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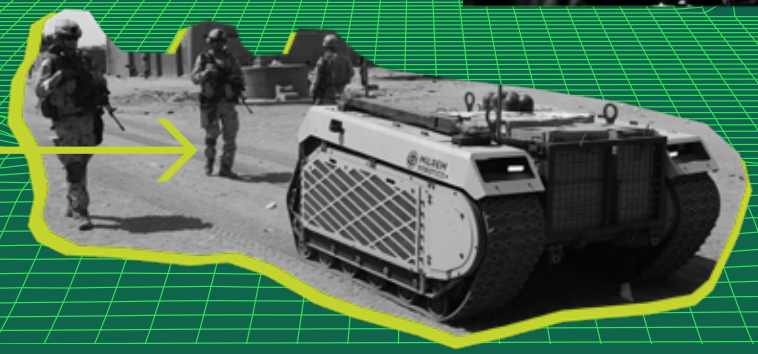
EUROPEAN DEFENCE MATTERS

For the long haul

Sustaining EU ambitions in defence



CONTENTS

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GAINING THE INITIATIVE

The brutality of Russia's war of aggression in Ukraine continues – whether it be missile strikes on civilians in a grocery store or a grain port terminal. For those in Europe and Ukraine who hoped for a short conflict, the reality is otherwise. Yet while it is exhausting and horrific, the war is also the European Union's opportunity to show its staying power and solidarity with Ukraine.

The European Defence Agency (EDA) is part of this resolve, delivering on complex joint procurement to allow Member States to purchase 155mm ammunition, be it for their own stocks or for Ukraine. Office windows in Brussels may not be protected with sandbags like those in Kyiv and Odesa, but the focus on the Ukrainian cause is clear.

As this edition of *European Defence Matters* sets out, the EU is also part of a significant defence reset, where the defence industry moves from smaller, top-notch production batches of equipment to larger-scale expansion.

Here, EDA plays a role too, with the planning that such a transition needs – through the Agency's role in capability development. The 22 priorities approved by Ministers of Defence in November 2023 bear witness to that. They range from the protection of undersea networks to integrated air defence. EDA's Capability, Armament & Planning Director Stefano Cont explains how Member States can help industry and direct efforts to be as efficient and cooperative as possible.

EDA's Head of Agency, High Representative Josep Borrell, underscores how there has been no let-up in developing Europe's credible defence. Military aid to Ukraine, already the recipient of hundreds of tanks and armoured vehicles, will continue to flow, and EU support will continue regardless of other crises.

Still, the EU is only now starting to address the challenge of having an industrial base capable of ramping up when needed at pace and scale. As independent specialist Tim Lawrenson outlines, the managed decline of Europe's defence industry will take time to turn around.

Decisions that governments need to make are long term in nature. The money is coming in, despite issues surrounding companies' access to financing. Member States' defence spending continues to rise, amounting to €240 billion in 2022, according to EDA data.

The focus is not just on Ukraine. In this edition, Belgium's Minister of Defence and the Director General of the European Union Military Staff both discuss the EU's new rapid reaction force. We also celebrate the success of EDA's long-running helicopter programmes and their transfer to Portugal.

Ultimately, in a time of intense geopolitical stress, Europeans are realising how much they care about their values. That is bringing countries together in support of Ukraine and in championing EU defence collaboration.

Robin Emmott
Editor-in-Chief

Lionel Sola
EDA Head of Media & Communication

Borrell meets wounded members of the Ukrainian armed forces in Kyiv on 1 October 2023.

THE EU AND ITS MEMBER STATES MUST PREPARE FOR A **MORE DANGEROUS** WORLD

The Head of the European Defence Agency (EDA) and High Representative/Commission Vice-President, **Josep Borrell**, analyses the way forward for European defence collaboration as the European Union steps up support for Ukraine, increases defence spending and defines the military capabilities needed in the years to come.

Russia's war of aggression against Ukraine has changed the geopolitical environment in which we operate, accelerating the emergence of a multipolar landscape marked by heightened instability and greater use of force, as well as rising polarisation and fragmentation. The tragic events in Israel and the Palestinian territories, and the serious risk of regional spill-over, only reinforce this assessment.

In October, I gathered the EU foreign ministers in Kyiv for the first-ever Foreign Affairs Council in a non-EU country and the first in a country at war. This was a strong message of solidarity and support to Ukraine and a strong message that we will stand with Ukraine until a just and sustainable peace is achieved. Unfortunately Russia's brutal attacks continue relentlessly.

The EU and its Member States urgently need to strengthen their defence capacities, as well as to strengthen the European defence industry. What we have done to support Ukraine are steps in this direction.

First-ever joint EU live military drill

Through the European Peace Facility (EPF) we provided, in a closely coordinated way, substantial support in terms of military equipment and ammunition. This support is now comparable in size to that of the United States. We also continue to support Ukraine with the EU Military Assistance Mission Ukraine (EUMAM). Next year, we aim to reach a total of 40,000 Ukrainian soldiers trained on EU soil.

We have also taken steps towards the common purchase of ammunition. Nine contracts were signed with different companies for the acquisition of ammunition, or ammunition components, and seven countries have placed orders for 155mm ammunition via the joint acquisition procedure set up by EDA.

I have proposed we top up the EPF with a dedicated fund to support the defence of Ukraine over the next four years.

But defence collaboration is not just about Ukraine. In recent years we have become painfully aware that European security is in danger. We live in a world of multiple threats and challenges, with failing states on our borders and instability never far away. Part of our response, as agreed in the Strategic Compass of March 2022, is the creation of a new rapid reaction force to respond to crises outside the EU.

Borrell visits Odesa, Ukraine on 30 September 2023.

> "I have often said that we, Europeans, need to learn the language of power"

In October 2023, we tested our future Rapid Deployment Capacity (RDC) through LIVEX, the first-ever joint EU live military exercise, near Cadiz in Spain. The exercise mobilised 2,800 soldiers from nine EU countries, assisted by six ships, helicopters and two jets. Such exercises contribute to improving the interoperability between our forces and we plan to organise them on a regular basis.

Spending more, and spending better

The EU and its Member States need to spend more on defence, but first and foremost to spend better, in a more coordinated way to fill gaps and avoid duplication. New EDA data shows that in 2022, the total defence expenditure of the 27 Member States – including Denmark, which joined EU defence cooperation this year – amounted to €240 billion. That marks the eighth year of consecutive growth. Some 24% of that amount, or €58 billion, was allocated to defence investments.

Spending for research and technology was €3.5 billion. We are still €1.3 billion from the 2% benchmark.

We need to develop agile, interoperable, technologically advanced, and resilient forces. That is why, with Member States, EDA and the European Union Military Staff, we have defined 22 EU capability development priorities in areas from ground combat capabilities to electronic warfare and medical support. *(see EDM pages 20-25).*

EU Member States' defence spending rose for the eighth straight year in 2022, **reaching €240 billion**, EDA data shows

Be they naval combat capabilities or integrated air missile defence, we must develop these capabilities together as much as possible – and in coherence with NATO. Artillery, armoured vehicles and airpower are only one aspect of modern warfare. Having properly equipped infantry also remains crucial. That is why 'Future Soldier Systems' – giving our men and women in uniform the technology, sensors, protection and optimal textiles for missions – is so important.

I have often said that we, Europeans, need to learn the language of power.

The war against Ukraine and instability in our neighbourhood have accelerated our learning curve but we still have quite a lot of work to do. EDA's actions to foster EU-wide collaboration in the defence sector are central in this endeavour.

"A STRONG EUROPE WILL ALSO STRENGTHEN NATO"

Ludivine Dedonder became Belgium's Minister of Defence in October 2020, the first woman to hold the post. A former journalist and regional government advisor who was elected to the country's federal parliament in 2019, she talks to *European Defence Matters* about the EU's new rapid reaction force, how she began rebuilding her ministry after years of budget cuts and what Belgium hopes to achieve from January 2024 as it takes over the Presidency of the Council of the European Union.

Belgium's STAR plan
€11 billion of additional investment in Belgian defence

So, what are the defence priorities of the Belgian Presidency of the Council of the EU?

Strengthening European defence has been one of my priorities. I am convinced that better interoperability and better cooperation with industry are crucial for the strategic autonomy of Europe and the EU.

On an industrial level, this means major research, development and production projects where Member States pool their expertise to achieve results together, but also joint purchases to achieve economies of scale and thus strengthen interoperability between our armies.

Within the EU, we have excellent industrial players who are world leaders in their fields. It is therefore particularly important to work together to maintain and increase this lead in order to continue to build and strengthen European defence. This is also reflected in the priorities of the Belgian Presidency of the EU.

As a country located in the centre of Europe with several well-developed seaports, Belgium is an important transit country.

Military mobility is therefore an important aspect. Investment in military mobility can also be seen as investment in dual capabilities, another priority.

For me, defence must be an integral part of society and therefore have resources that can be used both for military purposes during operations, but also for the benefit of the civilian population in a crisis.

Our cyber capabilities, which we will also be focusing on during the presidency, are a case in point. Research into dual capabilities is also important and will certainly be addressed. Indeed, a well-developed defence and security industry is essential to the strategic autonomy of Belgium and the EU.

We will also be demonstrating our willingness and conviction to pursue the operationalisation of the Rapid Deployment Capacity (RDC), which can be deployed in crisis situations to bring EU nationals to safety, for example. The evacuation of Afghanistan made us realise that the European Union should equip itself with a rapidly deployable force. As Belgium, we fully support this project.

Could you say more about helping to set up the European Union Rapid Deployment Capacity? Will Belgium provide troops?

As I mentioned, the Strategic Compass provides for a Rapid Deployment capacity for the EU in the event of a crisis. As Belgium, we will certainly contribute to this, in particular through the major real-life

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exercise that we are organising during the Presidency in close collaboration with Spain, the Netherlands and France, among others. Through this exercise, we will contribute to the preparation and training of our troops in an international framework, which will strengthen interoperability. Our country will provide troops for this EU capacity, which can be rapidly deployed in the event of a crisis.

Belgium has always been a firm believer in European defence. But until 2014, Belgium sharply reduced investment in its armed forces. Are you now seeing an increase in spending?

There has indeed been a resumption of investment. With Belgium's STAR plan – Security & Service, Technology, Ambition, Resilience – approved before the Russian invasion of Ukraine, I have put on the table a coherent and solid growth trajectory. This plan provides for no less than €11 billion of additional investment in Belgian defence. A growth trajectory in terms of personnel, budget, equipment and resources, with a particular focus on personnel.

> **"The evacuation of Afghanistan made us realise that the European Union should equip itself with a rapidly deployable force. Belgium will provide troops for this"**

This is the first time that such a balanced plan has been drawn up and approved for defence, with a defined budget trajectory. When I took office, I found a ministry that had been making savings for years; I drew a clear line: Belgian defence will grow again in terms of personnel and will get the resources it needs to do so. When I took office, the budget was €3.2 billion for 2020. Today, it is €5 billion for 2023. And the budget will also increase in the coming years, in a balanced way and in line with the STAR plan, which aims to invest more and better.

At the European level, budgets are increasing. What does 'spending better' mean to you?

Generally speaking, many EU countries have lived too long on the peace dividend, which means that many armed forces are now facing major challenges in terms of personnel and modernising their capabilities. Belgium is not alone in this and, as I said, the STAR plan is a balanced and coherent response to this. →

At the European level, we must ensure that we invest in our armed forces in a complementary way. No country should blindly invest in every possible capability on its own small island. By consulting each other effectively, identifying capability gaps and agreeing who invests in what, we can emerge stronger as the EU as a whole. This cooperation and complementary approach should become the strength of European defence: a strong interoperable defence that can provide even better security for the people of the EU and our partners.

How can the EU ensure the coherence of defence initiatives, such as national priorities, the Strategic Compass that you mentioned, and collaboration with NATO?
The Strategic Compass and strategic plans go hand in hand. They form a complementary and coherent whole. The strategy for strengthening the EU must be seen as a genuine centrepiece for Europe within NATO, the cornerstone of our defence. At the European level, we must do everything we can to ensure that European defence is stronger, coordinated and based on cooperation and interoperability.

> **"No country should blindly invest in every possible capability on its own small island"**

Our fundamental objectives remain the same: to be able to continue to guarantee the security of our citizens and that of our partners. This applies to the national priorities of the Member States as well as to the EU and NATO.

A strong Europe, for example with a rapidly deployable force, is of great strategic importance to the EU, but it will also strengthen NATO. By investing coherently and correctly, in consultation with all partners, on the basis of national priorities, but always within a framework that goes beyond our national borders, we get a strong entity that can achieve its objectives both nationally and internationally.

How has the war in Ukraine been a turning point for Belgium and for European defence of the EU?
Even before Russia invaded Ukraine, the STAR plan that I drew up marked an important turning point.

The conflict in Ukraine – as well as conflicts elsewhere in the world – reinforces my view that we have chosen the right path: coherent and correct investment in capabilities that can be used both militarily and for civilians in the event of a crisis, in cyber security and in high-tech research and development to maintain our lead in the future. For me, the war in Ukraine shows that we will have to keep reviewing our plans in the future too.

That's why I called for a recurring strategic reflection exercise at the start of each legislature, so that we can adjust our plans


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Defence priorities of the Belgian Presidency of the Council of the EU

- Supporting the EU's defence industrial base
- Military mobility
- Cyber capabilities, including research into dual capabilities
- The new Rapid Deployment Capacity (RDC)

and investments on that basis. For both Belgium and the EU, investment in logistics and support resources, cyber security, intelligence and reaction capability, among other things, is necessary now and in the long term. The war in Ukraine confirms that we need to work even more closely together to increase our readiness and deployability in the short term, but always in a considered way and in consultation with our partners.

Do you think that more should be done to help the European defence industry reactivate production?

I am convinced that we must cooperate with our defence and security industry to improve our strategic autonomy. We have reputable companies in this sector within the EU, and they are the backbone of our defences. We should encourage these companies and continue to work with them to strengthen this industrial base within the EU.

Alongside our STAR plan, I have also set up the Belgian Defence, Industry and Research Strategy (DIRS). Thanks to DIRS, Belgian defence plans to invest €1.8 billion between now and 2030 in research and development of new technologies and capabilities, in collaboration with research centres and industry.

By combining the efforts of defence with those of our industrial base, we can strengthen both industry and defence. We share our knowledge and expertise and invest together in research and development to maintain and increase our technological lead.

You mentioned strategic autonomy several times. Why is this so important?

As the EU, we need to think about our strategic autonomy and realise that we need to reduce our dependence on partners outside of our Union. This is precisely why cooperation with industry, for example, is so important.

Strategic autonomy also means that we need to secure our supply lines for raw materials, so that even in times of crisis or conflict, we can be sure that we will get our deliveries when we need them. In military terms, this applies to equipment and munitions, for example, but also to deployability.

Rapidly deployable forces are an important element of our strategic autonomy. In areas such as energy, we must also continue to work on reducing our dependence on external players.

We see, with the war in Ukraine, the impact on energy prices. The EU must also be able to respond, to provide its citizens with affordable energy at all times without depending on other countries. I see that there is a great willingness within the EU to work on this, including with the implementation of the Strategic Compass.

As Belgium's Minister of Defence, I am doing my utmost to achieve this and I feel that we are on the right track.

"ONE GOAL: FASTER, STRONGER TROOPS"

Lieutenant General **Michiel van der Laan** is both Director General of the European Union Military Staff and Head of the EU's Military Planning and Conduct Capability. He took up his post on 28 June 2023. Lt. Gen. van der Laan's distinguished career runs the gamut of senior operational roles from Bosnia to Afghanistan, and from the Royal Netherlands Army to the EU and NATO. He sits down with *European Defence Matters* to discuss the EU's new Rapid Deployment Capacity, the war in Ukraine, and the challenge of being both in Brussels and at EU missions on an almost weekly basis.

Unsurprisingly for a lieutenant general, Michiel van der Laan has detailed maps on his office walls of the places where his personnel operate. But if any confirmation were needed that he is no armchair general commanding from the comfort of Brussels, a red Mozambican soccer scarf is pinned above one of them. Given to him by Mozambique's Chief of Defence, van der Laan's visit to the southern African country was just one of many since taking up his post four months ago.

He has been to see EU military training missions from Mali to Central African Republic and Somalia. Still, he says, he almost never misses a political meeting in Brussels either, whether it be among his fellow military or at the ambassadorial level.

"I hear what the Member States say in Brussels, and I also hear what our trainers and personnel say in the field. I can try to bring the two together so that no one is working in isolation," van der Laan says.

Despite his double-hatted role, he has one ambition: to develop stronger and faster troops. Van der Laan is also quick to clarify that in fact, he himself has no troops. "I do not own forces, and the capabilities are owned by the Member States," he says. "I work with what Member States provide me." Like the European Defence Agency (EDA), Ministries of Defence and EU institutions, the EU Military Staff's (EUMS) goal is a European defence fit for purpose. For him, that means, in military parlance: readiness. "Stronger means we need more and broader capabilities. Faster has everything to do with availability of forces."

A highway revisited

As EDA and EUMS present the 2023 Capability Development Plan, van der Laan can see the formal military advice he gave to the process reflected in the 22 priorities. *(See EDM pages 20-25)*

For starters, the reduction in the number of priorities is positive, he says. "Integrated air missile defence is something that should be a priority. Strategic lift too, and also capabilities related to intelligence and surveillance." Command and control is also crucial. "It's especially in those sorts of things that we can focus on the survivability of our forces, but also protect critical infrastructure."

Beyond the EU missions and the CDP, much of his work is guided by the EU's Strategic Compass, agreed in 2022. For van der Laan, that involves work at the sharper end of the Compass, including:

- Establishing a strong EU Rapid Deployment Capacity (RDC) of up to 5,000 troops for different types of crises
- Strengthening the Military Planning and Conduct Capability (MPCC)
- Conducting regular live exercises on land and at sea

"We are in the middle of operationalisation of the Strategic Compass," van der Laan asserts. Made up of land, sea and air components that could be swapped in and out of any standing force, the RDC aims to build on the EU Battlegroups that have never been used but are kept at the ready on a rotational basis.

Indeed, the United States has urged Europeans to invest in deployable troops and U.S. President Joe Biden has said such moves would be complementary to NATO. More than two decades after EU leaders sought to set up a 50,000-60,000-strong force – the Helsinki Headline Goal – the Strategic Compass is the most concrete EU effort to create a standalone military force that does not rely on U.S. assets.

European Union Military Staff at a glance

- EUMS was established in 2001
- EUMS acts under the direction of the EU Military Committee (EUMC)
- EUMS oversees EU operations from Bosnia to the Indian Ocean

Lt. Gen. van der Laan presents an MPCC shield to the chief of defence of the Central African Republic in 2023.

"We currently have a rotation model with the EU Battlegroups where a 1,500-strong force is on standby for half a year. And we are changing that now into a standby of one year, which is more efficient," van der Laan says. "Of course, the best operation is no operation. I compare it to fire insurance for your house. You hope you never have to use it," he says.

Van der Laan adds: "But I think that in the future, the chance that we will use the Rapid Deployment Capacity is much greater than before."

Common training effort

When it comes to EU decision-making, van der Laan points to the European Union Military Assistance Mission Ukraine (EUMAM) as an example where the EU has been able to act decisively.

> **"I think that in the future, the chance that we will use the Rapid Deployment Capacity is much greater than before"**

With 32,000 troops now trained, the goal remains to reach 40,000 Ukrainian soldiers trained next year. "This is a good example where things moved quickly. There was very fast political decision-making," van der Laan says. Poland and Germany offered headquarters and other Member States have contributed. It's a common effort."

Van der Laan underlines that there are other military training efforts for Ukraine taking place in countries such as Spain, Italy, France, and that they are directly reporting to the Military Planning and Conduct Capability.

How does he judge EUMAM's success? Van der Laan is sanguine. "European Union trainers are never going to go to the frontline in Ukraine to examine whether Ukrainian soldiers are correctly putting into practice what they have learned. But the feedback from the general staff in Kyiv is positive", he says.

In from the cold - and out again

Was he surprised by Russia's invasion of Ukraine? As a young soldier who started his career in the final years of the Cold War, van der Laan says he remembers the fall of the Berlin Wall and the positive surprise he felt then. Three decades later, he says it →

Lt. Gen. van der Laan addresses Ukrainian military trainees in Poland in July 2023.

was more a sense of shock at the Russian invasion of February 2022. "In the months before, many people saw it coming, but no-one knew for sure. I don't think everyone can say they expected that the Russians would actually invade Ukraine."

Russia's potential to be a long-term adversary, instability in the wider neighbourhood and the EU's role in the world mean that there are many demands on Member States. A general such as van der Laan must be able to staff and run missions and operations, ensure the EU has the right capabilities, support Ukraine and be ready for the next crisis. And that's just for the EU.

"There is that old mantra that 'we only have a single set of forces'," he says. "Member States will always try to develop capabilities they can use for NATO's collective defence and make limited contributions to, say, the Rapid Deployment Capacity."

So is some kind of European Defence Union realistic? To that question, van der Laan has two phrases: industrial capacity and political vision.

"If we want to collaborate on defence, to compensate what Member States donated to Ukraine and to have new and more capabilities – and NATO says we should – and we want to have spare parts too, and a certain level of troop readiness, we cannot do this without industry," van der Laan says.

Of course it is a bit of a 'chicken-and-egg' scenario, he says. Who goes first? Industry or governments with firm orders? "I think what's clear is that overall, we should be doing more. I think we are still working with a peacetime approach."

Dutch-German inspiration?

And lastly, to political vision in EU defence. "I think that most European armed forces would like to do as much as possible together. But to do so, you need political will, a high level of trust, a firm legal basis, goals, and the willingness of industry.

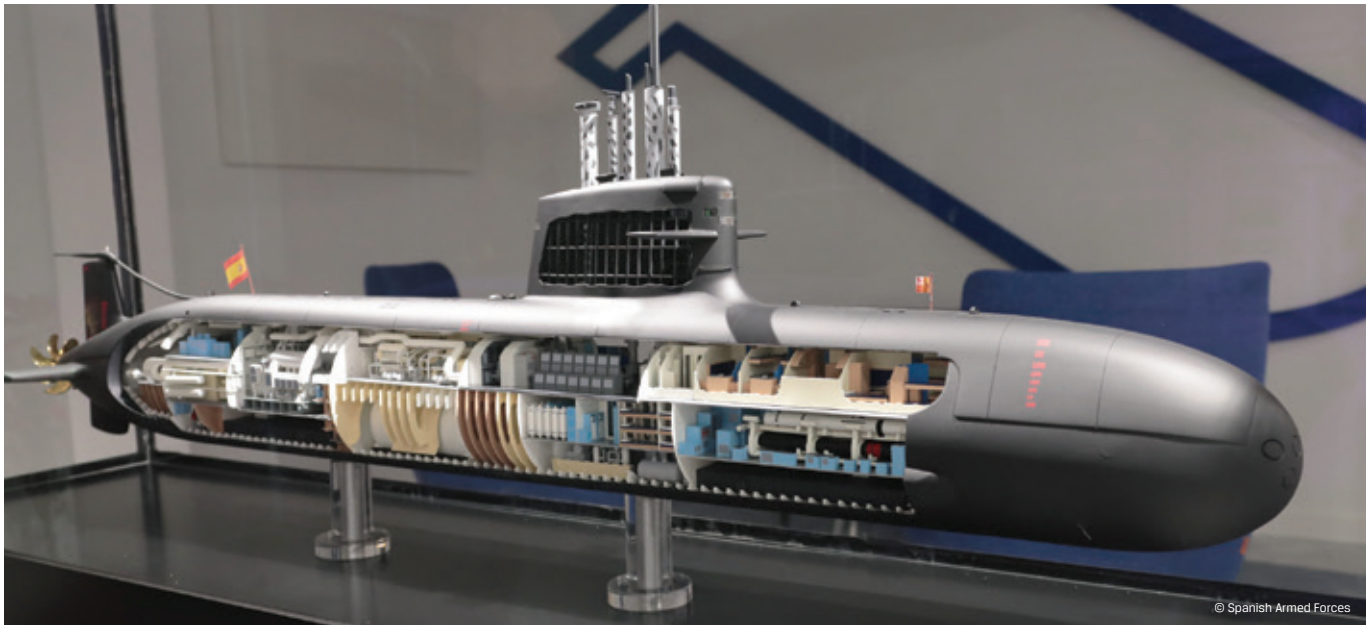
For inspiration, Van der Laan points to his early involvement in the German-Netherlands Corps.

Since 1995, the two armed forces have been working together. As of March 2023, the two countries have three integrated divisions. Firstly, in 2014, the Dutch 11 Airmobile Brigade integrated with the German Division Schnelle Kräfte. Two years later, the 43 Mechanised Brigade was combined with the German 1st Panzerdivision. In 2023, the Dutch 13 Light Armoured Brigade and the German 10th Panzerdivision completed their integration.

"So, I think the Dutch-German example shows that the EU has huge potential to do more together," van der Laan says. "But you need all the elements. All of this is something we have to work on."

Military Planning and Conduct Capability at a glance

- MPCC was established in 2017
- MPCC is the headquarters of EU military training missions
- MPCC oversees a clearing house cell, channeling military aid to Ukraine



A model of Navantia's S-80 submarine is shown on display in the Spanish port of Cartagena, January 2023.

A NAVAL **TRANSFORMATION** IS COMING IN EUROPE

Ricardo Domínguez García-Baquero is the Chairman of Navantia, Spain's state-owned naval design and shipbuilding company. He took up his post in April 2021. An agricultural engineer by training, as well as a specialist in Big Data in business management, he has played senior roles in Spain's regional government of Andalucia. He speaks to *European Defence Matters* about Navantia's new generation of S-80 class submarines, the European Patrol Corvette, and why, when it comes to EU defence collaboration, slow and steady wins the race.

How has the business of military shipbuilding evolved?

Automatisation, both of the vessels and their manufacturing processes, is the clearest development. The best indicator of this has been the constant reduction of the number of crew members. Twenty years ago, a vessel would have had double today's crew. But this evolution has been even more pronounced on small units, such as patrol vessels or corvettes, reaching full autonomy.

Navantia is currently providing autonomous vessels for specific missions, such as the unmanned surface vessel (USV) Viento Class, in service for port surveillance at different Spanish ports. We are also developing the remote control system for the first European unmanned patrol vessel, the so-called EUROGUARD, which will be controlled from an on-shore bridge. That was something inconceivable two decades ago.

But this is just the beginning. Thanks to digitalisation, all kind of vessels are expected to become fully autonomous in the next 20 years.

How has Navantia stayed ahead, especially in submarine technology?

With the S-80 programme, Navantia has made a strategic decision to enter into the conventional submarine market segment. It was a market in which we were not a strong player even though it was a Spanish engineer, Isaac Peral, who built the world's first fully capable military submarine back in the 19th century. Our commitment to excellency has led us to a product fitted with the latest technology boosting the most valuable characteristics of the submarine: its discretion. Indeed, the research and development (R&D) effort made by Navantia in the anaerobic propulsion domain has reached a revolutionary third generation air independent propulsion (AIP) system.

The trend of systems nowadays has consolidated. There are countries that, strategically, will decide to avoid nuclear power for their underwater assets. But →

Navantia's bioethanol-based AIP system is a game-changer in the segment, lowering gas handling hazards as well as maintaining a silent power generation onboard.

The superior combat management suite is worth mentioning. The equipment and elements fitted allow us to enhance the capabilities of the platform required for mission profiles. The conjunction of the detection capabilities and the integration of cutting-edge effectors such as torpedoes, missiles or unmanned underwater vessels (UUV) are taking the submarine warfare features of the S-80 design to another level.

Could you give more detail on Navantia's S-80 class submarines and the F-110 class frigates?

The S-80 submarine construction programme is progressing on schedule and at a good pace. The first of the class, the S-81 'Isaac Peral', has completed the first sea trial navigation at maximum operating depth. It is an important milestone for the programme. The next in the class, three more submarines, are at different stages of manufacturing.

Meanwhile, the F-110 frigate is Navantia's latest concept of a frigate using the U.S. Aegis naval weapons system. They will replace the Santa María Class frigates, with deliveries between 2028 and 2032.

The production of the F-111 frigate, first of the series, started in April 2022. Currently, 23 blocks out of 33 are at different stages of production, with two of them already assembled in the slipway since last August, and two more ready to be assembled in November. The launching is scheduled for 2025.

How do you see the naval domain developing and how do you see the issue of interoperability?

The next generation of naval vessels will integrate new disruptive weapons, sensors, and defence capabilities to face the growing threats that are changing naval warfare. Vessels will integrate multiple uncrewed autonomous vehicles (UxVs). They will be interconnected, folding the fleet into a single unit where all vessels and unmanned vehicles have access to the same information and the effectors will be shared.

Interoperability will be key, becoming essential to operate EU vessels as a single fleet. A first step in this transformation will be to digitalise vessels, defining a common digital architecture for all EU vessels. It will also be important to integrate EU vessels into a multi-domain operational net, developing a naval cloud integrated into a military multi-domain operations cloud. Another essential aspect will be to develop a European naval surveillance and engagement capability.

Given those ambitions, how much is your R&D spending and do you expect it to grow?

Investment in research and development is a key area for us. During the last years our R&D has ranged from above 5% to more than 9% of our annual income. We would like to stay above that threshold consistently. As a state-owned company, Navantia can have a higher level of investment in R&D for new technologies that may have longer lead times for development and commercialisation. That may not always be feasible for a private company.

In order to stay ahead, let me mention that we have also created 'Monodon', inspired by the scientific name of the narwhal, the unicorn of the sea. Monodon will research and test early-stage technologies and collaborate with research centres and start-ups.

If you take a step back, what has the war in Ukraine showed you about naval warfare?

The war in Ukraine shows us how the massive use of drones and mines can change military operations, turning battle tanks and warships into vulnerable assets.

We have seen how naval vessels and submarines are used by Russia to strike cities and critical infrastructure with missiles launched out of range of Ukrainian missiles — but not in littoral combat. Russian warships are situated far away from the coast, after being shown how vulnerable they are to attacks with USVs or missiles launched from land.

So Navantia is working to develop a naval hypersonic missile defence capability on its vessels, as well as to extend the vessel's defence capabilities to protect against drones.

Navantia's shipyards in Ferrol, Spain.

Let's turn to EU-funded initiatives. How is Navantia involved in the EDF's 2022 projects?

Navantia is leading the European Defence Fund (EDF) project 'SWAT-SHOAL' to manage swarms of UUVs and USVs, as well as participating in the hypersonic missile defence system 'HYDEF' to develop a naval hypersonic missile defence system.

We are part of a wide number of R&D projects under the European Defence Fund. Navantia is participating in ongoing European projects, addressing different technological areas in defence. To name just a few:

- The European Patrol Corvette (EPC)
- The digitalisation of the next generation of European Defence ships (EDINAF)
- The European Multi-Domain Combat Cloud (EDOCC)
- The European Hypersonic Defence Interceptor system (HYDEF)

Currently, Navantia is involved in the preparation of technological proposals for EDF2023 Calls, working within several

European consortiums, such as for the second phase of the European Patrol Corvette.

Navantia participates in three EDF 2022 projects selected by the European Commission, worth €221 million – SWAT-SHOAL, E-NACSOS and EUROGUARD – tackling areas in defence such as the development of maritime unmanned vehicles, advance swarming technologies and collaborative operations within European warships. The projects in a bit more detail are:

- The SWAT-SHOAL project, led by Navantia. It develops a 'System of Systems', based on swarming technologies, to integrate surface and submarine vehicles, both manned and unmanned. SWAT-SHOAL involves 20 organisations from 11 countries, including the Spanish companies SENER, SAES and GMV.
- The E-NACSOS project, led by France's Naval Group, aims to design the European standard for real-time sensor information exchange and fusion between the combat systems of warships. It focuses on increasing the effectiveness of collaborative surveillance missions within European naval forces, including surface and anti-aircraft operations. Navantia will develop this new capability through the SCOMBA Combat System (Sistema de Combate de la Armada).
- The EUROGUARD project will develop and build the prototype of a medium-sized semi-autonomous surface naval vessel.

When it comes to European defence integration, do you think it is an issue that European governments favour national champions?

European integration is complex at all levels because Member States are sovereign but the European Union implies a sharing of power. States are understandably even more hesitant to cede sovereignty in defence and national security than in other areas given their strategic importance. Maintaining the management of defence issues at the national level has led to the creation of national defence industries – and trusting only those national industries with the defence and security of the state.

Likewise, the maintenance of sovereign control over the national defence industrial base is not only strategic from a military point of view, but also economic and technological, especially in the current post-pandemic and fraught geopolitical scenario. Naturally, transitioning from that system to one of higher collaboration among Member States, which will force an adaptation of those national industries, will take time.

> **"The war in Ukraine shows us how the massive use of drones and mines can change military operations, turning battle tanks and warships into vulnerable assets"**

Navantia, in line with the Spanish government, is a believer in the power of European collaboration through common European naval programmes. However, we are currently living through a transition period of moving from Member States relying only on national champions to championing collaborative European solutions. That transition will take some time for proper adjustment.

But do you think European defence cooperation on a large, permanent basis will ever be possible, or is it just too complicated?

A key European strength is its unity. Europe has continuously shown this, most recently in its coordinated response to the Russian invasion of Ukraine. We are strong believers in the power of European collaboration and consider that it will benefit the defence industry as a whole.

Member States, together with the defence industry, are already demonstrating that defence cooperation is a real possibility. The resolve to move these projects forward, from both Member States and industry, is there.

Nonetheless, as with any European initiative, progress is slow. But it has been steady. Defence cooperation in Europe has already shown immense progress in the past five years and I am certain it will continue to do so, if only at a slower pace than we all may want to see.

Critical view – Tim Lawrenson, independent defence industry specialist

"REVERSING DECADES OF MANAGED DECLINE OF EUROPE'S DEFENCE INDUSTRY **WILL TAKE TIME**"

Tim Lawrenson is an independent European defence market consultant, with over three decades of industry experience, mostly at BAE Systems. He is an Associate Fellow at the International Institute for Strategic Studies – although all views expressed here are his own. Lawrenson talks to *European Defence Matters* about why politicians should stop paying lip service to defence capability collaboration and how the success of the European missiles sector is an example to follow.

Do we need a European defence industrial base, or can we rely on allies and partners?
We definitely need a European industry, but I don't think there's enough discussion of why it matters. In a nutshell, having a strong industry makes us all safer, both by enhancing our military operational capabilities and ensuring our freedom of action. The type of industry also matters. It needs to be appropriately sized and have the wherewithal to design and develop most of the major capabilities our armed forces need.

We constantly hear the mantra: "We must strengthen Europe's defence industrial base". But European governments often make procurement decisions that are at odds with this. Since the full-scale invasion of Ukraine, many of the biggest procurements have been for systems from countries like the United States, Israel and South Korea.

Governments seem to prefer the easy option of buying from somebody else, rather than procuring European solutions or developing equipment nationally or collaboratively with others. Indeed, there's a lot of lip service when it comes to collaboration. I can't help wondering whether politicians and defence ministries really believe in it. The hard evidence suggests not - or perhaps not yet.

Given the difficulty of collaboration, could Europe stick to buying 'off-the-shelf' outside Europe?
In theory yes, but it wouldn't be good for Europe's long-term security. The United States is constantly pushing Europe to do more for itself, but a purely European approach is neither practical nor desirable. Equally, it can't make sense to become even more dependent on the United States just as it's pivoting to Asia. We've got to strike a sensible balance.

When a government buys a major platform from a non-European supplier, it's typically making a commitment of 20 to 30 years. It's also buying into an infrastructure and doctrine, plus a whole range of other aspects. These will be very hard and expensive to disentangle from subsequently.

What are the disadvantages of such an approach?
Firstly, there's the issue of our conventional deterrence against potential aggressors, who will inevitably look at Europe and ask: "How credible are they as a military force, if they can't lean into their own industry for most of their needs?"

Secondly, there's the operational angle. As we've seen in Ukraine, military capabilities evolve incredibly quickly during a conflict. Our militaries therefore need to know where the vulnerabilities are in their equipment and where they can push performance. This is much easier when the equipment comes from your own industry.

It also means they have the ability to rapidly innovate, to modify existing equipment and to install new subsystems. It can take an age to fit a European subsystem – a sensor or a weapon – onto a U.S. platform. Ramping up is also much more feasible when you have local production and it also provides much closer control and understanding of your supply chain.

Given what you have said, how difficult is it to ramp up defence industry capacity in Europe?
It's not actually that difficult per se. But with the industry having been in managed decline

MBDA personnel inspect a Marte ER antiship missile at the company's La Spezia plant in Italy.

for so long, reversing this will take time and it needs firm, long-term procurement commitments from governments. It's been widely reported that if we were involved in a high-intensity conflict, using ammunition, missiles and armaments at the rates seen in Ukraine, we would run out of stocks in just a few weeks. We need to switch from being a just-in-time industry to one that can ramp up when required. Instead, we're in this invidious position of scrambling around, trying to backfill a lot of what we've sent to Ukraine.

What, in your view, are some of the reasons for these capacity problems?

Managed decline of the industry has meant cutting capacity to match the lower demand, with some facilities barely producing enough to keep them running economically. Companies have also had to cut their workforces, with the resulting loss of highly skilled, experienced workers. Most governments have not taken the view that defence industrial capacity needs to be maintained at a contingency level – and also paid for.

Companies obviously need orders. But what sort of response would you expect from industry?

The defence market is unique, with very few customers and a tightly regulated export market. Industry is highly dependent on their home market government, but those same governments have historically been very quick to cut orders when tensions dissipate. As such, industry can only be expected to do a limited level of investing in capacity expansion ahead of getting firm, long-term orders.

> **"We need to switch from being a just-in-time industry to one that can ramp-up when required"**

How do you rate the response to joint procurement of ammunition and equipment so far?

It's good to see the ammunition response picking up in Europe, but it should never have been in this dire state. Multiple approaches have been taken. The European Defence Agency has a new procurement role, so have individual lead nations. NATO has also weighed in through its NATO Support and Procurement Agency (NSPA). To be honest, it all feels a bit uncoordinated, with some jostling for position. Perhaps it was inevitable in the circumstances, but it still feels like the firm orders now being placed are significantly below what's really needed. Governments don't seem to be pulling out all the stops or moving to a 'war economy'. Indeed, they seem to be assuming the conflict in Ukraine won't spread across NATO's borders.

Given that Ukraine's war is likely to be long, do you see more European defence cooperation?

The war has clearly led to significant hikes in defence budgets, but it's been less helpful for capability cooperation. The missile sector is where we've seen the deepest cross-border industrial integration, and we ought to build on it. In European defence, we know who the big players are and where the money is. Yes, the European Commission has a certain amount of money, but the real money is in Member States. For big capability programmes, you really need to ensure that you've got most of the big players on board if you want things to be credible and not just fizzle out.

In terms of projects, how do you see progress on multinational European projects?

Lots of European countries are buying the (Lockheed Martin) F-35 combat aircraft, so we'll soon have a lot of fifth-generation fighters in Europe. But this makes it more difficult to sustain an industrial base in Europe with the wherewithal to develop a sixth-generation combat aircraft. The SCAF/FCAS project involving France, Germany and Spain is under way of course, but it has been plagued by disagreements. Meanwhile, in the missiles sector, the huge German-led European Sky Shield Initiative (ESSI) project foresees the procurement of non-European missile systems for two of its three layers. Where does this leave the European missiles industry?

In short, Europe needs a comprehensive, strategic cross-capability assessment of what capabilities we want to be able to design, develop and produce in Europe, and agree which can only be done collaboratively. Should we focus more on battle-decisive equipment, and be less concerned about producing enablers like transport aircraft, for example? This comes back to the fundamental questions of why we need a domestic European industry at all and how much we are prepared to spend on securing it.

TRENCHES AND TECH: TOWARDS EU FUTURE DEFENCE CAPABILITIES

EU defence is by its very nature a collaborative effort. If, in the past, it was held back by defence budget cuts, Russia's invasion of Ukraine and the rapid development of technology have given Europe and Member States, EU institutions and NATO a new impetus.

The European Defence Agency (EDA) is part of wider efforts to strengthen the EU's Defence Technological and Industrial Base (EDTIB), while identifying and helping to develop armed forces' future military capabilities.

With Russia an unrelenting adversary and instability on the EU's borders, coherent and interoperable defence capabilities are needed more than ever.

In the following pages, we hear from senior EDA and NATO personnel about the success of EDA's Multinational Helicopter Training Centre programme and its handover to Portugal. We discuss what has emerged from a new Capability Development Plan and the struggle for defence companies' access to financing. After the first ammunition orders from Member States, the Agency also talks us through what it took to make joint procurement happen in record time.

SPOTLIGHT: The new Capability Development Plan

THE 2023 EU **CAPABILITY DEVELOPMENT** PRIORITIES

Long before Russia's unprovoked war of aggression in Ukraine, European Member States set in motion the modernisation of their armed forces. But the size and scope of Russia's invasion of Ukraine has changed the calculus. *European Defence Matters* sits down with **Stefano Cont**, the European Defence Agency's (EDA) Capability, Armament and Planning (CAP) Director, to discuss what a return to full-scale war in Europe means for planning and capabilities.

At the German Rhine resort of Petersberg in June 1992, foreign and defence ministers of the Western European Union (WEU) pledged to develop an operational role for their armed forces after Europe's failure to come together as civil war broke out in former Yugoslavia.

After much soul-searching, so came the Petersberg tasks, and some years later, the European Union's common security and defence policy. In Petersberg near Bonn, the WEU's Member States declared that they were "prepared to make available military units from the whole spectrum of their conventional armed forces for military tasks".

While the WEU was dissolved in 2010-2011, there, says Stefano Cont, lie the origins of the EU's Capability Development Plan (CDP) to address long-term security and defence challenges. "After Petersberg, the question quickly became: what kind of forces and capabilities would be needed? So it was mainly a force planning at the beginning, very similar to the old NATO system, before the NDPP," says Cont, referring to the NATO Defence Planning Process. *(See EDM pages 29-31).*

Today, the CDP is a far more sophisticated beast. It looks at future security scenarios and makes recommendations about the capabilities European militaries will need to react to a variety of potential developments. As a comprehensive planning method, providing a picture of European military capabilities over time, it can be used by Member States' defence planners when identifying priorities and opportunities for cooperation.

Cont, a general on leave from the Italian military, stresses that this is not a cyclical exercise. Today's review is the first in five years, and the CDP has evolved over time. "The revision of the CDP was supposed

"CDP is the reference point for any single European Union-supported activity in defence"

to happen when Member States agreed that the situation had changed to a point that we needed to re-address capability development." Russia's full-scale invasion of Ukraine in February 2022 was one of those moments, bringing full-scale conventional war back to Europe for the first time since World War II.

Still, one thing that was there in European defence planning at the beginning and remains, Cont says, is the focus on how to develop the necessary capabilities in a cooperative way. That is because of the advantages of economies of scale, the promise of overcoming fragmentation and seeking the interoperability of European forces.

"Planning and priorities have changed from looking at what was needed at the operational level to becoming a tool to define what should be the priorities at European level. Capability development and priorities should be addressed together," Cont says.

Crossroads

If that sounds straightforward, the reality has been anything but. In 2008, when the European Union was shaken by the global financial crisis, every Member State began cutting its military budgets and, with a few exceptions, in an uncoordinated way. A shift in operations to expeditionary missions in Afghanistan, in a significant departure from 40 years of Cold War deterrence in which NATO forces never operated 'out of area', also shifted the balance in capabilities. "All the air defence capabilities were reduced to the minimum, indispensable level," asserts Cont. "Tanks, ground combat capability and artillery were heavily reduced. And of course, artillery stocks were heavily reduced." →

French Rafale fighter planes line up on a runway in the Baltic region on 28 April 2014.

With each country independently assessing its needs, and independently coming to the same conclusion, Cont recalls U.S political scientist Francis Fukuyama's 1992 book 'The End of History and the Last Man'. "The apparent economic and political liberalism had triumphed, triggering the decline of warfare," Cont explains. Even if Europe faced failing states, war, Islamist militancy and a refugee crisis at its borders, the thinking was that defence and security was a problem policing and stabilising. "For that you didn't need heavy weaponry, you don't need artillery," he says.

Against such a backdrop, it remains a matter of debate whether the Capability Development Plan was cynically accepted by Member States as a diverting tactic or maintained as a genuine focus for peacekeeping – as envisaged by the Petersburg tasks. "Being able to do everything was in vogue, with '360 degrees' being the buzzword," Cont says. "There were 38 priorities in 2008."

Today, the EU is focusing on 22 areas in a clearer approach with the need for full-spectrum capabilities and over a more detailed timeframe. Asked what might future success stories be from those within the CDP, Cont lists four areas where he would like to see quick European progress as a group:

- Military mobility
- Cyber defence
- Protection of undersea networks
- Integrated air and missile defence

CDP's four strands

Cont says that EDA and its partner the European Union Military Staff see ever more clearly how to design the capability development in the short, medium and long term. "And that will help the implementation phases for Member States," Cont says. He also says another element in the past was the confusion between the NATO process and the CDP.

"In essence, both the NDPP and the CDP aim to help countries deal with gaps and make improvements to their militaries," Cont says. "Capability development is much more complicated than just producing military equipment. Without highly trained armed forces, logistical support, fuel, supplies and a clear doctrine, no amount of industrial production will make ships sail or fighter jets fly."

Both processes seek to support the military ambition of each organisation by agreeing on collective operational requirements. However, CDP also brings in three other strands to its analysis, focusing on long-term trends, future technologies and lessons learned from operations. These four strands help agree priorities that Member States should fold into their national plans.

Cont likens CDP to studying for a university degree. "We can provide support to the classes, tell you what books to read, provide many of the tools," Cont says. "We try to show what is needed in terms of the focus. The CDP is the reference point," he adds.

Does that not just make it a giant bureaucratic exercise? "The first rule of EDA is priority setting. The second step is to foster collaboration between Member States to implement those priorities. The third is to coordinate all these efforts at the European level to reach the objective of more European defence."

Cont says a shift is underway to turn analysis into real projects and real opportunities. "That can be in different formats, with a regional approach, or perhaps a framework nation approach, so one or two countries lead the development of a project, or at the European level, for example. We are not just here to produce reports."

SPOTLIGHT: The new Capability Development Plan

THE EU'S NEW **CAPABILITY DEVELOPMENT** PRIORITIES

Since 2008, the European Defence Agency has been regularly updating the EU's Capability Development Plan (CDP) in close cooperation with Member States and with the active contributions of the EU Military Committee (EUMC) and the EU Military Staff (EUMS). Here are the priorities:

LAND

1. Ground Combat Capabilities
including upgrades of main battle tanks, infantry vehicles

2. Land Based Precision Engagement
including anti-tank weapons, artillery and ammunition stockpiles

3. Future Soldier Systems
including better protective uniforms, communications and small arms

MARITIME

4. Naval Combat & Maritime Interdiction
including upgrades of ships, new vessels and long-range unmanned maritime systems

5. Underwater & Seabed Warfare
including developing doctrines, force protection systems, unmanned systems and underwater surveillance systems

6. Maritime Domain Awareness

AIR

7. Air Combat
including upgrades of aircraft to fight electronic warfare, Remotely Piloted Aircraft Systems (RPAS), development of deep strike weapons

8. Airborne Command & Inform Capabilities
including the development and procurement of airborne early warning systems

9. Integrated Air & Missile Defence
including building up protection from rockets through to medium-range systems

10. Air Transport
including a 'next generation' multipurpose helicopter

SPACE

11. Space Operations
including better detection of space objects and risks

12. Space Services
including improved earth observation capabilities, satellite communication

CYBER

13. Full Spectrum Cyber Defence Operations Capabilities
including improved cooperation between civilian and military cyber entities

14. Cyber Warfare Advantage & Readiness
including enhanced testing and experimentation for cyber forces

STRATEGIC ENABLERS & FORCE MULTIPLIERS

15. Electromagnetic Spectrum Operations (EMSO) Dominance
including establishing effective electromagnetic battle management

16. Persistent & Resilient Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISTAR)

17. Military Mobility
including allowing civilian transport to be used for military platforms and the integration of military air capabilities into EU airspace

18. Critical Infrastructure Protection & Energy Security
including highways, bridges, tunnels, railways, pipelines, utilities and buildings

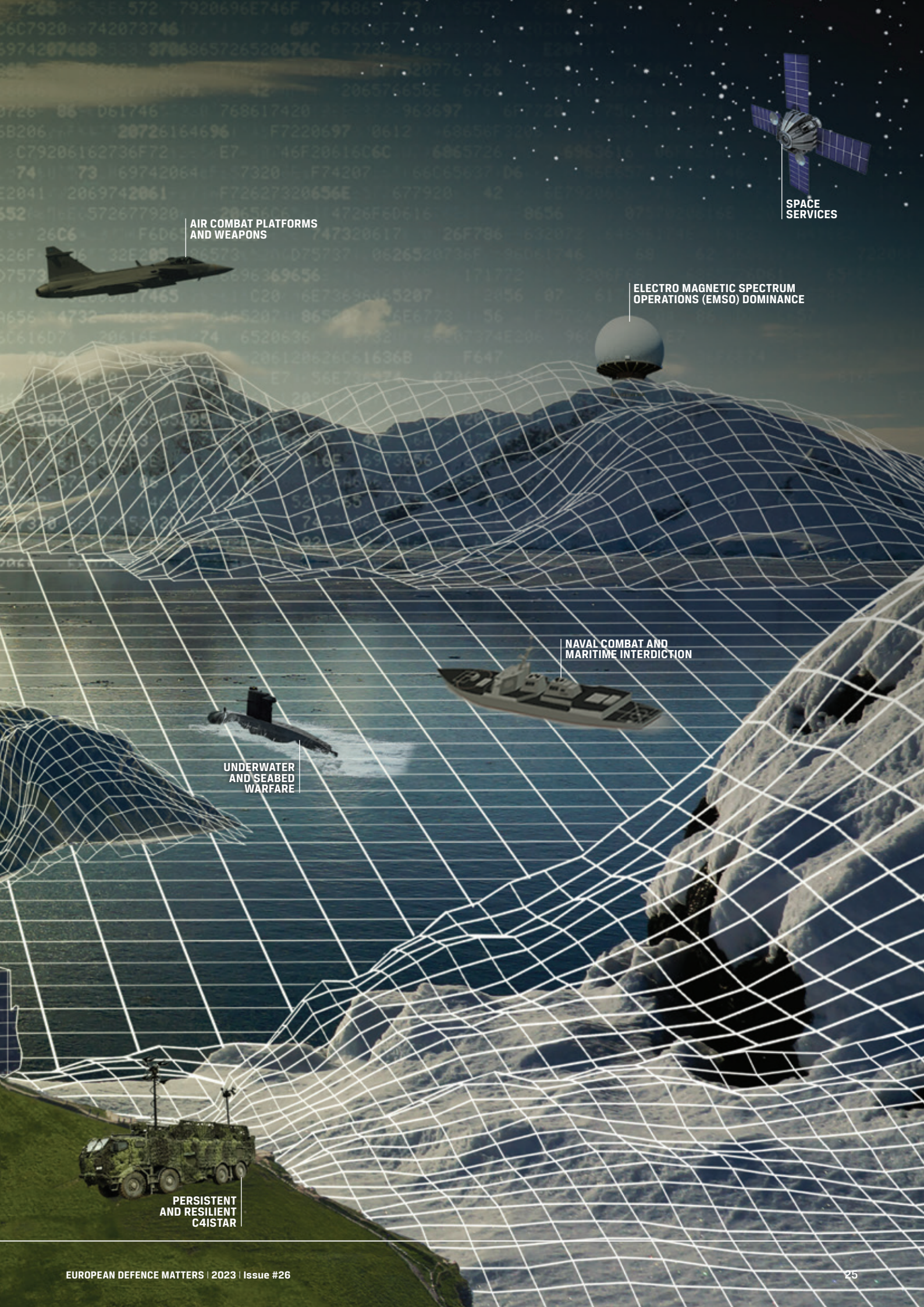
19. Sustainable & Agile Logistics

20. Medical Support
including using robotics for evacuation

21. Chemical, Biological, Radiological and Nuclear (CBRN) Defence

22. Cohesive and well-trained militaries
including education and training for space and cyber domains


AIR TRANSPORT
SPACE OPERATIONS
AIRBORNE COMMAND AND INFORM CAPABILITIES
MARITIME DOMAIN AWARENESS
FULL SPECTRUM CYBER DEFENCE OPERATIONS CAPABILITIES
SUSTAINABLE AND AGILE LOGISTICS
MEDICAL SUPPORT
CHEMICAL, BIOLOGICAL, RADIOLOGICAL AND NUCLEAR (CBRN) DEFENCE
COHESIVE AND WELL-TRAINED MILITARIES
CRITICAL INFRASTRUCTURE PROTECTION AND ENERGY SECURITY
MILITARY MOBILITY
LAND BASED PRECISION ENGAGEMENT
INTEGRATED AIR AND MISSILE DEFENCE
FUTURE SOLDIER SYSTEMS
GROUND COMBAT CAPABILITIES


SPACE SERVICES
AIR COMBAT PLATFORMS AND WEAPONS
ELECTRO MAGNETIC SPECTRUM OPERATIONS (EMSO) DOMINANCE
NAVAL COMBAT AND MARITIME INTERDICTION
UNDERWATER AND SEABED WARFARE
PERSISTENT AND RESILIENT C4ISTAR

SPOTLIGHT: Sustainable investing: Can investors still come to the aid of the defence industry?

EU MEMBER STATES ASK EDA TO TAKE A ROLE IN HELPING OPEN UP **ACCESS TO FINANCE** FOR DEFENCE

Imagine you are running a medium-sized defence company in northern Europe. A large, nuclear-armed adversary has just attacked its democratic neighbour, bringing the biggest war since 1945 back to your borders. Much of the world is in shock. Politicians, citizens and allies naturally look to you and your peers to dramatically ramp-up production, possibly even moving to a war footing. All the talk is of capabilities, equipment and ammunition.

But when you go to one of your financiers for credits and guarantees, you find that your longstanding business relationship has been cancelled. Another bank says you can only maintain your account for payments and transfers, but that you cannot enter into any new credit relationships. A third says you must prove your business is sustainable and show that less than 10% of turnover comes from weapons to be eligible for new loans.

As contradictory as it might seem, investing in defence contractors is seen as taboo even as Member States provide massive financial, humanitarian and military aid to Ukraine and EU citizens give Ukrainians refuge in their homes following the outbreak of Russia's unprovoked war of aggression against Ukraine in February 2022.

In anonymous testimonies, many defence companies have said they found that they were lumped with tobacco, pornography, alcohol and gambling by private investors looking to avoid unethical business.

The European Defence Agency (EDA) is now part of high-level efforts to raise awareness about the need to support defence companies, even as banks seek to respect so-called Environmental, Social and Governance (ESG) criteria. The question remains: can defence companies reconcile compliance with sustainability goals while securing long-term funding for European security, or should they be exempt?

NATO Secretary General Jens Stoltenberg is clear. Addressing the NATO-Industry Forum in Stockholm in late October 2023, he argued there was nothing unethical about defending allies or helping Ukrainian soldiers to defend their country. "Indeed," he said, "without industry, there is no defence, no deterrence and no security." So the argument goes in other European capitals: peace needs defence, and defence needs an industrial base. To many following Russia's invasion, the military is now seen as more morally acceptable.

€160 billion catch-up

Banks and investors might be forgiven for having passed over defence companies in the past. Before Russia's war of aggression in Ukraine, the European Defence Technological and Industrial Base (EDTIB) was running in peacetime mode following the end of the Cold War. Defence budgets were slashed after the 2008 global financial crisis.

Employing some 460,000 people and generating €180 billion a year in turnover across the EU, the defence industry's size pales in comparison to, for example, the agricultural sector that generates over €420 billion a year, with 8 million jobs, according to a study by the French National Assembly in 2022.

What's more, a casual observer might conclude that the European defence industrial base has plenty of access to financing, through public funding mechanisms. As much as €8 billion from the EU budget is dedicated to the European Defence Fund for 2021-2027. The European Commission has also opened up €468 million in grants to boost defence production under the new Act in Support of Ammunition Production (ASAP).

But there is a lot of catching up to do. Between 2009 and 2018, the sharp defence

spending cuts meant an underinvestment of around €160 billion during that time, according to EDA data.

Still the defence industry plays a unique role. By producing the capabilities and equipment that both the EU and its partners need, the EDTIB is a contributor to Europe's overall security, stability, resilience, and competitiveness. EDA believes Europe's future competitiveness in research and development (R&D), and innovation, stems in part from the defence industry. In addition, the green transition and meeting ESG criteria can never come at the expense of the operational effectiveness of European armed forces and the security of citizens.

Alphabet soup and the 2008 crash

Since the 1960s, there have been efforts to recommend ways for the financial sector to include environmental, social and corporate governance issues to redirect capital.

Promoting sustainable finance has built up gradually since 2004, when the United Nations first publicly communicated the idea of ESG. Academics point to the forerunners of corporate social responsibility (CSR) for investors, and socially responsible investment (SRI) for companies. These led into ESG. But ESG has never been standardised and ratings vary in the United States and Europe, according to a September 2022 study by Laure de Roucy-Rochegonde and Amélie Férey at the Institut français des relations internationales. An EU 'Ecolabel' also aims to help EU savers navigate the labyrinth of ESG products.

> **"In essence, the European defence industrial base needs to be competitive and resilient enough to support the EU's national armed forces"**

The European Commission has sought to standardise ESG criteria across the EU. This is in support of the EU's Green Deal, which aims to help the bloc achieve climate neutrality by 2050. The plan takes "a tri-fold approach which sees the creation of an environmental taxonomy, the extension of the Ecolabel to retail financial products and a proposal for the establishment of what is being called social taxonomy," Roucy-Rochegonde and Férey write.

Sustainable finance, in fact, dates from the 1700s and has its roots in religious philanthropic movements such as the Quakers in Britain, points out Sylvie Matelly, Deputy Director at the Institut de Relations Internationales et Stratégiques, in a March 2023 policy paper for the Armament Industry European Research Group.

"The change came from the financial crisis in 2008 when the demand of small shareholders for ethical investments met the desire of banks and funds to restore their image," Matelly writes. From 3% of total assets before 2008, ethical investments now represent nearly 30% of financial assets in Europe and the United States, she states. That could reach 50% in 2050, according to the European Sustainable Investment Forum.

The defence industry is so far not included in the environmental and taxonomies. However, EU defence experts worry about the message they send to banks who anticipate more regulations for defence and have begun to self-regulate. →

Instructors training Ukrainian soldiers to sort ammunition for Leopard tanks at the Leopard Training Center in Świętoszów, Poland on April 5 2023.

Raising awareness

With so much at stake, EDA's first step might seem relatively modest by helping to ensure a political statement at the EU level. But it is about raising awareness. Ministers of Defence, with EDA's help, are endorsing a view that the European defence industrial base must not be overlooked.

The task to develop this statement was given by Member States' National Armament Directors in March 2023, following the Agency's ESG Action Plan of the year before, in March 2022, which sets the framework for EDA's activities on this topic. For now the goal is to:

- Ensure EU level policies that facilitate access to finance for defence companies
- Continually call on private and public financial institutions among Member States to stop discriminating against the EDTIB in their internal policies
- Allow EDA to continue monitoring developments in this field, and provide a follow-up plan for implementing principles

Besides the statement, the ESG Action Plan has already enabled EDA to set up a Governmental Expert Network on ESG. Within the network, government experts and representatives of the European Commission discuss ways of supporting industry's access to finance as well as meeting ESG criteria. The network has also served to meet financiers to better understand their reluctance as investors in the defence sector.

'You're such an asset'

In essence, the European defence industrial base needs to be competitive and resilient enough to support the EU's national armed forces.

Armed forces are also part of the transition to a greener economy as they reduce their carbon footprint. Surely it would be better for investors to help fund the defence sector so that it can achieve an energy transition? Examples include developing biofuels, electric military vehicles and reducing the energy loss of its installations.

For EDA, in support of European defence ministries, the transition rests on three interlinked pillars: the Consultation Forum for Sustainable Energy in the Defence and Security Sector, also known as CF SEDSS; the Energy and Environment capability technology group (EnE CapTech); and the Incubation Forum for Circular Economy in European Defence, or IF CEED.

One line of argument is that the defence sector should not be seen as a conventional sector of the economy, given the role it plays in a country's security. If agreed by EU governments, a change in the lending and investment policies of public banks, possibly including the European Investment Bank (EIB), towards the defence sector, would also reflect that point of view.

Investment standard-setting is, by design, slow-moving and deliberate. A global endorsement of defence will not come quickly. But views are changing and clarity is emerging. In March 2022, EU leaders agreed that "measures should be taken... to promote and facilitate access to private funding for the defence industry".

To that end, the work of EDA, EU governments, industry and the European Commission is on a sustainable footing.

Angus Lapsley, NATO Assistant Secretary General for Defence Policy and Planning, discusses a document with Hanno Pevkur, Minister of Defence, Estonia, on 11 July 2023.

FOCUS: NATO Defence Planning Process

"ALLIES DON'T WANT TO BE GIVEN **TWO SETS** OF FIGHTING TARGETS"

Angus Lapsley became NATO Assistant Secretary General for Defence Policy and Planning in September 2022. He leads the team responsible for allied capability and force planning, posture, plans, and a range of policy questions, including nuclear issues. A British diplomat for over three decades, his posts include serving as London's envoy to the European Union's Political and Security Committee. He talks about NATO's Defence Planning Process (NDPP).

Russia's war of aggression in Ukraine has brought one thing home, says NATO's Assistant Secretary General for Defence Policy and Planning Angus Lapsley. "There is a risk of large-scale war involving NATO in Europe. We have to get back to planning for the possibility that we actually have to be completely ready to deter a large-scale Russian attack on NATO – and if that doesn't work, to defeat it."

As highlighted by NATO's Vilnius summit in July 2023, NATO is now planning to deter a nuclear-armed adversary and, if necessary, fight a high-intensity conflict.

"What we see from the plans that were adopted in Vilnius is that we need more integrated air and missile defence in Europe, we need more deep fires and we need to invest in the command and control systems that allow you to conduct multi-domain operations. Logistics, enablement, support to forward forces and land manoeuvre capabilities are also all part of the shift towards even greater deterrence and defence."

But where to start? Enter the NATO's Defence Planning Process, or NDPP. Well-known to the defence policy community as NATO's way to identify, develop and deliver interoperable and well-equipped forces, it also helps find the right capabilities for the alliance's full spectrum of missions, including collective defence. A five-step process over four years – that began in its latest iteration in 2023 – →

it encompasses 14 different planning domains, each of which is involved in capability development.

Unlike the EU's Capability Development Plan (CDP), its origins are less shrouded in the mists of European politics *(see EDM pages 20-25)*. As Lapsley explains, the alliance has done defence planning since its inception. Founded in 1949 to defend against the Soviet threat, the North Atlantic Treaty Organisation continues to provide Europe's collective security, but has also been able to adapt to different transnational threats and crisis management operations at different times.

"If you think what NATO is about, it is primarily the North Atlantic Treaty commitments that we make to each other with Article 5, on coming to each others' support" says Lapsley from his office at NATO headquarters in Brussels, referring to the alliance's collective defence clause. "But that also means Article 3, which is about being ready to defend yourself," he adds.

Of course, NATO has a command structure, with its headquarters and their ability to plan and conduct operations. But it has always had a common planning process so that allied militaries can work together effectively.

Planning, with a twist

What has changed in recent months is that Russia's invasion of Ukraine has not only given allies a new sense of urgency, but it has also realigned defence planning with the operational demands of collective defence.

"In the Cold War, planning was very tightly linked to the common defence plan that we had in that era," Lapsley explains. "After the end of the Cold War, NATO and the EU were more focused on expeditionary operations in crisis management. We were still asking allies to be ready to defend the European

> "We are back to that Cold War model of having a planning process very closely aligned to operational planning, but with a twist – we haven't stopped thinking about expeditionary or crisis management operations"

continent, but in practice most of what operationally they were doing was about expeditionary operations."

Lapsley goes on: "We are back to that Cold War model of having a planning process very closely aligned to operational planning, for collective defense against Russia and terrorist groups. In addition, we haven't stopped thinking about expeditionary or crisis management operations."

The scope of NATO's 14 planning domains illustrates the demands on the alliance. The domains run from air and missile defence through cyber defence to nuclear deterrence, not to mention medical and logistics. While geopolitical stress is nothing new to the alliance, NATO faces an ever-growing number of threats.

NDPP and CDP: Towards a division of labour?

For the uninitiated, defence planning across the EU and NATO might look similar. After Sweden's expected membership of NATO, 22 EU Member States will be members of the transatlantic alliance. NDPP or CDP? Do we really need both?

The CDP, the EU's defence planning process, is no longer focused exclusively on crisis management capabilities. To that end, it has been revised to ensure more coherence with the NDPP. By considering NATO's capability requirements, the CDP can in fact help Europeans contribute to NATO, even if, within NATO, there is no 'European pillar'. Allies are allies.

NDPP and CDP do work in reasonably similar ways, Lapsley says. NATO looks, first and foremost, at collective defence against a nuclear-armed peer opponent. "If you are planning for collective defence, then it's the NATO process. Equally, there are NATO allies who are not part of the EU process."

Still, the EU does have some roles that are either not covered by NATO or which are a lower priority for the alliance, such as border patrol. It also has its own mutual assistance clause, Article 42.7 of the Treaty on European Union, and aims to advance its contribution to the protection of its citizens.

"We review allies' capability targets – and when those allies are also members of the European Union, they quite often invite the European Defence Agency to come and take part in those discussions. So there is transparency about what we're telling them," asserts Lapsley. "So the two systems, NDPP and CDP, are well intertwined. When it comes to the warfighting capabilities, the targets we set serve as the basis for what the EU does, because allies don't want to be given two sets of fighting targets."

When it comes to planning and its impact on industry, NATO is clear that what matters most is for allies to have the right capabilities, whether they are bought 'off-the-shelf' or produced at home. But, like the EU, it wants to see allied defence industrial capacity develop. "The United States' defence industry is capable of producing things that only they can produce at scale and pace," Lapsley says. "But there is absolutely a case for looking to develop our defence industries here in Europe, and that of our partners. We don't take a view on where allies should buy things from. But it's clear that a strong ecosystem of industry across Europe, including Turkey, Britain and Norway is really important."

People matter

For NATO and NDPP, where might planning be focused beyond 2040? The assumption that revolutionary technologies will produce a future battlefield of unmanned and uncrewed assets can be over simplified, Lapsley says. Even with a combination of improved sensors, automation and artificial intelligence (AI) – all of which NATO is encouraging allies to develop – people will still matter.

"I think there's going to be a balance," he says. "A lot of the debate really is about what is the right balance. That balance might be different in 10 years' time and in 20 years' time, but people are just as important as technology – putting motivated, incentivised people in the field. I don't think we are heading towards a robot army."

NDPP's four-year planning cycle over a 19-year perspective

- Every four years, NATO establishes political guidance
- NATO determines capability requirements
- NATO sets targets for allies on the basis of requirements
- NATO facilitates implementation
- NATO reviews allies' plans and helps to meet those targets

SPOTLIGHT: EDA's Industry, Synergies & Enablers Directorate

"EUROPEAN DEFENCE COOPERATION STARTS WITH **POLITICAL WILL**, BUT IT IS NOT ENOUGH"

As he prepares to leave his post after five years, **Emilio Fajardo**, Director of the European Defence Agency's Industry, Synergies & Enablers (ISE) Directorate, reflects on what the war in Ukraine has changed and how sometimes clichés do ring true.

If anyone in the European defence community were to admit to being unsure of exactly what EDA's Industry, Synergies and Enablers Directorate does, its director, Emilio Fajardo, would be sympathetic. "It's not a very self-explanatory directorate title after all," he says. "When I go into meetings and I say that I'm head of ISE, I can see people look a little puzzled. The name 'Industry, Synergies and Enablers' is abstract, it doesn't really reflect what we do."

ISE, as it turns out, does rather a lot in support of European Union defence. From aiding the integration of unmanned aerial systems into the airspace to providing Member States access to satellite communication for use in EU military missions, ISE regularly demonstrates the benefits of Member States coming together. Whether it be capability development or military airworthiness, helicopter training, or ways to better manage military and civilian airspace, ISE is in the mix.

So, Fajardo jokes, ISE fits the cliché. "I used to hear it at NATO, and it fits here too: if ISE hadn't been created, someone would have probably had to create it." That might seem a little trite, but Fajardo knows ISE's value. When he joined EDA in January 2019, after a career as a real admiral in the Spanish navy and a senior official in Spanish armament development, as well as a Spanish councillor at NATO and the EU, and with time in industry, he already had more than two decades of experience in armament cooperation and industrial collaboration.

Still, the past 18 months have delivered a sobering series of challenges for the Agency, Fajardo acknowledges. Russia's full-scale invasion of Ukraine meant there was a step-change in the way EDA and ISE operate, shifting its longer-term mindset to the here and now. "Ukraine has changed the paradigm completely and Member States have an urgency to help, to spend money, to buy off-the-shelf," he says. "We learned that our defence industry was tuned to peacetime."

For instance, ISE has offered Member States faster and cheaper ways to contract commercial services for navigation and positioning systems, and internet services, via satellites, for Ukraine. A €250 million framework contract has already been set up, ready for orders.

No final frontier

Will EDA be ready for the next crisis? Fajardo says the Agency needs to at least always have that goal in the back of its mind. "It's

ISE's four units at a glance

- Industry Strategy & EU Policies unit: engagement of industry in the activities of the Agency, determination of strategic activities, defence aspects of EU policies varying from legislation to funding instruments.
- Critical Enablers unit: supports defence cooperation and enhances interoperability through the identification, development and maintenance of safety, certification and standardisation requirements, among other things.
- Single European Sky unit: facilitation and coordination of military views; acting as a bridge between EU institutions and related bodies to ensure that military aviation improves the defence in Europe while working with civil aviation.
- Operations, Training & Exercises unit: ensuring EDA is part of EU military operations; contracting commercial services to support EU missions and Member States in areas such as satellite communications, air medical evacuation; training and exercise activities for rotary and fixed-wing aircraft, including Remotely Piloted Aircraft System (RPAS).

When he joined EDA in 2019, Emilio Fajardo already had more than 20 years of experience in defence cooperation and industrial collaboration.

not easy, because at the end of the day, European defence cooperation starts with political will, but it is not enough," he says. "For it to succeed, you need more than that," he adds, noting some of the resistance from cadres at the working level over the years.

He is convinced, however, that as time progresses, European defence collaboration will become something of the norm. "We are moving now to a situation in which collaboration and cooperation are going to be a must – mandatory." He cites areas such as space, where no single nation has the budget or the know-how to develop the necessary capabilities. "The U.S. focus is moving to Asia, and Europeans need to do more on defence. We need to educate our citizens and we need our nations committed."

Fajardo believes that for EU defence to really work, the bigger Member States will need to be fully involved and show strong leadership. "You could say that smaller countries have less to lose from trying EU defence cooperation. The largest ones have their industries to protect, they can still try to do things on their own. But ultimately we are better together."

He sees positive signs, pointing to the Future Air Combat System (FCAS) sixth-generation combat aircraft project involving France, Germany and Spain, as well as the European Patrol Corvette (EPC), which aims to develop a vessel for European navies. "Nations need to use avenues such as the European Defence Fund, and we should be open to working with non-EU partners who share our democratic values," he says.

Everything Everywhere All at Once?

Perhaps it comes as no surprise that he also believes in a bright future for EDA, but some hard questions first need to be answered. "EDA was created in 2004 with a very ambitious mandate in the EU treaties," he explains. "The reality was that EDA was limited by the ambitions of the nations in the early years. I think EDA can and should take on a bigger role and that the Agency will grow, but it will need resources, and not just money, but human resources too," he says.

EDA in a decade's time might then be focusing on core tasks such as capability development, identifying priorities and looking to the mid-to-long term. It also might be ready to help with short-term goals such as off-the-shelf procurement and acquisition, and contracting commercial services for Member States, all on a larger scale than today, not to mention innovation and research.

"Member States will never delegate defence to the European Commission like they do in free-trade agreements or anti-trust regulation," Fajardo says. "They will need an intergovernmental body. They will need EDA more and more. We have not reached our full potential."

SPOTLIGHT: EDA helicopter programmes transition to the Multinational Helicopter Training Centre

AFTER YOU'VE GONE: EDA BIDS FAREWELL TO ITS **LONG-RUNNING HELICOPTER PROGRAMMES**

The Multinational Helicopter Training Centre (MHTC), hosted by Portugal at Sintra Airbase Nº 1, has taken over the three European Defence Agency's (EDA) helicopter training programmes. On 1 January 2024, the MHTC's Initial Operational Capability (IOC) will be reached and two years later, in 2026, the Full Operational Capability (FOC) should be achieved.

EDA's Project Officer Rotary Wing, **José Pablo Romera**, as well as **Emilio Fajardo**, EDA's Director of Industry, Synergies & Enablers, look back at one of the Agency's biggest achievements in its 19-year history.

Like every romance, the European Defence Agency's association with helicopters had its moments of heartbreak. While the growing success of EDA's 'Blade' exercises captured attention with awe-inspiring photos of European choppers in the sky, things could get rocky on the ground.

At the end of 2018, Britain told the Agency it was closing the airbase used by EDA for all its ground and simulator training. Britain itself was going through a divorce, leaving the European Union in 2020 after almost five decades of partnership. For EDA, that meant there was no possibility of relocating to another British airbase. EDA's helicopter simulator was also judged to be obsolete, needing to be replaced just when funding for the helicopter training programme was running out faster than expected. To top it off, EDA's relocation of its training centre to Sintra in Portugal took place early 2020 in the midst of a global pandemic.

"The problems kept on accumulating," says Romera. "No simulator, no airbase and a lack of funding. Then COVID came along."

In fact, EDA's ability to organise the Hot Blade exercise in Portugal's Beja Airbase in June 2021 – after one cancelled exercise in 2020 due to the pandemic – and the Helicopter Tactics Instructors Course in August 2021 – following two years of cancellations –, proved critical. There were still strict travel restrictions in Europe and bringing together

hundreds of military personnel for a major multinational exercise was a real challenge.

"In my heart, I feel this was our most important year. Without those achievements, the helicopter programmes would have entered a spiral that might have had a major impact on the three programmes and the future Multinational Helicopter Training Centre (MHTC)," Romera says.

Looking back, it was already clear that EDA's helicopter training had proved its value to participating Member States and was worth saving. Born out of shortcomings identified after European military support missions in Afghanistan and the Balkans, and with no equivalent in NATO, the training is still relevant today.

The rapid evolution of helicopter tactics, especially after the outbreak of the war in →

EDA Helicopter Training Programmes in brief

For over a decade, EDA has been managing three multinational helicopter programmes focusing on education, training and exercises:

- Helicopter Exercise Programme (HEP), including the 'Blade' exercises, the annual Helicopter Tactics Symposium (HTS), the Electronic Warfare Courses (EW) and the Composite Air Operations planning courses (COMAO)
- Helicopter Tactics Course (HTC) Programme
- Helicopter Tactics Instructors Course (HTIC) Programme

A total of 16 different Member States have taken part in them (Austria, Belgium, Czech Republic, Finland, Germany, Greece, Hungary, Italy, Luxembourg, the Netherlands, Norway, Portugal, Slovenia, Sweden, Switzerland and the United Kingdom)

Thousands of helicopter crews and other military personnel have been trained by EDA in the tactics of modern warfare and have supported their preparation for multinational deployments. Some NATO allies and organisations have also been invited to our training activities. These include the annual Blade exercise and the HTS, both of which are part of our Helicopter Exercise Programme.

Romera (left) awards an Austrian participant a certificate of excellence in Hungary at Fire Blade 2022.

Ukraine, requires crews to constantly adapt and update their skills. This includes a swift increase in air defence threats that create high risk areas for helicopter operations. With a surge in the use of drones, the traditional roles of helicopters are changing, and Europe must keep up.

What's more, some Member States are shifting from Soviet-era helicopters to newer Western models. This transformation is not only time-consuming but also resource-intensive, adding another layer of complexity to helicopter training and operations.

It hurts to say goodbye

With the EDA training programmes having been run from Britain since 2011, Germany and Portugal both offered in 2019 to host a permanent training centre with a new simulator capacity. That simulator was no longer owned by EDA, but offered by our contractor Inzpire Ltd for a three- year lease, and to be deployed anywhere in the EU.

Portugal's offer as host nation proved itself, as it would make for an easier transition to the MHTC, scheduled for the end of 2023.

Following this decision, the process of relocating to Sintra started early 2020. The equipment was transported to Sintra in May 2020, and the construction of the simulator was completed in September, while Europe was still under strict COVID restrictions. EDA initiated its inaugural course on 5 October 2020.

Not everything had been resolved, however. Britain was out of the programmes, and so were its qualified instructors, who in the past had made up a large contingent of trainers. The change of location to Portugal and Hungary required reworking mission scenarios, performing fresh coordination with Members States who host the flying phases of training, and ensuring the needed operational and logistics support to the training activities, including the annual Blade exercise and the HTIC.

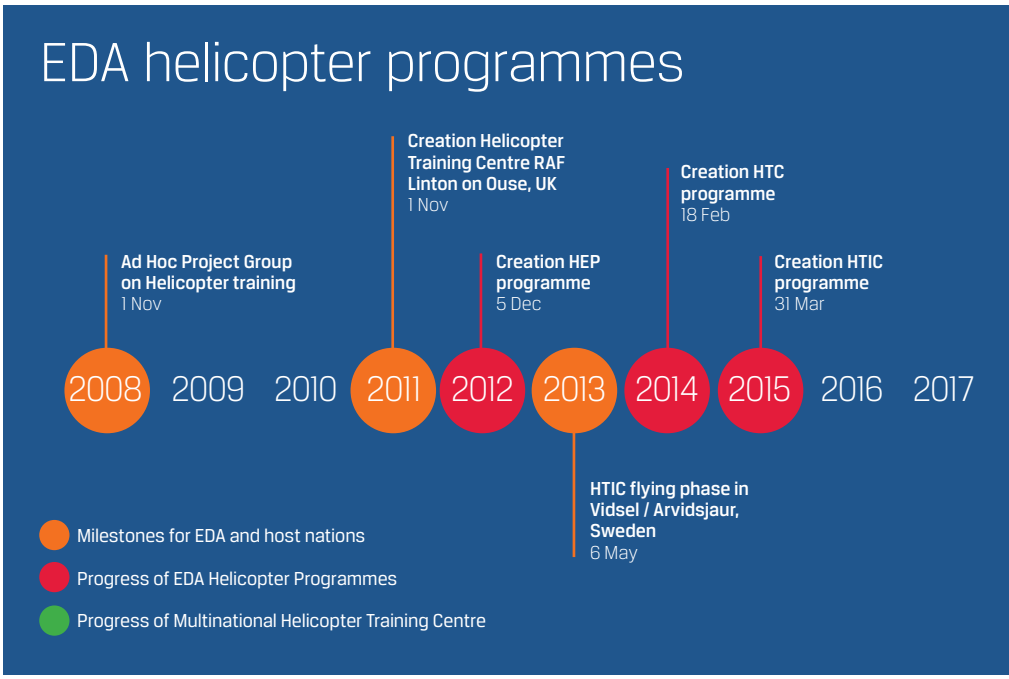
The performance of the seventh Helicopter Tactics Instructors Course (HTIC) 2021 was a major challenge, considering the recent relocation of the course's ground and flying phases from Britain and Sweden to Portugal and Hungary, and that there was a two-year gap in the HTIC delivery. This resulted in a HTIC where there was no proper handover, the instructor cadre changed and there was loss of know-how. In addition, all the flying procedures had to be written specifically for this course. With no formal handover of tactics and procedures, specially for the flying phase, the helicopter training community was in unknown territory.

"Considering that you need about a year to prepare for each Blade exercise and HTIC, the challenge in 2021 was immense," Romera says. "Our chief instructors from Austria and Sweden, with the support of other national and industry instructors, really went above and beyond, stepping in to give our training a new life post-Brexit," he adds.

The next 15 years

The story has a happy ending, with the ninth HTIC 2023 in October going ahead, just as the Blade series also continued. Hot Blade 2021 and 2023, and Fire Blade 2022, were delivered successfully.

Overall, since 2009 EDA has conducted 17 Blade exercises across 11 different



European locations. These have seen the participation of nearly 340 helicopters, 2,325 aircrew members and approximately 15,000 military personnel. Portugal has hosted one-third of these exercises, six in total and known as Hot Blade, solidifying its status as a major European hub for helicopter training.

If all goes as planned, the MHTC in Portugal is anticipated to become a European benchmark for multinational military helicopter training. The centre has a lifespan of 15 years, extendable for an additional 15-year period. It also has a pre-agreed 10-year schedule for Blade exercises, spanning from 2024 to 2033.

"We've come a long way. Seeing crews emerge from a helicopter, drenched in sweat after the demanding training, really makes you realise they have been out of their comfort zone," says Romera. "You might say EDA was also out of its comfort zone, but we've been successful. The story goes on, this time in Portugal with the MHTC."

What's in an exercise?

Designed to provide realistic training scenarios that may involve troop transport and medical evacuation as well as other missions, the exercises are always multinational. They regularly involve air force, army and navy assets and personnel, and the participation of helicopters, fast jets, transport aircraft, ground troops, air defence equipment, joint terminal attack controllers and other assets and personnel from different European countries.

"In addition, there is an ongoing effort to align our training and tactics, techniques and procedures (TTPs) as closely as possible with NATO standards for helicopter operations," says Romera. "Almost eighty percent of our contributing Member States to the three programmes are also NATO Members," he adds.

However, EDA is not a training institute, but rather a catalyst for cooperative training, explains EDA's ISE Director Emilio Fajardo. "On behalf of Member States, EDA develops new programmes trying to fill an indentified capability gap. When they reach maturity, they are handed to an EDA Member State or an organisation which can take care of them in the future. That's how we work, so we can move onto new programmes," Fajardo says.

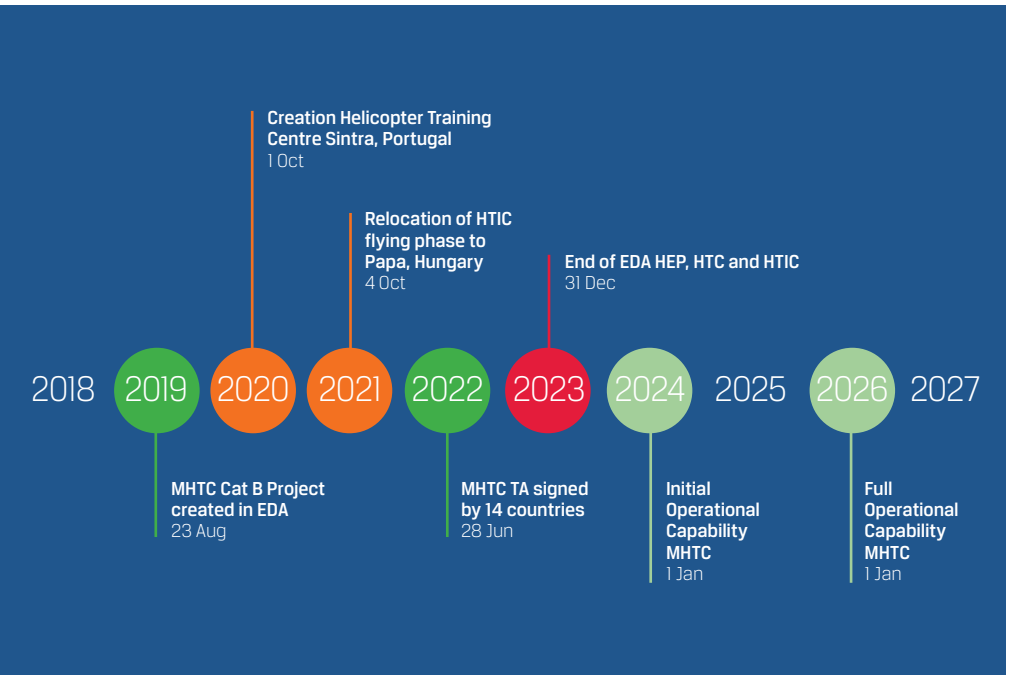
The goal of the exercises is to bolster interoperability, exchange best practices, and to strengthen cooperation among European armed forces. The number of helicopters and staff involved can fluctuate annually, depending on the specific goals and scope of each exercise, ranging from a dozen helicopters to more than 40, with additional air assets regularly contributing. Likewise, the personnel count can vary widely – from several hundred to a couple of thousand – comprising crewmembers, ground crews, ground troops and other supporting staff.

Blade in figures

The European Defence Agency's Blade exercises are part of the Helicopter Exercise Programme, which aims to improve the operational capabilities of European military helicopter crews.

Since the beginning of the programmes, EDA has delivered:

- 17 Multinational 'Blade' exercises
- 14 Helicopter tactics symposia
- 81 Helicopter tactics courses
- 9 Helicopter tactics instructor courses
- 12 Electronic warfare courses
- 10 Composite air operations planning courses



A few highlights from EDA's 'Blade' Helicopter Exercise Programme


HOT BLADE 2023


FIRE BLADE 2022

HOT BLADE 2021

HOT BLADE 2021 © Portuguese Air Force


HOT BLADE 2018 © Portuguese Air Force


COLD BLADE 2016 © Finnish Defence Forces

BLACK BLADE 2016 © Fischer Maximilian


BLACK BLADE 2016


COLD BLADE 2016 © Finnish Defence Forces


HOT BLADE 2013


© Dévényi Veronika


© Portuguese Air Force


HOT BLADE 2018
© Portuguese Air Force


ITALIAN BLADE 2015
© Austrian Armed Forces / Horst Gorup


GREEN BLADE 2012
© BAF Bart Rosselle


© Portuguese Air Force

From training programmes to a dedicated centre: the MHTC is born

- In November 2017, the EDA Steering Board agreed on the establishment of the Ad Hoc Working Group "Multinational Helicopter Training Centre (MHTC)".
- The EDA Multinational Helicopter Training Centre (MHTC) Category-B programme was established in August 2019. This project aimed to ensure a smooth and successful transition of the three programmes to a centre of the same name, MHTC, and to be hosted by Portugal at the airbase of Sintra.
- The MHTC Technical Arrangement (TA) was signed by 14 European countries in June 2022: Austria, Belgium, the Czech Republic, Cyprus, Finland, Germany, Greece, Hungary, Italy, the Netherlands, Portugal, Serbia, Slovenia and Sweden.
- The mission of the MHTC is to enhance European military helicopter interoperability and capabilities through a coordinated approach to training Tactics, Techniques, and Procedures (TTPs) and doctrine.
- Overall, the MHTC seeks to strengthen proficiency through high-value multinational courses and exercises and build a European helicopter community as well as a cadre of top-level instructors.

The MHTC staff consists of six international and four national members, including roles such as:

› Commander

› Deputy Commander and Head of the Exercise Branch

› Chief Instructor

› Doctrine and Lessons Learned Officer

› Planning and Coordination Officer

› Standards Evaluator

Initially, the MHTC will offer the same range of training activities as the EDA, accounting for 37 weeks of multinational training per year, including:

- An annual multinational "Blade" exercise
- An annual helicopter tactics symposium
- Six Helicopter Tactics Courses
- One Helicopter Tactics Instructors Course
- Two Electronic Warfare courses
- Two Composite Air Operations Planning courses

SPOTLIGHT: EDA's 155mm ammunition JOINT PROCUREMENT

'STRATEGIC BUYERS': EDA CREATES A **GROUND-BREAKING** FACILITY FOR PROCUREMENT

Seven EU Member States have placed orders with European industry through the European Defence Agency's (EDA) fast-track joint procurement scheme to buy 155mm calibre ammunition. More orders could materialise, as Member States seek to replenish stocks that they have already sent to Ukraine. EDA has set up the joint procurement at the pan-European level, acting as the contracting authority and management body, in record time.

To find out more, *European Defence Matters* sits down with EDA's Deputy Chief Executive **André Denk**, EDA's Corporate Services Deputy Director and Head of Procurement **Gianluca Serra**, and **Johann Fischer**, Head of EDA's Land and Logistics Unit within the Capability, Armament and Planning (CAP) Directorate.

It was always going to be a mountain to climb. With Ukraine and Russia locked in daily artillery battles, the standard, year-long procurement process for ammunition was clearly too long. Political expectations were immense. It was a complex process with a host of institutions, companies and governments. And it fell to a small team in an agency whose core business is not ammunition.

What's more, EDA's Deputy Chief Executive André Denk, who chaired the process, had only taken up his post in February. *(See EDM page 43)* Yet by the end of March, 20 Member States and Norway had signed the EDA project arrangement for the joint procurement of ammunition, and by the end of September, seven EU Member States had placed orders. Denk, a German general specialising in logistics and who served in Mali and Afghanistan, concedes that success was not guaranteed, in part because his team was also trying to forge a European way.

"We could have taken the easy route and targeted only national champions capable of delivering ammunition," asserts Denk. "But it would have been less inclusive, meaning limited quantities, not reaching second-tier suppliers from all over Europe, and a more rigid set-up. We had the political momentum and the expertise for something more. "

Given that there was no textbook to follow, the direction and the trajectory of EDA's endeavour had to be flexible. "That's what happens when you do something new," says Serra, who, together with a team of procurement officers, as well as colleagues from EDA's finance and capability directorates, found himself facing a challenge ranking as one of the most intricate and urgent in EDA's 19-year history.

Prelude to a contract

One of the novel approaches taken by EDA was to map interested European Union and Norwegian defence companies via a market survey. That is no mean feat in a sector traditionally fragmented along national borders. By then inviting a broad range of companies to bid for framework contracts, it gave access to all available production capacity of the EU and Norway at any time.

EDA then focused on the self-propelled howitzers that EU Member States have sent to Ukraine: Germany's Panzerhaubitze 2000; France's Caesar; Poland's Krab; and Slovakia's Zuzana. EDA also ensured that industry could provide the certification of compatibility required for all firing systems, so that the ammunition produced following concrete orders could be used effectively and safely.

EDA employed a 'cascade mechanism', which aimed to reach all remaining available companies and also maximise security of supply. "That is an innovative aspect of this EDA procurement," says Serra. "The

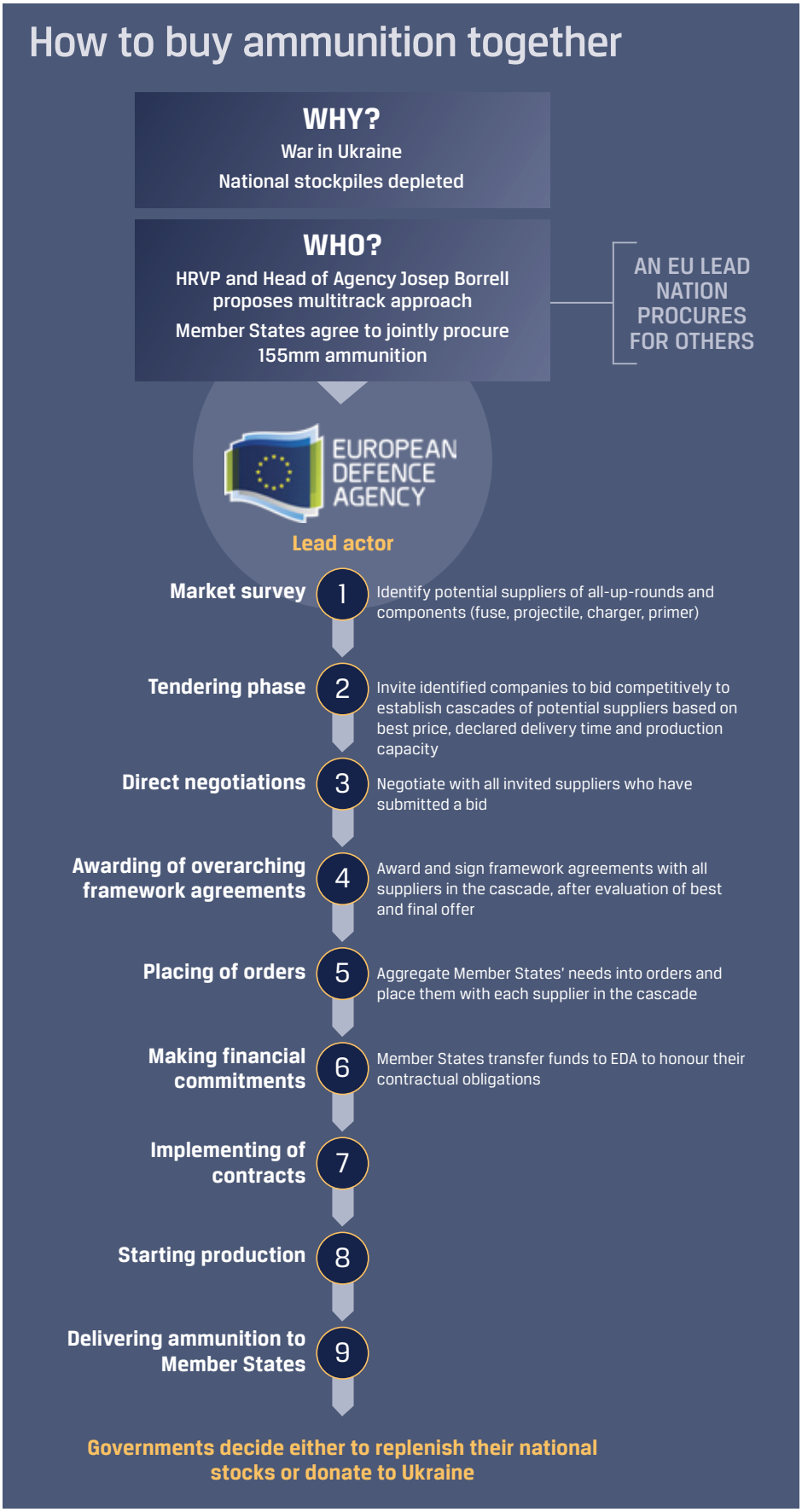
company with the best unit price is first in line for the order, but the next company in line can come into the contract if the production capacity of the first is not sufficient or there is a technical issue, albeit at a higher unit price," he explains. "You need to be resilient, and that means addressing the entire supply chain," Fischer adds.

Going big

EDA's procurement scheme does not only focus on 'all-up-rounds' but allows for orders of the fuse, the charger, the primer and the projectile. "If we approached only those companies able to provide complete shells, we would have less production capacity. We would have missed the opportunity to target a certain number of second-tier companies and suppliers," says Fischer.

Perhaps most crucial of all, EDA has created a mechanism that is open for orders over the next three years, not just the coming months. That allows it to meet the needs of Member States to replenish national stocks and support Ukraine. "The situation is fluid and the war in Ukraine is ongoing," Denk says. "Production capacity can change. Once industry has a clearer idea of demand, it is more inclined to invest to ramp up capacity." EDA has honed in on current production capacity in the EU and Norway, with delivery in 12 and 24 months.

If EDA had procurement experience with the purchase of Carl-Gustaf ammunition on →



French soldiers kneel by a Caesar (Camion équipé d'un système d'artillerie) self-propelled howitzer.

behalf of Estonia, Latvia, Lithuania, Czechia and Poland, today's 155mm procurement is on another scale. "That was procurement in peacetime, with one product from one company," Serra says.

Europe's procurement agency?

There are caveats, of course. EDA's contracts are of a commercial nature and do not include grants to incentivise production capacity, a task that belongs to the European Commission through the new Act in Support of Ammunition Production (ASAP).

The long-term success of the EDA initiative is linked to Member States' willingness to place orders via EDA. Member States have other options, including joining a lead nation to place orders or relying on their own national procurement schemes or NATO's NSPA. Placing orders does not mean immediate delivery, because governments can only purchase what industry produce based on signed orders with committed funds.

"What you have here is a positive outcome offering viable options to Member States," says Denk. "We as EDA have delivered what was asked of us, a procurement instrument, and in record time. But really, the added value of the Agency is in helping Member States through capability development, prioritisation, research and technology innovation, and less so in procuring off the shelf."

The exercise has surely enhanced the prowess of the Agency, Serra believes. But the initiative needs to be assessed to draw lessons, he says. "Is EDA's model the most suitable for joint procurement of military equipment? It is certainly one of the options. We have the legal basis in the Treaty on European Union. EDA is there mentioned explicitly as an EU Agency for, among other things, the acquisition of armaments."

"The real question is the willingness of the Member States and the issue of resources," Denk says. "It depends on Member States. If they want us to do so, then we will find ways to achieve their ambitions."

EDA procurement for Ukraine at a glance

- October 2022 – EU Task Force, including EDA, identifies ammunition as one area for joint procurement
- February 2023 – EDA Head of Agency Josep Borrell proposes joint purchase of 155mm ammunition for Ukraine and national stocks
- March 2023 – Several Member States sign EDA's project arrangement for joint procurement of ammunition
- June 2023 – More Member States sign, taking the total to 26 states, including Norway
- September 2023 – First framework contracts are signed, followed by orders from seven EU Member States

EDA Deputy Chief Executive André Denk meets Ukraine's Minister for Strategic Industries Oleksandr Kamyshin in Kyiv on 29 September 2023.

SPOTLIGHT: Introducing EDA's new Deputy Chief Executive André Denk

"THE REALITY IS THAT WE CAN DO MORE AND WE **SHOULD DO MORE**"

André Denk was only 10 days into his new job as deputy chief executive in February when the call came from European Union foreign ministers for EDA to enable new joint procurement of ammunition. Was it a baptism of fire for the German general? He concedes that, aside from his experience of leading units in Mali and Afghanistan, it was one of the most daunting tasks of his professional life.

Still, for someone who has undertaken many international deployments for the European Union, the United Nations and NATO, it might sound audacious to compare any diplomatic, legal or administrative task to the dangers of the battlefield. But the intimidating nature of joint procurement, Denk says, was marshalling a defence agency that is set up for capability development for military procurement on a large scale at short notice. "In the end, the driving force was that we all felt here in EDA that we now had our chance to support the Ukrainians."

It also helps, he says, that: "I'm a true believer in the European idea." As a native speaker of Serbo-Croatian and German, and fluent in English and French, Denk surely has the credentials. Born in Rotthalmünster, Germany, in 1967, Denk joined the German armed forces in 1986. He holds a diploma in mechanical engineering. In addition, he graduated from the German Command and General Staff College as well as from the French General Staff College.

He exudes enthusiasm where others might find the Brussels bureaucracy staid and stilted. "I realised that big possibilities exist at the EU level for defence, things that we and the Member States can exploit still further."

Alone Together

Defence is and will remain a national responsibility of the European Union's 27 countries. But while not creating an 'EU army', the EU can help its Member States buy, develop and operate new assets together, saving money, allowing militaries to work closely together and reinforcing the European pillar in NATO.

Denk, who was most recently Director Logistics of the EU Military Staff and was previously commander of the Joint School of Logistics in Germany, is aware that the biggest EU Member States do not always see collaboration as such an obvious choice. Having worked as a desk officer and deputy branch head for planning issues at Germany's Federal Ministry of Defence, Denk knows the mindset – and one that he believes is changing, seeing defence cooperation as a real option.

Countries have strong national interests, with their own capabilities, procurement and planning and their own defence industries, Denk says. "But we have a chance to convince them that joint activities, such as those through EDA – using EDA as a platform – can provide a lot of operational benefits and be very effective."

"We are convinced that EU Member States can use EDA more and more. They do already use EDA for projects, including in Permanent Structured Cooperation, or PESCO. They can use EDA as a hub for cooperation in many projects and programs. The reality is that we can do more and we should do more," Denk says.

FOCUS: EDA's Capability Technology Group Ground Systems (Land)

"ADVANCED TECHNOLOGY IN UKRAINE HAS BEEN A GAME-CHANGER"

The European Defence Agency (EDA) has specific Capability Technology groups, known as CapTechs, to push developing technology out of the laboratory and into military hardware, in support of EU defence capability goals. *European Defence Matters* sits down with **Mario Martinho**, EDA Project Officer Land Systems Technologies and Head of CapTech Land, to demystify what it is to embed tomorrow's tech into military gear.

A Themis multi-role unmanned ground vehicle (UGV) on patrol.

We live in an era of dizzying technological change. From ever-greater computer power to Artificial Intelligence (AI) and machine learning, the consequences of this digital disruption are being digested on a daily basis. For Mario Martinho, they make for long days too.

Responsible for CapTech Land at EDA, Martinho chairs meetings with experts of defence ministries, companies and EU institutions. And there is one overarching question always asked of him: "Hey Mario," they say. "How do we bring the military end user closer to the research and development community?"

In the land domain, that usually means the rapid integration of different kinds of technology into platforms, whether they be manned, unmanned or autonomous, as well as soldier systems. It is what Martinho calls "addressing the challenges from a system perspective", not just thinking of the components and subsystems.

"Developing sensors, for example, is not our business. We have a broader responsibility. We are talking about developing and integrating advanced technology in the land systems of the future," says Martinho, a military engineer and lieutenant-colonel in the Portuguese Army. He served in United Nations' peacekeeping operations, including in Lebanon and East Timor.

"We also need much more interconnected systems to enhance our land operations," Martinho says. "You see it in Ukraine at war. Advanced technology, and the way it is integrated with legacy systems, is a game-changer. Ukraine, with a much smaller armed forces, has been able to remain in the fight, against a much larger adversary," he says.

From vehicles to artillery, that means EDA CapTech Land looks at how all technological aspects link up, whether it be in communications or protective solutions – not to mention the sensors and processors, or the energy that supplies such systems and how it is managed. In the jargon, it is specially 'capability driven', and less 'technology driven'.

One characteristic of CapTechs at EDA is their focus on a Technology Readiness Level (TRL) – a measurement system used to assess the maturity level of a particular technology – up to five or six. That means the TRLs that CapTechs reach need to be taken further in different environments to ensure that the hardware and software is fool-proof and ready for the production line.

The future begins today

The CapTech Land aims to foster collaborative projects in:

- Combat and multipurpose manned and unmanned ground vehicles
- Soldier systems
- Lethal and non-lethal weapon integration in ground systems
- Counter Improvised Explosive Devices (C-IEDs)
- Military camps
- Combat engineering systems
- Logistics for land operations

Within those broad areas, CapTech land is especially busy in working on electrification, or moving towards hybrid technology for land platforms, on enhancing the situational awareness and targeting capacity of land

Produced by Estonia's Milrem Robotics, it is a mid-sized platform taking part in the CUGS project.

systems, and on developing a broad set of autonomous systems for land operations.

For electrification, the miniaturisation of energy sources is crucial. "If we want to increase the portability, the durability, the resilience and the power of energy sources for our soldiers, we will need smaller solutions with higher energy density," he says.

The war in Ukraine has shown just how crucial unmanned systems are to safeguard human life. "Deploying unmanned systems reduces the danger to human personnel," Martinho says. He stresses that CapTech Land abides by the European Parliament resolution on Lethal Autonomous Weapon Systems (LAWS) ensuring that all unmanned and autonomous platforms are kept under meaningful human control.

Free from 'dull, dirty, dangerous and dear jobs'

CapTech land is also responsible for the largest research and technology (R&T) project in EDA, the Combat Unmanned Ground Systems (CUGS), which brings together nine Member States and 28 European industry partners. With over €36 million budget and running for 36 months, the CUGS was launched in February 2023 and aims to enhance the autonomy of the navigation, communications and cooperation, and weapon systems functionalities. The final phase of the project will test full demonstrators for highly autonomous combat unmanned ground systems.

> "We are mostly integrators of technology, less so the developers"

Martinho points out that EDA's approach is efficient, by transforming today's assets to unmanned ones. "We are not reinventing the wheel," he says. In the case of CUGS, existing mid-sized platforms are provided by Themis of Estonia and Wiesel of Germany, and large-sized platforms come from Estonia's Type X, Italy's Lince 2 and Finland's Patria AMV.

CapTech Land is also coordinating the production of the EDA Action Plan on Autonomous Systems, which should be the basis for many more projects. It aims to support Member States in speeding up the development of highly autonomous systems for land, air, maritime, and cross-domain operations, where unmanned platforms and robots will support manned platforms and soldiers, and execute some of the tasks usually assigned to humans.

In the future, these systems will enable missions in "dull, dirty, dangerous and dear" environments that would otherwise be impossible or unaffordable. "It's one of the important documents EDA will produce in the coming years," he says.

EDA has been tasked by Member States to establish clear priorities and complementarity between EU programmes and entities, such as the EDA and the European Commission's Directorate-General for Defence Industry and Space (DEFIS). "The action plan will support the implementation of the new capability development priorities, and of course, takes into account the lessons learned from the Ukraine war," Martinho says.

It is all in a day's work at CapTech Land.

TECH FOR **SITUATIONAL AWARENESS,** AND **COMMUNICATION AND INFORMATION SYSTEMS**

Since 2018, the European Defence Agency (EDA) Defence Innovation Prize has been rewarding companies and research entities that come up with technologies, products, processes or services applicable to the defence domain. The prize promotes defence innovation in Europe and provides civilian industries, small and medium sized enterprises (SMEs), research organisations and universities with an opportunity to showcase their know-how.

The EDA Defence Innovation Prize now lies under the umbrella of the Hub for EU Defence Innovation (HEDI), a platform for innovation led by EDA that was established in March 2022 by the EU's Strategic Compass. The prize complements other HEDI's services such as the EDA Research, Technology and Innovation Papers Award.

This year, the prize focuses on two categories:

- Technologies for situational awareness
  Innovative solutions and technologies for immersive training, battlefield situational awareness and other defence applications.
- Technologies for communication and information systems
  Innovative solutions and technologies for implementing Zero Trust Architecture in tactical defence communication and information systems.

The prize winners are given access to EDA's network of experts, having the opportunity to form valuable partnerships to leverage some of the EDA and EU funding opportunities.

Proposals judged to be at a high level by the evaluation committee, including the winners, will be presented to EDA's Capability Technology groups, known as CapTechs, in a dedicated workshop to explore ways to apply them within the CapTechs' areas of responsibility.

And the winners are...

© Royal Netherlands Aerospace Centre

The award for **Technologies for situational awareness** goes to the **Royal Netherlands Aerospace Centre**, and its concept 'Tactical Environment Model for Battlefield Awareness (TEMBA)'.

Cyber Noesis

The award for **Technologies for communication and information systems** goes to **Cyber Noesis**, and its concept paper for 'AI-assisted dynamic risk management for context-aware access control in Zero Trust Architecture.'

Royal Netherlands Aerospace Centre (NLR)

What if an algorithm for the planned course of an unmanned or autonomous military vehicle could also consider the possibility of a thunderstorm, or the predicted movements of nearby enemy troops? That is the question research and development engineer Dr. Armon Toubman and his colleagues asked themselves after many years of reading scientific literature on various proposed prediction models.

"A lot of papers present prediction models, for instance in control of unmanned vehicles, in weather forecasting or on movements and intentions of enemy platforms, but you never really hear about them getting beyond that initial stage," Toubman explains. "So, I said, let's have one big model comprised of all these smaller bits and pieces – software that would take into account all incoming data."

Command and control is one area where such technology could be employed, given the growing need for militaries to have the most computing power possible combined with the data that can drive decision-making. In a distant future, Toubman says he can imagine military personnel with hardware devices running with such prediction tools.

Winning the €30,000 prize, Royal NLR, which operates as an objective and independent research centre, has already suggested Toubman's next steps: to try to work out how diverse models could talk to one another, for instance in terms of coordinate systems. "Different models describe the world in different ways. Take coordinate systems. There are many in use. How do we make sure that all those models will refer to the same point?"

He admits it is an ambitious undertaking, and that a lot of work on such modelling is being done already. But Toubman insists he aims for something practical. "If we are going to model everything for everyone, we have to start with some particular uses for some particular users. But even before that, we need a clear idea of the playing field."

Cyber Noesis

In cyberspace, security requirements are usually part of a user's experience. Particularly for a company, rarely does a user have an unverified, guaranteed right to use and remain on a computer network. In the past, however, organisations took the view that, once inside a network, a user could be trusted, hence having access to protected resources with limited verification. Given the growth of advanced threats in cybersecurity, Zero Trust Architecture (ZTA) is a new trend to verify and validate every stage of digital use and access to information resources.

For Greece-based cybersecurity specialists Cyber Noesis, intelligent ZTA environments might be the solution even for high-demanding military tactical communication information systems. Their winning proposal combines zero trust security with dynamic risk management and Cyber Threat Intelligence (CTI) to provide risk-based situational awareness. Dynamic risk management is achieved through the continuous monitoring and assessment of risks using modern machine-learning methods, analysis techniques, and estimation.

If successful, such an approach would mitigate the risk of unauthorised access, data breaches, and other malicious activities. By adding Artificial Intelligence (AI)-assisted dynamic risk management, as well as CTI in close to real-time monitoring of nearby threats, a military command could be able to safeguard its networks and the effectiveness of critical military operations.

"Cybersecurity is so essential nowadays, particularly in the military," says Kostas Papadatos, managing director of Cyber Noesis, noting that the 'noesis' in his company name means 'higher intelligence' from the Greek for thought. "We came up with this idea of actually trying to integrate machine-learning technologies related to cybersecurity, as well as dynamic risk assessment with cyber threat intelligence to dynamically assess risks associated with access to the military environment resources," adds Kostas Rantos, professor at the International Hellenic University and Cyber Noesis' Head of R&D.

Is that a tall order? "It's a concept, of course, but we can take into account values coming from various environments, including hybrid threats." The €30,000 in prize money also allows the company, headquartered in Marousi, and established in 2015, to make a start on this concept. But a prototype would need funding more in the order of €1.5 million, estimates Papadatos. Both Papadatos and Rantos are part of the group of cyber security specialists who have delivered major information security projects to governments and other major organisations in Greece, Cyprus, Britain and Singapore.

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