## **From Finland To Paris**

Patria has not only become a global player, the company is also launching some new products at Eurosatory in Paris, one of them the Patria 6x6. ESD Spotlight spoke with Olli Isotalo, President and CEO of Patria, about the current programmes and international trends he expects for the near future. The interview was conducted by Dorothee Frank.

**ESD Spotlight:** What is the main focus of your presentation at Eurosatory? **Isotalo:** We mainly focus on our new Patria 6x6 vehicle which is combining superior performance capabilities with an affordable price tag. It is also our ticket entering the smaller vehicle market and therefore the international Eurosatory has been the perfect place for the launch.

**ESD Spotlight:** What relevance does this new vehicle have for your company? **Isotalo:** As you know, our market position in the 8x8 market is quite exposed, but projects focusing these vehicles are, from the business point of view, quite rare. So the business goes up and down depending on the projects you are involved, you are winning and losing. So we have to extend our product portfolio and have to offer a larger range of products in order to have less volatility in our business. That is my belief and I will align the company and the product portfolio along these parameters.

**ESD Spotlight:** Is Patria also envisaging to become a more global company?

**Isotalo:** Yes, sure. Even though our target market is mainly Europe, we have also been very active in the Middle East, and these activities will continue. But obviously, there is a global need for our vehicles, especially the new 6x6.

EUROSATORY

11 - 15 JUNE 2018 / PARIS

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**ESD Spotlight:** Any future trends you see in the market?

**Isotalo:** Talking about vehicles affordability combined with performance has become a kind of a trend in several nations. In the past the vehicles have become heavier and heavier but also more and more expensive. So what I see at the moment is a kind of back to the basics trend and this is even

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emerging while we are speaking. Combining these two trends is not a compromise in terms of security or performance, that is what we have to remember.

It is not a compromise in terms of protection and capability, either. Therefore we have to put a lot of efforts to design it in such a way that you reach the required level and still have an acceptable price tag.

## 1SSUE 92 / 2018 2 SPOTLIGHT



## Launch Of The New Patria 6x6

(df) At Eurosatory Partia launched their new new vehicle: Patria 6x6. It is a multipurpose vehicle and the successor to the Pasi Armoured Personnel Carrier. The chassis structure is based on the same components as the AMV, but with one less axle. The vehicle is driven by all three axles and steered from the front two, or all three, depending on its equipage. Optional equipage can be added to bring the 6X6 closer to the AMV. For example, various ballistic and mine protection levels, weapon systems, self-protection systems and other interior equipment are available.

"There has long been demand on the market for a successor to the Pasi Armoured Personnel Carrier, which has been in production since the 80s," said Janne Räkköläinen, Vice President Vehicle Systems at Patria's land business unit. "The new 6X6 brings the basic principles behind its predecessor into the present day, with its multifunctional transport capacity and modularity that adapts easily to the customer's needs." Patria 6X6 can be equipped with a variety

of weapon systems and, if required, the Patria Nemo 120mm mortar system. The 6X6 has a maximum load-bearing capacity of 8.5 tonnes. The protection of the armoured 6X6 reaches STANAG level 4, which means protection against even heavy machine gun fire. Due to the 6x6's good load carrying capacity, it has better protection than previous Pasi APCs. Its mine protection is top-notch, even at the basic level, but up to 10 kilos of mine protection can be achieved.

In addition to the crew of 2-3 persons, the vehicle has seats for ten combat troops, depending on its purpose and layout. In terms of durability, it will continue along the trail pioneered by its predecessor, the Pasi, the company stated. "The 6X6 is also a clearly unified concept in terms of its manufacturing technology. If necessary, the final assembly and equipage can easily be completed by a partner in the destination



country", Patria released. "The 6X6 meets NATO standards and is ideally suited to e.g. peacekeeping missions anywhere in the world. The vehicle's life cycle support is an integral part of the Patria 6X6."

Length of the vehicle is 7.5 metres, height 2.5 metres, width 2.9 metres with a maximum total weight of 24 ton. The Patria 6x6 has an optional swimming capability. According to the company it is also capable of carrying several different weapon systems.

Patria: Hall 6 G 300 & G 260 www.patria.fi

#### **Countering Drone System**

(df) An interesting system presented at Eurosatory is ESG's Guardion. The special point on this countering drone system is, that it is not new but proven and reliable. Guardion has been used to secure the G7 summit, the visit of President Barrack Obama and the G20 summit (all in Germany). ESG invented it together with partners and in close cooperation with the German Federal Police. The result of this knowledge exchange is a modular system to fit civil and military needs.

Commercial drones have become cheap and easily available, therefore represent an emerging challenge and serious security risk. Not only politicians need to be secured from small armed drones, all the same military camps or sensitive infrastructure has to be safe from small drones carrying

EUROSATORY

11 - 15 JUNE 2018 / PARIS

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weapons, explosives, laser designators or spying cameras. Since early 2015 ESG has worked together with Rohde & Schwarz and Diehl Defence on a joint solution to counter these threats. The result – Guardion – includes different sensors and effectors under the umbrella of a proven and powerful command & control system.

ESG is not only leading this industrial cooperation, it also put in their military proven command & control system Taranis. Rohde & Schwarz brought in their Ardonis radio-controlled drone identification and countering system. Diehl Defence's HPEM-counterUAS electromagnetic pulse source is the main effector. But as a modular system Guardion could also be build up with just sensors or different sensors or effectors, like a net-throwing counter system. Guardion is also offered in different con-

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figurations, transportable in small containers, a special vehicle or even a fixed set up. Which one to choose belongs on the situation and ESG does not simply deliver a solution in a box, but bring the experts analyzing the needs of the customer and finding the best set up, including even identifying the best points sensors and/or effectors should be stationed.

ESG: Pav DE / Hall 6 L 709 www.esg.de

## 155UE 92 / 2018 3 SPOTLIGHT



## Protected Amphibian Launched At Eurosatory

(gwh) Krauss-Maffei Wegmann has developed a protected amphibious vehicle and presented it to the public for the first time at Eurosatory.

The Amphibious Protected Vehicle Tracked (APVT) – itself a world premiere – is also the carrier or, better said, has integrated two more world firsts: the first public appearance of the FLW 200+ and the segmented rubber band chain. The vehicle weighs less than 30 tons (payload 5 tons) and comes with a highly protected hull in which an infantry group can be transported, depending on the equipment.

The decoupled hydropneumatic gear with six rollers is equipped with the segmented rubber belt chain manufactured by the

AIR OPERATIONS



KMW subsidiary DST. This gives the vehicle great smoothness with reduced vibration load inside the vehicle.

Powered by a 600 kW diesel engine, the APVT reaches a top speed of more than 70 km/h on land. The steering and braking gear is arranged in such a way that a passage for dismounting down or loading could be brought down at the rear. For swimming, the direction of travel is reversed. At the push of a button, the buoyancy aid and hydrofoil are extended and the water jet drive is unlocked. The swivelling water jet drive also serves to control the direction. Thrust reversal allows the vehicle to travel in both directions without turning. The maximum speed is 13.2 km/h.

For self-protection, the remote-controlled weapon station FLW 200+ is installed on the roof, which has considerable firepower with a 20 mm cannon. The FLW 200+ is the most powerful and also heaviest version of the FLW family from KMW.

Initial tests under similar conditions have confirmed the concept.

KMW: Pav DE / Ext Pe6b B 120 www.kmweg.de

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LAND OPERATIONS

## ISSUE 92 / 2018 4 SPOTLIGHT



## **Modular Czech Perun**

(df) Czech company SVOS introduced their new Perun at Eurosatory. The shown vehicle is the one that the company is currently delivering to the Czech Army, the light strike variant. Other variants are troop carrier, command & communication, air defence, ambulance, mine detection, antiriot, double cabin and swat.

The Perun is equipped with a ballistic and land mines protection that fully complies with STANAG 4569. According to the company this level can even be easily increased to most required levels by using removable elements. Also a full range of machine guns on carriage and grenade launchers can be mounted on the vehicle. The shown light strike variant has a 12.7 machine gun and a grenade launcher.

The vehicle weighs 30 tons and offers a payload of 4,000 kg. The chassis is equipped with a fixed four or six wheel drive, differential locks and inter-wheel differential locks, an independent suspension of axles, suspension together with integrated liquid damping and by choice a rear axle steering system. All named variants are available as 4x4 or 6x6.

SVOS and its Perun profit from the actual plans of the Czech Army to replace their complete vehicle fleet. This programme started last year, so the Perun – that was



invented just four years ago – had quite some luck profiting from this investment, that made all these different variants possible.

SVOS: Hall 6 K 370 www.armsvos.cz

#### Saab – Innovations In Camouflage

(jh) Swedish Saab is presenting several "firsts" at Eurosatory. Among them is the Arctic Camouflage Net. This new multispectral Barracuda Arctic Camouflage Net provides camouflage protection in any snowy operational theatre. It is designed to avoid detection from sensors, ranging from those using ultraviolet to wideband radar. Barracuda Arctic Camouflage Net is a two-sided camouflage net that enables quick and flexible operation to meet changes in the surrounding environment. One side is purely white and the other side is



both white and shades of green/grey. This makes it possible to operate in different colours of snow, at both high and low altitude environments. Ventilation allows for quickly achieving thermal balance.

Another interesting showcase is the Adjustable Mobile Camouflage System (MCS), that is designed to operate in different environments. The platform integrated system is made out of panels and is known as a "uniform" because it is tailored to the vehicle. Some of the panels are adjustable and include other colours to match the required visual spectrum. A woodland system can quickly be more urban by changing light green to grey. A winter uniform can be adjusted to spring or deep foliage by changing some panels to green and brown.

Saab: Pav SE / Hall 6 K 371 www.saab.com

#### **Good News From WEW**

EUROSATORY

11 - 15 JUNE 2018 / PARIS

(jh) At Eurosatory WEW has announced major contracts and two new product. Firstly, the company has signed a \$27.5 million contract to supply new Hippo water container systems to the U.S. Army. Under the terms of the contract the company will supply 241 units, with delivery to begin within three months. All units will be delivered within 12 months of the contract signing. At full rate production the WEW Weitefeld facility will produce one unit per day. The Hippo water system has been in

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use with the U.S. Army since 2003. WEW was part of the team that supplied 1,400 units between 2003 and 2013. These systems are still in use with the army, supporting deployed units around the world.

Also, WEW has expanded its deployable fuel and water storage and distribution system portfolio with the launch of two new products. The FSD-10 Fuel Storage and Dispensing Unit and the WSD-10 Water Storage and Dispensing Unit have been developed with affordability in mind. To achieve this, the units are fitted onto DIN

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30722-1 PLS/DROPS compatible "A-frames". The overall dimensions of the systems allow transport inside a standard ISO box container for full intermodality. WEW: Pav DE / Hall 6 JH 733 www.wew.de

## 155UE 92 / 2018 5 SPOTLIGHT



#### Lockheed Martin Offers Solutions To Confront Threats

(ds) The Lockheed Martin presence at Eurosatory is helmed by Frank St. John, the Executive Vice President of Lockheed Martin Missiles and Fire Control, based in Orlando, Florida. We asked St. John how things had changed in Europe from a defence perspective and the key issue that emerged was that there was now a perception that there is a real threat and that drives a new awareness of a need to do something to respond.

What Lockheed Martin aims to do, according to St. John, is to try and help customers understand the modern threat and then to try to find systems that satisfy the operational requirements that are developed to confront that threat. Of course these days it is not just a matter of defining a threat and then delivering a system to meet that threat, this is where the concept of partnership comes into play with Lockheed Martin working with the purchasing nation and its industry.



Efforts to meet German requirements provide excellent examples of how Lockheed Martin looks to work with the customer and with local industry. For example, the Takisches Luftvertigungs System (TLVS) programme to provide a highly mobile ground-based air defence system to deal with modern missile and aircraft threats, including cruise missile and hypersonic threats. Here Lockheed Martin is working with MBDA Deutschland and Diehl Defence to deliver what St. John described as "a world class air defence system."

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The Sikorsky activity of Lockheed Martin is also involved in Germany competing for a new heavy transport helicopter requirement to replace the German CH-53G helicopter fleet. Once again partnerships are necessary to move this programme towards a successful conclusion, with Rheinmetall as the main partner for Sikorsky in offering the new CH-53K helicopter to Germany. Other German industrial partners include: MTU, ZFL, Autoflug, Hydro, Rockwell Collins Germany, Jenoptik, Hensoldt, Liebherr and Rohde & Schwarz. The intention is to bring in further German industrial partners to the programme.

The German heavy transport helicopter requirement is sizeable, with figures of between 40 and 60 helicopters being spoken of. The Sikorsky CH-53K is due to reach Initial Operational Capability (IOC) with the U.S. Marine Corps in 2019 and Lockheed Martin hopes that the German helicopter programme will move towards selection next year. Israel is also interested in acquiring the CH-53K and it is possible that the fate of this programme will also be decided in 2019.

Lockheed Martin is currently projecting a significant increase in interest in acquiring new Short-Range Air Defence (Shorad) systems, since the end of the Cold War Shorad capabilities have been rundown in Europe and other parts of the world, but now developing threats are seeing a renaissance in the Shorad sector. In particular there is interest full spectrum air defence capability including what was traditionally the Very-Short Range Air Defence (VShorad) sector. At the low-end

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Lockheed Martin are working on a 'mini hit-to- kill' solution that covers the Counter-Rocket Artillery Mortar (CRAM) area, as well as tackling UAS threats. This is an internal R&D programme at Lockheed Martin and they are couple of years away from having a system that could be presented to the U.S. government in pursuit of a development contract. With lower end threats covered, dealing with more classical Shorad requirements sees Lockheed Martin working with Diehl and planning on using their IRIS-T SL air defence missile system.



hoto: Diehl Defence)

Looking into the future Lockheed Martin see their Long Range Anti-Ship Missile (LRASM) as having great potential for international sales, at the moment though they are waiting for the US government to develop an export policy that will allow the company to respond to requests for information on the system. Currently the system is being prepared for use from U.S. Air Force B-1B bombers and U.S. Navy F/A-18E/F fighters. However, Lockheed Martin has invested their own money in developing a surface-launch version of LRASM. Four surface launches have been made from a VLS, including one at sea, with there also being a launch in an off-deck configuration. Surface-launch LRASM could be a contender to replace current generation Harpoon and Exocet class missiles in ship launched applications.

Lockheed Martin: Hall 5A C 840 www.lockheedmartin.com



E U R O S A T O R Y 11 - 15 JUNE 2018 / PARIS

## 6 **SPOTLIGHT**



## IAI Presents Barak MX Air & Missile Defence System

(ds) Israel Aerospace Industries (IAI) have announced the Barak MX system, which they describe as a "fully flexible air and missile defence system for handling multiple missions and threats." Superficially it might be expected that Barak MX is an incremental development of the existing Barak missile family, but this is not the case the objective is to offer customer a unified modular air defence system that can be tailored to meet customer requirements.

The Barak story started with the development of a missile to provide close-in defence for Israeli Navy surface combatants. The system was then acquired by the Republic of Singapore Navy for its Victory class corvettes and then Chile acquired the system. Meanwhile, the Indian Navy had been expecting an indigenously developed missile system to meet its air defence needs but this failed to be delivered. India turned to Israel and acquired the Barak 1 system for a number of its high value surface units.

The next stage in the evolution of the Barak was the development of the Barak 8 system. This was a larger weapon than the original BarakK 1 and offered a much wider operational envelope with greatly increased range. India then became interested in the programme and its Defence Research and Development Organization (DRDO) started to play an active part in developing the system. The Barak 8 was to be used in both naval and land-based appli-



cations. The Israeli Navy has selected the system, while the India Navy will deploy it on aircraft carriers, destroyers, frigates and corvettes. The Indian Army will acquire 5 regiments of the system under the MR-SAM designation and Azerbaijan has also purchased the system for ground-based air defence. Development work on an extended range variant of the Barak 8 missile also took place.

The new Barak MX is a system of systems, far more than just a new missile. At the heart of the system is a Battle Management Centre that can be networked with a complete range of sensors, for example a customer could opt to acquire new radar solutions from IAI or they could integrate their legacy sensors into the air defence system. The customer can then select the most appropriate missile to meet their operational needs, here IAI offers three solutions. The starting point is the Barak MRAD, vertically launched, this has a radar homing head and a single-pulse motor with a range of 35 km. For medium-range applications there is the Barak LRAD, again vertically launched, this has a radar homing

head and a dual-pulse motor giving a range of 70 km. Then for extended range applications the Barak ER is used, this adds a booster to the Barak LRAD and this provides a range of up to 150 km.

IAI is quick to point out that a customer could start off with a simple short-range air defence variant of Barak MX, then as new requirements emerge the modular nature of the system allows it to evolve to support new sensors and to accommodate extended range engagements through the acquisition of new missiles. The Barak MX can be configured for either static or mobile land-based applications, as well as for naval applications. An extended air defence system could be created by Barak MX integrating both land-based and naval air defence systems.

The Barak MX system is designed to deal with a broad spectrum of threats such as aircraft and helicopters, UAVs, sea-skimming missiles and cruise missiles and stand-off weapons. It can even deal with ballistic missile threats in atmosphere.

IAI: Hall 6 H 751 www.iai.co.il

## EIMOS On A 4x4 Vehicle

EUROSATORY

11 - 15 JUNE 2018 / PARIS

(df) EXPAL Systems presents a new configuration of the EIMOS 81 mm mortar system integrated in a 4x4 vehicle at Eurosatory. EIMOS is a fully configurable, adaptable mortar system with a hydro-pneumatic recoil absorption system that transmits only a small fraction to the vehicle, thus ensuring

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safe firing for the crew, with a very low impact on mechanics.

Alberto Fernández, Systems Product Manager at EXPAL, used the presentation to stress that "the modernization carried out in the new configuration of the system has brought improved accuracy and effectiveness in aiming, deployment in less than 20

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seconds, and navigation without the need for GPS. Furthermore, the company has put a lot of effort into bolstering the systems and equipment, extending their working life, increasing their maintainability and reducing the cost of their life cycle." **EXPAL: Hall 6 F 133** 

www.expal.biz



# ISSUE 92 / 2018**SPOTLIGHT**



## Ukrainian Defence Industry Tested By Combat

(ds) The Ukrainian defence industry has in recent years found itself tested as never before as the Ukrainian military seeks to improve its operational capabilities in the face of the ongoing conflict in the Eastern Ukraine that commenced in 2014, and asks the defence industry to provide it with the necessary tools to fight. One of the advantages of the Ukrainian defence industry is its incredible diversity, but the industry has suffered from years of under investment and a lack of government support that, in many respects, left the industry struggling to survive.

On 24 August 1991 the Ukraine declared itself independence, this was followed in December 1991 by a referendum in which

## MASTHEAD

#### **ESD Spotlight**

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EUROSATORY

11 - 15 JUNE 2018 / PARIS

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92.3% of Ukrainian voters supported independence. Then came the challenge of building a new country out of the wreckage of the Soviet Union, it was not an easy process as there were years of political instability and economic chaos. In recent years the economic picture has improved due to sound local economic policy and international assistance, including an IMF assistance package of US\$17.5 billion in March 2014.

On independence the Ukraine had within its borders some of the most important components of the former Soviet defence industry. These included the shipyards at Mykolaiv, where most of the major surface combatants of the Soviet Navy were built, including their aircraft carrier, the Antonov company, a key site for the design, development and production of large transport aircraft, the Kharkiv Morozov Machine Building Design Bureau (KMDB) and the Malyshev Plant, once one of the main armoured vehicle design and production sites in the Soviet Union. Other major capabilities included aero-engine design and manufacture, radar technology, missile technology, engines for armoured vehicles, and truck manufacture. The Ukraine was also the location of an extensive collection of maintenance, repair and overhaul facilities for military equipment.

Arguably, it was the creation of UkrOboronProm in 2010 as the organisation charged with managing the state-owned Ukrainian defence industry, that has led to the industry surviving and flourishing. In total 100 defence companies, ten design bureaux and 80,000 defence industry emplo-

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yees come under UkrOboronProm, which provides an idea of the size of the industry and its potential economic impact. Apart from managing the industry, UkrOboron-Prom plays a central role in international defence sales and in encouraging international collaborative ventures with foreign companies and countries.

The Ukrainian government is particularly keen to establish partnerships with NATO countries that could feature foreign direct investment into the Ukrainian defence industry and assist in its ongoing transformation. The Ukraine continues to develop a western orientation with its foreign and economic policy, the signature of a Deep and Comprehensive Free Trade Agreement with the EU has see the EU emerge as the largest foreign trading partner of the Ukraine. The fact that the current U.S. administration has sanctioned the supply of Javelin missiles and other defence equipment is a welcome sign of support for the Ukraine.

In the end though it will be the Ukrainian defence industry that meets the majority of Ukrainian military needs. This could be through the repair and upgrade of existing equipment, for example last year the Lviv Armour Vehicle Factory (LAVF) delivered 72 upgraded T-72 tanks to the Ukrainian Army. New capabilities are being developed such as the Vilkha guided MLRS system with a range of 70 km, with an extended range rocket with a range of 120 km in development. Another new capability coming on stream is the ability to manufacture 152 mm artillery ammunition, previously legacy Soviet stocks or imported rounds had been used. As the local industry evolves to meet the operational requirements of the Ukrainian military, that will also increase its competitiveness in terms of meeting export requirements and in turn will further strengthen the industry.

UkrOboronProm: Hall 5A H 751 http://ukroboronprom.com.ua

#### Undersea Defence Technology 2018

ISSUE 92 / 2018

Undersea Defence Technology (UDT) strives towards and continues to deliver a platform for the subsea community to gather and discuss the industry's most pressing questions, prominent technologies and innovative solutions. UDT will see international companies encompassing prime contractors, systems integrators, service providers and small & medium enterprises meet and network with over 1,400 industry influencers, government decision makers and senior military officials. June 26-28, Glasgow, UK

#### SEDEC

It is aimed to bring together both national and international authorities and buyers from both the state and the private sector showcasing latest technology in border security, homeland security, secure city sectors. In addition, medium and small businesses in the defence industry supply chain will have the opportunity to demonstrate their products and capabilities to manufacturers of defence materiel. July 3-5, Ankara, Turkey

## MS&D – International Conference on Maritime Security and Defence

In its 10<sup>th</sup> year of existence, MS&D – the international conference on maritime security and defence – will attract more attention than ever. During the extended two-day conference, speakers and lecturers will address pressing topics – including cybersecurity, climate change and naval technology. Be part of it and seize the opportunity to get together with high ranking global delegations.

September 6-7, Hamburg, Germany

#### ADEX

Azerbaijan International Defence Exhibition, ADEX, is the largest event in the region, the aim of which is to present a wide range of military products while promoting the innovative development of the Azerbaijani military-industrial complex. The exhibition is also a platform for cooperation between foreign arms-producing companies and the Azerbaijani military departments and defence industry enterprises. September 25-27, Baku, Azerbaijan

## XI INTERNATIONAL AVIATION AND SPACE SALON AVIASVIT-XXI

Aircraft and rocket engineering is the subject of national pride for many generations of Ukrainians and "Aviasvit-XXI" is the display area in Ukraine for showcasing innovative solutions and technology in this segment. XI International Aviation and Space Salon "Aviasvit-XXI" is a professional platform where science, business and government meet in order to join forces to resolve global and applied objectives for the development of the international aerospace industry.

October 9-12, Kyiv, Ukraine

## XV INTERNATIONAL SPECIALIZED EXHIBITION ARMS AND SECURITY

In recent years, the Ukrainian security and defence sector has gained invaluable experience whilst also actively engaging new technologies developed by its international partners. International Exhibition "Arms and Security" is a large-scale multi-domain exhibition for defence, homeland security, emergency and civil protection services. The exhibition is held according to a decree of the Cabinet of Ministers of Ukraine which guarantees the presence of Ukrainian top leaders and a high level of international audience. **October 9-12, Kyiv, Ukraine** 

# SPOTLIGHT













