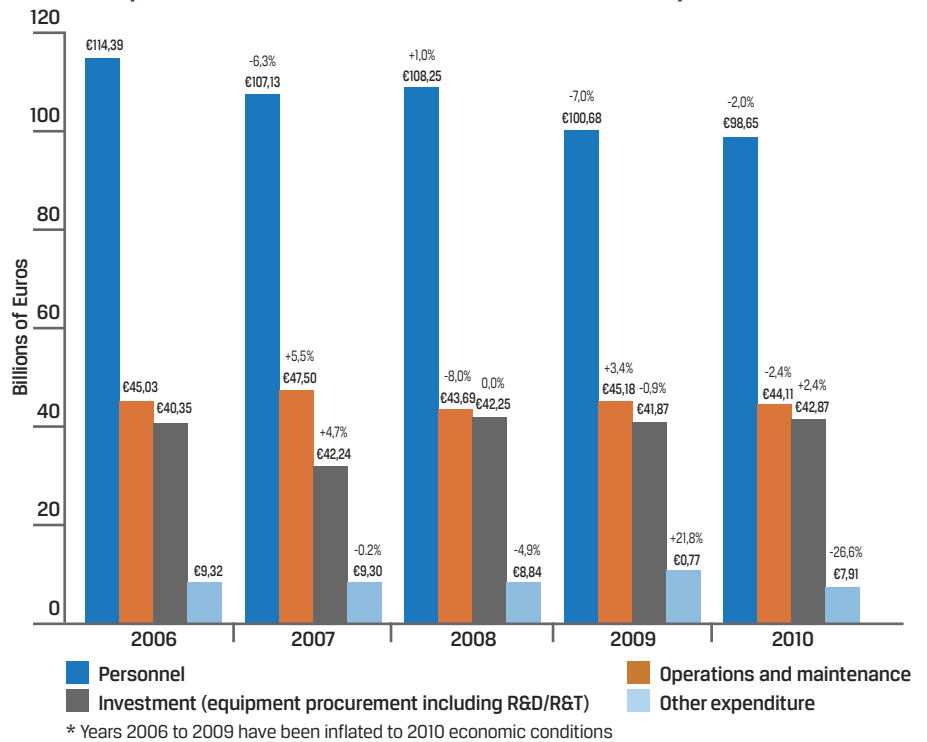
and Society, at the Royal United Services Institute (RUSI) in London. "The rules of the game don't change much. We need to develop a military capability which is sustainable and has a technical advantage, which requires constantly applied research and development (R&D)."

It is the falling rate of R&D which is of major concern to Europe's defence industry, which has traditionally relied on a technical edge for its competitiveness in the global marketplace.

"Our biggest area of concern is research and technology," said Gert Runde, Director of Security and Defence at the Aerospace and Defence Industries Association of Europe. "We think funding this area is probably more important than others – it has a direct impact on capabilities, the military itself and industry. However, for now it seems that research and technology is the bill payer."

The EDA data shows that in 2010 EU governments spent €9 billion on defence R&D, or 4.4 per cent of total defence expenditure. In contrast the USA spent €58 billion ($77 billion) in total on defence R&T or 11.2 per cent of total expenditure. But operation and maintenance costs for EDA Member States are lower than the US equivalent. According to the EDA data, these areas accounted for between 22 per cent and 23 per cent of total defence expenditure during 2006 to 2010; in the USA this figure was closer to 30 per cent.

"It's obvious European governments are not using enough out-sourcing," said Gert Runde. "There's a need to create a European market for out-sourcing and there must be room for further synergies at a European level. We are in the very early days of pooling and sharing and at this early stage there has been only a very little industrial effect from this, if at all."

The EDA data suggests that rather than increasing collaboration European Union Member States are reducing cooperative R&T efforts with their neighbours. In 2009 European R&T collaboration represented 12.8 per cent of the total expenditure; in 2010 this had fallen to 11.8 per cent.

"If Member States continue as they are we will still be left with 27 individual defence markets in Europe, even when States buy the same equipment," said Gert Runde. ◄

Macro-Economic Data

Defence Expenditure	2009		2010		% change 2009-2010	
	EU	US	EU	US	EU	US
Total	€194 billion	€471 billion	€194 billion	€520 billion	0%	10,4%*
As % of GDP	1,7%	4,6%	1,6%	4,8%	-4,1%	3,0%
As % of Total Government Expenditure	3,3%	11,1%	3,2%	11,2%	-3,3%	1,3%
Per Capita	392	1533	390	1676	-0,4%	9,3%*

* A significant part of this percentage change is due to exchange rate variations. If instead of values in euros, values in dollars would be used than the percentage change for the US total Defence Expenditure between 2009 and 2010 would be 4.9% and the expenditure per capita would be 3.9%.

Defence Expenditure: Breakdown

Defence Expenditure: Breakdown	2009		2010		% change 2009-2010	
	EU	US	EU	US	EU	US
Personnel	€98 billion	€148 billion	€99 billion	€166 billion	0,3%	12,2%*
Operations & Maintenance	€40,9 billion	€140 billion	€42,9 billion	€155 billion	4,8%	10,7%*
Investment Equipment Procurement and R&D	€44,2 billion	€149 billion	€44,1 billion	€159 billion	0,1%	6.4%*
Other	€10,5 billion	€33 billion	€7,9 billion	€39 billion	-24,8%	18,9%

* An important part of this percentage change is due to exchange rate variations. If instead of values in euros, values in dollars would be used than the percentage change for each one of the US defence expenditure components would be: Personnel 6,6%; O&M 5,2% and Investment 1,1%.

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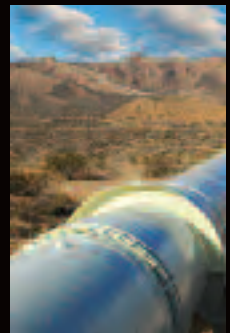
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Bridging the future land-systems capability gap

>> The EDA has started on a new work strand to look at how current and future capability gaps can be filled by technically advanced and commonly-developed or acquired land-systems

An observation of the EDA's work programme might conclude that the agency's interest was imbalanced in favour of the airborne systems. But this view is mistaken.

Quite apart from the maritime focus the agency has, which is highlighted elsewhere in this issue, there is an important focus on land-systems within the agency. According to Vassilis Tsiamis, Senior Officer for Defence Industry: "A fundamental difference between, say, airborne systems and land systems is that we work in an environment in which there are many programmes with low or medium individual budgets and thus first candidates when budget-cuts are to be considered," he says and continues: "On the other hand land-systems are the most deployed systems in military operations and the requirement to deploy European soldiers with the best of equipment to protect firstly and foremost their lives is always tense."

In order to set the scene and establish a future programme development path for land-systems, a 12 month roadmap and implementation plan study has been launched, with the objective of examining the evolution of the global market including future competitors against a background of both the existing and potential future situations, always aiming at filling the gaps to meet future requirements of the European armed forces.

The study takes a 'bottom up' approach to capability assessment and looks at issues relevant to duplication of effort, the current state of play in industrial ability and the areas in which future technologies may be leading development in the

domain. The work builds on existing EDA activities as well as leading into new paths of investigation. "For example, there is a parallel assessment of what future soldiers will need," says Vassilis Tsiamis. Based also on lessons learned from operational and procurement activities, the study aims to highlight existing capability gaps and identify what action needs to be taken now to prevent the emergence of future such gaps, which is also a primary focus of the work being done by the study WP3.

"More than 100 studies have already been conducted in the land area since the EDA was founded, so we have a huge amount of data and analysis from which to make sustainable decisions," says Vassilis Tsiamis. He summarises the work strand plan as being: "2012 is the year of data collection, 2013 the year of analysis and 2014 the year in which we can launch initiatives, projects and activities." He adds, however, that the work currently being undertaken will allow for a quick identification of priorities and a rapid launch of activities agreed amongst Member States when mature enough for action.

The early results of the study will be presented to the community during the EuroSatory exhibition in June, combining a mid-term report with the results emanating from the WP3 work, which will by then be drawing to an end.

Vassilis Tsiamis strongly believes that one of the major avenues of further development will involve the implementation of new business models. "Collaboration between governments such as

pooling and sharing and the use of more efficient supply chains will empower standardisation and interoperability at a time of budget austerity," he says. A good example of efficiencies to be gained is to take another look at the harmonisation of munitions qualification processes, an area where EDA is already developing concrete activities. "At the moment on specific ammunition types we specify +50 degrees celsius as one of the test parameters – only because we have said so for the last 20 years," he observes. Fresh evaluation may bring

"we are very conscious of the fact that, ultimately, capability is still king"

Vassilis Tsiamis
Industry and Market Directorate, EDA

considerable potential cost efficiencies in one small area of activity that could have far-reaching effects.

Although land-systems may not currently have the high profile that airborne systems enjoy, Vassilis Tsiamis believes the work already completed or nearing completion will set the scene for major advances in this domain by EDA. "We are now approaching the core mission area for EU military capabilities: we have to harness our industry and inform the influencers in a structured manner. We have proven, I think, that a 'bottom up' approach works – but we are very conscious of the fact that, ultimately, capability is still king." ◄

›Effective procurement can slash equipment costs

One of the objectives of EDA's pooling and sharing initiative is to promote the adoption of effective procurement methods, through the development of practical and innovative ways of ensuring greater collaborative activity

The challenge now is to translate common demand into common action

Member States could potentially make **savings of between 20 to 50 per cent in military equipment and services by adop-**ting shared procurement practices. A number of Member States have asked the agency to suggest a series of best practices in equipment procurement which could deliver substantial savings and, according to EDA's Senior Officer for Defence Market Reinhard Marak, these are realistic savings.

In implementing a 'user club' for Leopard main battle tanks which includes common purchasing of spares, Germany – as the lead nation – demonstrated for 21 predefined items where full competition could be applied very rapid savings of €9 million, or 25 per cent. When Estonia wished to buy new radar systems, by collaborating with Finland it achieved a 50 per cent saving over the price originally quoted for solo procurement.

The biggest burden on equipment procurement rests with the development phase, so any capacity to short-cut the path to collaborative acquisition using off-the-shelf methods has to be worthy of serious consideration.

The agency has no plans to become a procurement agency but rather focuses on its capability to facilitate joint or harmonised acquisition of a wide range of products and services. It has a unique capability in that it can provide a full spectrum of commonality from concept development through to implementation. Furthermore EDA has a good understanding of market issues and has established a number of tools, such as the Collaborative Database (CODABA), the Third Party Logistic Support (TPLS) Platform and the Procurement Experts Network (PEN) that can be used to identify matches of demand.

EDA is the only body specifically mentioned within the EU Defence Procurement Directive as having a potential central

"And the really good thing about this is that this is what industry wants too"

Reinhard Marak
Senior Officer for Defence Market, EDA

purchasing role. With an estimated 20 to 30 per cent of European defence procurement cases potentially standing to benefit from harmonisation of requirements and collaborative procurement, this is an initiative whose time has most definitely come. "And the really good thing about this is that this is what industry wants too. As a contribution to both consolidation of demand and standardisation, this is an initiative that serves the Member States' requirements for cost-effective procurement as well as the requirements of industry for greater efficiency," said Marak.

Feedback from the Member States on early implementation of the initiative has been very encouraging. In a data collection exercise on pooling and sharing conducted by the EU Military Committee in late 2011, Member States identified procurement as their preferred option for pooling and sharing in a number of domains, including transport and logistic support – medical support and evacuation, helicopter

availability, camp construction and supply, education and training – ranging from flight and pilot training through to chemical warfare and logistics support training, vehicles, ammunition, weapons and individual equipment – from light weapons, mines and explosives to rocket launchers and auxiliary field artillery equipment – and communications.

While not, perhaps, completely exhaustive, such a list is at least comprehensive and gives EDA wide scope to implement further measures to promote effective procurement methods. The challenge now is to translate common demand into common action and, in Marak's words, "to use existing tools in a better way." Experience as a former international legal officer for the Austrian Ministry of Defence, prior to coming to EDA in September 2008, provides him with a thorough background against which to measure the viability and effectiveness of such measures in the complex arena of multilateral procurement. ◄

When Estonia wished to buy new radar systems, by collaborating with Finland it achieved a 50 per cent saving

Domingo Ureña-Raso, Chief Executive Officer, Airbus Military, believes there is a real opportunity now for Europe to independently develop resources that will give it in-flight refuelling and strategic transport capabilities equal or even superior to those of its American allies

>"A real opportunity for Europe to independently develop resources"

Military transport aircraft operations and air-to-air refuelling are two capabilities where the EDA's pooling and sharing concept in developing pan-European capabilities in the face of national defence budget cuts is being actively pursued. What can industry do to make such important strategic concepts more cost effective for national States, especially in the delivery of trans-national support activities?

On 22 March, the Ministers of Defence of 11 European Defence Agency (EDA) countries signed a political declaration for the marked improvement of their fleets of tanker aircraft. During the Libya campaign it had become clear that there was a grievous lack of such aircraft. The agreement also lays down the foundation on which the European position is based regarding the transatlantic Summit which is to take place in Chicago in May. This Summit will look into ways of maintaining defence capacities in these times of economic crisis.

These countries stated in their joint declaration that they were "strongly and firmly committed" to this project and that they would indeed lead it with the EDA's support, with the aim of getting the majority of European nations to join in.

The goal is to share existing equipment or to purchase aircraft with greater capacity such as the Airbus Military A330 MRTT, with a view to making this joint capacity available in the coming years.

Airbus Military has therefore submitted an RFI proposal to the EDA for a fleet of tanker aircraft to be managed by 'pooling and sharing', with an open offer which is based on the A330 MRTT. This plane is just entering service in the British RAF, which is looking into all the possibilities which will ease the operation of the aircraft, from the simple purchasing of the planes to an operation model in which the industry would not only service the fleet but also rent out aircraft, flight hours and even crew members.

The offer made by Airbus Military focuses on the definition of a joint version of the A330 MRTT, based on the concept which is being offered to other customers. It would be equipped with pods, a Fuselage Refuelling Unit (FRU) and a boom, which would make the fleet compatible with all aircraft in service in the Coalition forces. The A330 MRTT is the most advanced refuelling aircraft in service in the world today, which means it can guarantee adequate capacities for the next 25 to 30 years.

What will be the impact of the current financial difficulties on Europe's defence capabilities, especially in the air-to-air refuelling area?

This initiative is coming about at a time of economic regression, which is making people reconsider how to go about defence spending in Europe. In view of this situation, Airbus Military's proposal is all the more attractive for various reasons.

First and foremost, each A330 MRTT substitutes more than two tankers of the old generation (type KC-135). The maintenance costs per flight hour of a KC-135 are four times higher than those of an MRTT, which means that the operational costs would drop dramatically. Pooling fleet-related services and making the fleet homogeneous would reduce costs and facilitate maintenance and operational capacity. The availability of the MRTT fleet would be superior to that of the current fleet, i.e. the utilisation rate would increase.

In addition, the MRTT offers strategic personnel and cargo transport capacities, which would ensure optimum use of the aircraft's potential.

Last but not least, a completely European solution would preserve technology, capabilities and jobs in Europe at a time when, at least in some countries, the economies need all the incentives they can get to stay afloat.

What other benefits might pooling and sharing deliver?

In order to make optimum use of these assets, it would be necessary to establish an effective coordination centre capable of efficiently man-aging the resources available in line with the needs of each country.

Putting this pooling and sharing concept into practice would multiply capacities while at the same time dramatically reducing the costs of fleet operation, taking into account that there are currently 42 tanker aircraft of seven different types in service in Europe, which makes it difficult to share capacities and causes skyrocketing costs.

How will the A400M impact Europe's capabilities?

Airbus Military is also producing a new strategic transport solution with tactical and air-refuelling capabilities: the A400M. In just a few years' time, this will provide Europe with a fleet capable of transporting relief forces and material to conflict zones or regions in need of humanitarian aid.

Just like the MRTT, this new aircraft will exponentially and globally increase Europe's capacities, and the combination of the MRTT and A400M will serve as a strength multiplier with possible global implications.

How easy will it be for Europe to develop its own capabilities in air-to-air refuelling and military transport?

For the first time in decades, Europe now has a real opportunity to independently develop resources that will give it in-flight refuelling and strategic transport capabilities equal or even superior to those of its American allies.

It is essential that the necessary decisions now be taken so that in five years' time Europe will have these capabilities at its disposal. This would enable it to tackle conflict situations such as the one that developed in Libya at the beginning of the year, without the shortages that became evident in this recent case and that once again meant asking the US for help. The new solution would enable Europe to handle in-flight refuelling missions requested, and have a real strategic transport fleet, ready to fulfil the global projection of force needs during the first half of this century. ◀

› Dr. Sven Biscop

Smart pooling for shared defence

The aim of the Ghent Initiative, or pooling and sharing, is to do more with less

This means stimulating Europeans to pool their efforts, enhancing cost-effectiveness to maintain and upgrade relevant capabilities and undertaking new capability initiatives addressing the strategic shortfalls in the European arsenal.

Pooling and sharing started the only way an ambitious collective endeavour can – as a political initiative of the European Union (EU) Ministers of Defence. It is up to each minister, in a 'top-down' manner, to steer national defence planning in the direction agreed upon with colleagues. In too many countries, however, the follow-up appeared lacklustre and the national defence apparatus was left too much leeway. Predictably this led to a slow-down in the integrative dynamic created at the political level. NATO's Smart Defence initiative, launched shortly afterwards, suffered very much the same fate.

In times of austerity contributions to new collective-capability projects are only possible by cutting national capabilities. But Member States fear contributing too much of their limited budgets to a collective capability, especially when measured against the extent to which they expect to have to draw on it. And they invoke sovereignty to resist pooling even existing capabilities. This reluctance is understandable but not justifiable. Many of the national capabilities they cling to are not capabilities at all, for they cannot be employed in any expeditionary operations. The sovereignty thus protected is largely illusory; without usable capabilities national governments have full freedom of inaction. By contrast, the examples of European Air Transport Command (EATC) and Admiral Benelux prove that far-reaching pooling is perfectly reconcilable with maximal sovereignty. Pooling in reality increases sovereignty,

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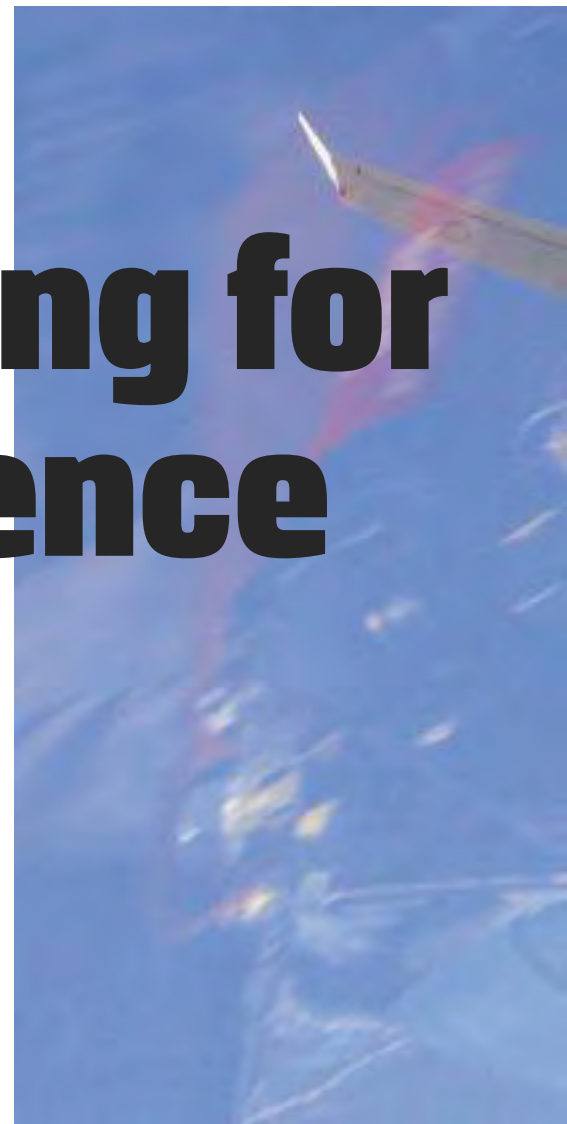
empowering Member States to operate at levels and in capability areas which on their own they could never hope to achieve.

A first assessment of the results and prospects of both smart defence and pooling and sharing is expected at the NATO Summit in Chicago in May, where the EU is invited. The EU should not necessarily follow the NATO calendar unless it has something to say.

And indeed it has. On 1st December 2011 the Foreign Affairs Council welcomed Member States' commitments to 11 projects facilitated by the EDA. They are the result of the new drive prevalent in the EDA and from the initiatives of specific Member States. Industrial interests undoubtedly play a role but these projects directly address some of the key shortfalls in terms of enablers. It is now crucial to recruit a critical mass of Member States to make sure that these key projects are implemented.

Like the launch of the Ghent Initiative itself, this requires collective and 'top-down' political decision-making. Only the top political leaders have the authority to order their defence establishments to make this happen, by reorienting both investment and cuts in view of the need to participate in collective projects.

Perhaps the time has come to lift defence up to the level of the European Council. Under its President, Herman Van Rompuy, the European Council has started the practice of preparing the key summits between the EU and the great powers. Is not the NATO Summit such an occasion? For this is not about the EU Common Security and Defence Policy (CSDP)-NATO relations, but about the strategic EU-US partnership. Putting pooling and sharing on the agenda prior to Chicago would create the best chance of starting a political dynamic that would stimulate sufficient Member States to sign up. Even if not all of the 27 would be able and willing to join in now it could create the critical mass for each individual project to start for real.

Thus a unique opportunity would be created to deliver a strong EU message in Chicago: these are the strategic enablers for the collective projects EU Member States have decided to acquire.

Many might instinctively draw back from the prospect of a 'European caucus' within NATO. Yet unless they do take collective action Europeans will not have the means to address their capability shortfalls. Logic dictates that it will prove slightly easier to solve a European problem among Europeans in a purpose-built framework: the CSDP. Capability development through the CSDP and NATO is 100 per cent compatible. Capabilities developed by Member States with the EDA or NATO acting as facilitator can be deployed in any framework. NATO remains the forum to initiate those programmes to which Europeans and Americans want to contribute together.

The new collective targets and capabilities which Europeans set and create among themselves, through the CSDP, can be incorporated as such in NATO defence planning. The aim is not for all EU Member States to contribute to all projects. European capabilities will remain a complex puzzle of national and multinational capabilities.

In some multinational areas, pooling will take place in several clusters of a few Member States; in others, requiring a larger critical mass, there will probably be just one capability constituted by a dozen or more Member States.

To manage this puzzle and make sure that the sum of it all produces a coherent set of European capabilities, tactical-level coordination of cooperation, project-by-project, will not suffice.

Both the Ghent Initiative and smart defence explicitly call for a three-dimensional approach.

Besides pooling or cooperation, on which both processes now focus, there is a need to decide which capabilities are to be prioritised and which capabilities will be provided by role - and task-sharing. This can only be achieved if Member States complement the current project-by-project approach with strategic-level coordination of national defence planning as a whole.

Only a permanent and structured dialogue at the political level, between the EU Ministers of Defence, can produce transparency, certainty and confidence. That will allow each Minister to effectively and convincingly instruct the Chief of Defence to focus the national defence effort on a reduced range of employable capabilities; to scrap redundant capabilities (of which there are far too many in Europe today); and to use the full potential for cluster-based pooling to create budgetary space to invest in the major new collective projects to acquire strategic enablers. In this strategic dialogue between national defence planning lies the true added value of the CSDP.

All concerned would be wise to encourage it.

EUROPEAN DEFENCE AGENCY

›Jolyon Howorth

The impact on European defence of the new US/Obama military strategy

Three major events marked the past year: the US decision to 'lead from behind' in Libya; Robert Gates' 'valedictory speech' in June 2011 urging the Europeans to focus on defence spending; and the US Defence White Paper of January 2012 announcing America's shift of priorities to Asia and the Pacific

These three events heralded a transformation in the US-EU security and defence relationship. Three main challenges stand out. Operationally, Europeans must take greater responsibility for their own regional security affairs. Institutionally, this calls for a new relationship between the Common Security and Defence Policy (CSDP) and NATO and for new forms of leadership. In budgetary terms, the EU must pay ever closer attention to the financial and procurement implications of this shift.

Since the end of the Cold War, it has been clear that Europeans would no longer be able to 'free-ride' on American security commitments. Relative US military disengagement from Europe was an inexorable consequence of the fall of the Berlin Wall. For 20 years, through CSDP, the EU has been striving to cope with that sober reality. In many ways, the challenge of Libya was precisely the type of regional crisis management situation which CSDP had been designed to meet. And yet, when push came to shove, the EU per se was nowhere to be seen. Nineteen EU Member States opted to sit on the sidelines.

Libya brought CSDP to a major fork in the road. One pathway takes it to the Rubicon. The other involves an about-turn. The choice is stark: either significantly deeper integration – or unravelling[1]. How seriously are the EU-27 prepared to take security and defence? Some say that Europe faces no real threat. And yet, from the Baltic Sea to the Black Sea and from the Bosphorus to the Straits of Gibraltar, instability hovers over the entire hinterland. CSDP faces an existential crisis. There is an urgent need for a trans-European debate about its real ambitions and objectives. In an age when inter-state conflict

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seems to be on the wane and when Afghanistan and Iraq have demonstrated the limited political usefulness of military force, what sort of role do the Europeans wish to play in the world – particularly in their own back-yard? What role should military capacity play in their projects? How do they understand power? Assuming they can reach agreement on these issues, they then need to start planning. For that, they need a strategic planning agency. They need more meetings of the Council of Defence Ministers à la Ghent. They need the synthesisation of those national strategic plans that already exist. They need a European Defence Review. They need a strategic plan. For 20 years, CSDP has muddled through in an ad-hoc way. That is no longer an option.

This raises the equally urgent question of relations with NATO. There are three key issues here: the nature of the 'alliance'; the type of cooperation; and leadership. The constraints of the Cold War and bi-polarity dictated tight solidarity between all alliance members all around

[1] The same choice faces the EU in other policy fields: the future of the Euro-zone, of immigration policy and Schengen.

the globe. Yet post-1989, absent the existential nuclear threat, and in a multi-polar world, regional crises impact NATO's Member State interests in very different ways. There is little likelihood of unanimity on anything. The 'alliance' has become a mechanism for generating coalitions of the willing. Donald Rumsfeld was (for once) correct: "the mission determines the coalition." The US drive for a 'Global Alliance' or for a 'League of Democracies' never found favour with Europeans and has probably been administered the coup de grâce in Afghanistan. Washington is, in any case, more comfortable with multiple bilateralisms than with formal alliances, as the recent agreement with Australia indicates.

In the wake of Libya, assuming CSDP continues to move towards the Rubicon, its cooperation with NATO remains more crucial than ever. That suggests three things. First, it means that the alliance must come home to Europe – including its entire periphery. Second, it means that NATO and CSDP must stop seeing one another as rivals in a beauty contest or as contenders for a division of labour. Third, there must, somehow,

be a fusion between these two entities. The US position over Libya indicates a way forward.

Leadership must increasingly be assumed by the Europeans. This will require serious restraint on the part of Washington and seriousness of purpose on the part of the Europeans. The sterile quarrels over duplication in general and HQs in particular must be transcended. CSDP must acquire autonomy through and within NATO and the Americans must learn to take a genuine back-seat. Progressively the balance within the alliance must shift to one in which the Europeans are doing the vast majority of the heavy-lifting in their own back-yard, and the Americans are acting largely as force enablers. The European caucus within NATO, far from being taboo, must become the cornerstone of the alliance. Europeans should stop believing that NATO cannot work without US leadership.

Such a new arrangement would greatly facilitate the third major challenge of the moment: rationalisation of finance and procurement. Europe does not need (and cannot afford) to follow the US down every hi-tech trail the Pentagon planners have blazed. But it does need to make crucial

decisions about pooling, sharing, specialisation and rationalisation in the context of a lucid understanding of its strategic objectives. The EDA has established a set of key priorities for the coming years, all of which will play a crucial role in future CSDP missions. Assuming a far greater degree of integration between CSDP and NATO, this process can readily be merged with the alliance's concurrent efforts on smart defence. The EU's new approach to procurement should largely be managed by the EDA, which needs more money, more responsibility to facilitate state-EU-industry interfacing and synergies, and more centrality to EU affairs. The 27 Defence Ministers need to re-engage with the EDA in a proactive way. And EDA should work hand in hand with the new strategic planning agency.

Europeans can cross this Rubicon. Their interests are far more convergent than divergent. The transatlantic framework has shifted beyond recognition. Europe has the necessary cash, the necessary skills and the necessary technology. The alternative is to give up and simply submit to whatever a rapidly changing world delivers.

That is no alternative.

"As an intergovernmental agency, the EDA is the only institution in the European Union that knows, and is able to promote, the specific characteristics of defence markets and defence industries"

› Antoine Bouvier

MBDA often presents itself as Europe's leading integrated defence firm. What does that actually mean?

MBDA is the result of a merger – ten years ago already – between six rival national firms, all of whom had the ability to design, develop, test, integrate, produce and support missile systems. Ever since then, we have constantly worked to free our organisation from its national barriers. This integrated organisation now makes MBDA the only credible European alternative to the American missile makers, as well as a global player offering a complete range, mastering all of the critical technologies, and with a worldwide commercial presence.

MBDA is a champion of European cooperation. What is the recipe for a successful cooperation?

First of all, there are certain key ingredients, such as clear leadership on programmes – both from government and the industry – and a simple but effective industrial organisation, dictated by the existing skills. But above all, the partner countries need to have shared goals in terms of technical-operational requirements, doctrine and, more generally, the strategic missions of the defence apparatus. The more goals we share, the better our chances of long-term success.

What makes Anglo-French missile cooperation unique?

Our cooperation extends beyond the mere framework of programmes, to cover an entire sector of the Defence Technological and Industrial Base (DTIB), the sector of ComplexWeapons, with the aim of maintaining long-term strategic independence in this key area of sovereignty, with careful control over government spending.

This involves acting on the traditional levers such as programme-based cooperation, industrial consolidation around a single European main defence contractor, and the need for access to export markets in order to bring prices down. Less traditional is the acceptance of a degree of interdependency between countries, notably through industrial specialisation; and a new model of procurement, based on a long-term partnership between governments and industry regarding the management of the entire missile sector.

Is Anglo-French cooperation eurocompatible?

In my mind, yes, without any doubt. The principles of Anglo-French cooperation – and its vision, which goes well beyond the search for short-term budget reductions – can be shared by all. It is clear that working first in a bilateral framework makes it easier to break new ground, such as industrial specialisation and the whole legal arsenal required for its implementation. None of this is in any way in contradiction with a wider European vision.

Every nation can easily subscribe to what is, after all, a fairly broad set of principles pointing to a new approach to European defence industry integration. The French and British governments are well aware of MBDA's interest in expanding the scope of cooperation, in time, to other countries. But that also depends on the political will of those countries.

Antoine Bouvier is the Chief Executive Officer of MBDA

"We need a new model of procurement, based on a long term partnership between governments and industry"

What are your expectations of the EDA?

In the current context of severe budget restrictions and heightened international competition, what the European DTIB needs above all is a strategic vision. The regulatory approach to defence questions is necessary, of course, but it can prove counterproductive unless it is framed, and backed up, by a strategic vision of our industrial and technological capacities for sovereignty. Secondly, if we want to consolidate the DTIB, we must also consolidate demand, harmonise operational requirements and national specifications for cooperation programmes, define a shared, proactive R&T policy, and also accept the idea of industrial and technological dependency between European countries. Finally, the EDA should also seek to establish a principle of balance and reciprocity with our non-European partners.

As an intergovernmental agency, the EDA is the only institution in the European Union that knows, and is able to promote, the specific characteristics of defence markets and defence industries. By drawing on examples that work, like the Anglo-French initiative, the EDA could help reduce Europe's unacceptable technological dependencies. The EDA could also give industrial main contractors like us, greater clarity on Europe's existing technological and industrial capacities, especially in the new Member States, all of which are reservoirs of potential cooperation.

What do you think about the pooling and sharing and 'smart defence' initiatives?

These initiatives indisputably rank among the available economic options, in as far as they preserve the most vital military capabilities, but they must not be allowed to lead to a situation where we systematically end up buying American hardware off-the-shelf while not being given real opportunities to participate to such schemes with European products. That would have a devastating impact on the European DTIB. If these initiatives are to succeed, we must be able to add European equipment into the equation. For that, we need to

maintain the European DTIB, with its know-how and its skills, so that European States can continue to have access to a European alternative; the US offering will not necessarily be aligned with Europe's future ambitions or priorities.

That is, indeed, one of the Agency's missions. But for you, as a European manufacturer, where does the European DTIB begin – and where does it end?

That's an excellent question. I would define the DTIB as being the capacity to independently develop and maintain future military capabilities, and that means guaranteeing security of supply. It is also about maintaining independent decision-making power and freedom of action. Without a European DTIB, there is no European defence. The industrial base is an integral part of the defence stance of a nation or a group of nations such as Europe.

The notion of a European DTIB is not currently defined at the European level. Does it include the subsidiary of a non-European company that just happens to be established on European soil? And what about a European company that imports non-European technologies? If we are serious about the goal of strategic independence, these questions need to be solved. It would probably be useful to identify criteria for belonging to the European DTIB, such as geographical location, economic and social value-added, the creation of technological assets, and control over equity. The 'technological assets' criterion is, I believe, essential. Without European design offices, there will be no European industrial base. ◄

Aster 30 deployed by France, UK and Italy. Operating its land version, the French Air Force has scored the first ever intercept of a ballistic threat by a European missile system

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›Louis Gallois

It is time to act

Within ten years, Russia plans to spend €583 billion on new military equipment, including some 400 new intercontinental ballistic missiles (ICBMs), eight nuclear-armed submarines, aircraft and surface ships

Meanwhile, China is building aircraft carriers, and the US is aiming at a cutting edge army by 2020. This severely contrasts with the current low level of political ambition set in Europe handicapped by drastic defence budget cuts.

Against this background, the European defence industry stands at a crossroads. Though it has largely restructured (except in the naval sector) the only way left for industry is to vie for export contracts. This is becoming increasingly tough.

Therefore, beyond a much needed ambitious defence policy at European level there are four keys to unlocking rapid progress, preserving our technological savoir-faire and remaining in the race.

First, capabilities. Cooperation in the development and acquisition of major capabilities has become for most Member States inevitable. Now the time has come to take back the lessons learned from previous cooperative programmes. There is no more room for over-specification, for duplication of assembly lines and multiplication of versions. Now, what form of cooperation should we promote? Let's be flexible: bilateral or multilateral, there should be no rule. Hence, the coalition of the willing principle followed by EDA with its pooling and sharing initiative sounds right and should be supported. However, EDA's role should go beyond and ensure coherence so that collectively Member States do not create separate coalitions on major capabilities. The UAV MALE is a case in point. Let's not reiterate the Rafale-EF story.

Louis Gallois is Chief Executive Officer of EADS

Second, research investment. Structurally this is the link between what our forces need and industry's ability to provide it. The level of research funding provided by Member States has reached a critical point. This is of particular concern as most capability programmes have reached the production phase. Competencies risk therefore being lost and taking a very long time to recover. Member States should do better in supporting research and technology (R&T) and make better use of the EDA as a catalyst to pool their efforts in R&T.

The third key concerns the European defence equipment market. This provides the structural link between the Armed Forces' equipment needs and their economically efficient delivery. We must avoid customer fragmentation and national protectionism which have denied both customers and suppliers the scale benefits that a single market area would allow.

The fourth key relates to the European defence industrial and technological base which links research with the delivery of equipment capability. While it is not the wish of Europe's industry to develop a 'fortress Europe', it is equally not its wish to see indigenous defence technology overtaken or dependence on foreign technologies becoming a necessity, especially where technology transfer terms are very restrictive and sovereignty is an objective. Again, through judicious policies and a duty of care towards the industrial base in Europe, the Agency has a vital role to play.

Quite simply, now is the time to act.

EUROPEAN DEFENCE AGENCY

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The violence had been raging for months and taken their homes and many of their families. They were among the 27 million people around the world threatened by conflicts by the end of 2009.* At times like this the A330 MRTT can help international security forces protect a civilian population day in, day out.

THE A330 MRTT. IT'S MORE THAN A TANKER. FOR THEM IT'S A LIFELINE.

It can be a lifesaver. A strategic fly-by-wire tanker with unparalleled flexibility, reliability and survivability. The A330 MRTT can carry more fuel for refueling, more people and more essential cargo than any other aircraft. It can maintain fighters on-station for longer, or convert to the role of a flying hospital faster. Find out more about what the A330 MRTT means for an uncertain world at airbusmilitary.com

*Internal Displacement Monitoring Centre figures.

AIRBUS MILITARY