



SHOW BUSINESS



INDEX/NAVDEX SHOW DAILY



TECHNOLOGY CAN HELP US AVOID CONFLICT – MINISTER

30th SHOW PROMISES RECORD-BREAKING NUMBERS

In a world facing its most turbulent period for years, the latest in defence technologies and systems gathered at the 30th edition of IDEX showcase the best deterrence to manage and avoid conflict.

Those were the views of HE Mohammed bin Ahmad Al Bowardi, the UAE's Minister of State Defence Affairs, as he delivered his welcome speech at the International Defence Conference yesterday at the Energy Business Center in downtown Abu Dhabi.

One of his key messages is that the arrival of advanced technologies such as artificial intelligence (AI), augmented reality and virtual reality (see story page 5), bring new questions to countries seeking to exploit them.

"We must adapt to the new reality we are witnessing and explore the nature of these challenges to find the proper ways to use technology to manage this transformation," said Al Bowardi.

However, he cautioned that enhanced security is "not achieved by technology alone", with an integrated international system based on strong collaboration between states an essential part of the answer.

"The UAE believes in the necessity of collaboration between global and regional powers to enhance security," he said.

In 50 years of the UAE, the state's leadership has constantly followed principles that have reinforced its important role on the global stage and helped achieve economic suc-

cess, he added. "This achieves peace and stability... and opens doors for our societies to live in a dignified and secure environment."

This includes the invitation for anyone wanting to help the UAE. "We grant everyone the opportunity to live and work on our land in peace," said Al Bowardi.

Alongside the arrival of advanced technologies, he highlighted the major challenges the world faces in geopolitical instability, natural disasters, and tackling climate change. All of these topics

will be major talking points during IDEX 2023.

The show itself is breaking new ground with record-breaking numbers. There are 1,350 companies, and more than 130,000 visitors are expected during this week. Some 65 countries are represented across the 165,000 sq.m site- and increase of 135 times over the first edition 30 years ago.

"Since its inception IDEX has contributed to supporting the development of the national defence industries, and the current edition of the exhibition witnesses

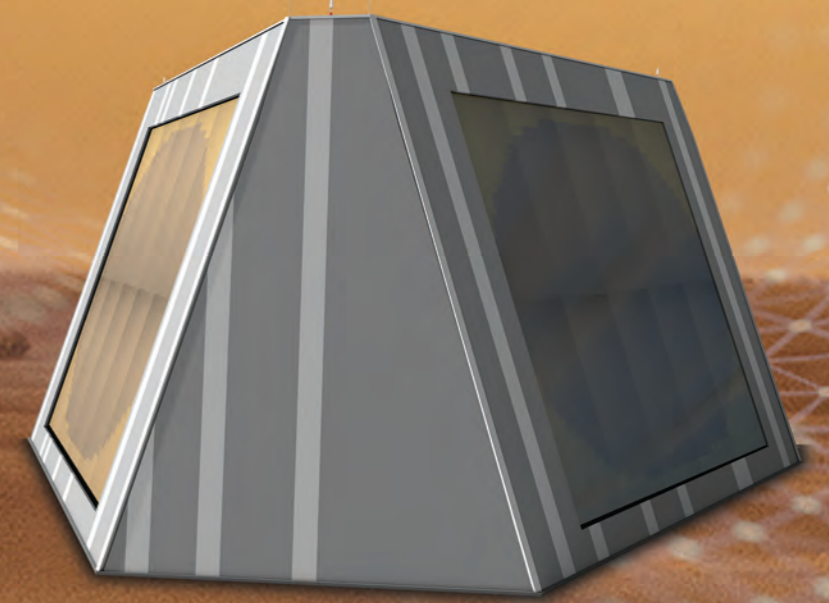
the participation of more than 180 national exhibiting companies representing 16% of the total exhibitors, while the UAE pavilion is the largest in the event with a total area of more than 23,700 square metres, followed by the Turkish the American pavilions, which confirms the great role played by IDEX in supporting national industries by partnering up with international institutions and promoting their products in new markets" said Humaid Matar Al Dhaheri, Managing Director and CEO of ADNEC Group. ▲



"We must adapt to the new reality we are witnessing and explore the nature of these challenges to find the proper ways to use technology to manage this transformation"

HE MOHAMMED BIN AHMAD AL BOWARDI UAE'S MINISTER OF STATE DEFENCE AFFAIRS

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How Artificial Intelligence is changing the world of defence

Artificial intelligence (AI) was one of the major themes when the International Defence Conference took place yesterday at the Energy Business Center in Abu Dhabi.

“We have pushed AI as far as we can in this generation,” said Lockheed Martin Middle East CEO, General (ret’d) John Nicholson, “but where are we now?”

His Excellency Omar Sultan Al Olama, the UAE’s Minister of State for AI, Digital Economy and Remote Work Applications believes he knows: “We are at a phase in our evolution that we have never seen before and that is going to bring with it all the promise and peril as this conference session title suggests.

“The promise in new technologies that we’ve seen over the last couple of months have generally been because of AI, but this is the just beginning of a much bigger scope.”

Roy Donelson, CEO Raytheon MENA, and another on the panel, said: “We’re going to see its use in defence technologies, specifically the use of generative AI to design new aircraft and missiles.”

Donelson went on to give an example of the company’s AI work, where he believes there is great promise: “In my world, we spend a lot of money on flight tests, so we can try to decrease the numbers by using more AI ahead of that flight.”



“In my world, we spend a lot of money on flight tests, so we can try to decrease the numbers by using more AI ahead of that flight”

ROY DONELSON
CEO RAYTHEON MENA

He also spoke of how the enemy is training their personnel with costs in the hundreds of dollars, a fraction of the hundreds of thousands of dollars that many developed countries are spending. “With AI, we have to look at lowering the cost per kill,” he said.

Nicholson added: “Last month, we announced a first flight of an F-16 AI-enabled, AI-piloted flight in the VISTA X-62 Alpha programme, which flew a challenging flight pattern. We also announced,

in November, that a Sikorsky UH-60 Blackhawk helicopter had been AI-piloted over an 80-mile flight route, evacuating casualties, delivering supplies, and reacting to enemy threats. These are just a couple of examples of how AI is very rapidly being integrated into the defensive security sector by Lockheed Martin.

AI is helping asymmetric warfare. Machine learning is helping to make human make decisions. The Lockheed-Martin F-16 and

a Black Hawk flying with AI are two examples of what can be done, and they were not short test-flight missions.

Nicholson summed up: “It’s the next generation that will take AI and machine learning to the next level; those that are graduating from schools. To that end, Lockheed-Martin runs an internship programme here in the UAE, the Centre for Innovation and Security Solutions, which will be a big part of that future.”



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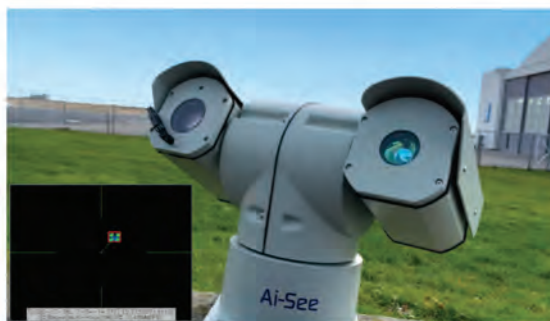
STREIT Group isn't simply the world's largest privately owned manufacturer of armored vehicles; it's a company that is constantly evolving and growing. Aside from showcasing our largest display of Streit Group products ever at IDEX and NAVDEX, we will also announce our latest partnerships and collaborations. We will present everything from the latest vehicle models, live demonstrations, to state-of-the-art boats, as well as unmanned aerial vehicles (UAV) and emerging technologies that can be used to increase efficiency, support decision-makers, predict future needs, and save lives.

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Israel's Rafael opens up UAE possibilities

Israeli defence company, Rafael, is opening up opportunities in the Middle East region with a new office in Abu Dhabi.

"We are encouraged by yet another concrete step in strengthening Rafael's ties with the UAE," said president and CEO, Yoav Har-Even.

"We can now say that we have built the bridge to the UAE by this inaugural investment and are excited to continue to expand the relationships that have been cultivated thus far."

The Gulf is a new market for Israel in the wake of the Abraham Accords, which saw the Jewish state improve diplomatic relations with several Arab neighbours.

The company is also displaying its defence capabilities at IDEX, including, for the first time in the UAE, its Iron Beam high-energy laser weapon.

The technology, designed in Israel, augments the capabilities of the Iron Dome air defence system.

The company will also be displaying the Spyder air defence system, which has been upgraded to allow for the counter ballistic missile capability through an extended range of the Derby LR missile, and its NLOS mission task force (NMT), which utilises the world's first sixth-generation missile, the Spike NLOS.

Other systems being highlighted at IDEX include the Drone Dome, Fire Weaver, and Litening-5 – the world's most widely used targeting and navigation pod.

The company's new space capabilities will be represented through the Litesat electro-optical Earth observation system, which functions as a microsatellite to provide high-resolution, geospatial data.



Rafael's president and CEO, Yoav Har-Even, inaugurated the new office in a ceremony with Emirati and Israeli officials, as well as Amir Hayek, Israel's Ambassador to the UAE

Why Streit Group 'diamond' shows its cutting edge

Diamond sponsor, Streit Group, has revealed that it plans to unveil nine new products at the show.

Streit Group makes a wide variety of armoured personnel carriers, mine-resistant ambush protected (MRAPS), bespoke luxury, and security vehicles.

The UAE-headquartered company, which has 12 state-of-the-art production facilities and 25 offices worldwide, is, along with IDEX, celebrating its 30th anniversary.

Streit Group deputy chairman, Ahmed Raza, said: "Our diamond partnership with ADNEC Group is something of which we are very proud.

"The 2023 IDEX and NAVDEX will be outstanding on all levels and will commemorate Streit Group's and IDEX's 30th anniversary. Over the past three decades, both have advanced enormously.

"Participating in this event aligns with our

strategy and reinforces our commitment as a local manufacturer to the UAE. It marks a significant milestone as a key technology and production enabler, as well as in our role of strengthening the defence capabilities of the countries we supply and, more importantly, continuing to save lives."

Saeed Al Mansoori, CEO of Capital Events, a subsidiary of ADNEC Group said: "We are delighted to add Streit Group to our portfolio of partners, which consists of leading global entities in the defence sector.

"By exchanging knowledge and experience, we ensure that we host an outstanding edition of IDEX and NAVDEX.

"The events provide a unique platform for companies to establish their position in the global defence and security industry, network with major players, and have access to the most recent technologies that are set to shape the future of the industry."

Syntacs enhances coastal protection capability

Anschütz is showing the latest developments in its Syntacssystem, which enhance its capability and allows it to evolve into an effective system of systems for critical infrastructure and coastal protection. Syntacs is sensor-agnostic and features advanced tactical target management that analyses and correlates data from multiple on-board systems. It compiles an operational picture from this data and presents the operator with a dashboard for tactical navigation, mission planning and execution, and basic combat capability.

Unlike conventional systems, which often include navigation systems, combat systems, sensors and actuators from different manufacturers, Syntacs provides all these capabilities in a single integrated package. Capabilities include: Solid-state radar for surveillance and navigation; defined alarm and guard zones with integrated intercept capability; integrated electro-optical system for identification and monitoring; integration and engagement of self-contained weapon systems; data links to share tracks, targets and a common operational picture; and modules for mission management, mission data recording, or search-and-rescue.

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RAFAEL

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Air-launch 'first' claimed for Turkish UCAV

Baykar is showcasing its Bayraktar Akıncı twin-engined, high-altitude long-endurance (HALE) uncrewed combat aerial vehicle (UCAV) at IDEX in the outdoor static display.

The 5.5 tonne Akıncı is comprehensively equipped, with an advanced synthetic aperture radar, collision avoidance radar, air-to-air radar, electronic support and countermeasure systems, and dual satellite communication systems.

It carries a payload of more than 1,350kg (400kg internal and 950kg external).

The Akıncı is said to be the first UAV capable of firing an air-launched cruise missile, and the example here at IDEX is being displayed with a Roketsan SOM cruise missile, a 600kg weapon with a 250km stand-off range.

Preliminary design of the Akıncı was completed in June 2019, and engine ground runs began in August 2019, initially using

the Ukrainian 450hp Ivchenko-Progress AI-450C turboprop engine. The type is now available with a 750hp engine.

The aircraft was unveiled to the public the following month, during the Teknofest Aviation, Space and Technology Festival. The prototype made its maiden flight on December 6 2019 from the Turkish Army's Çorlu Airfield Command.

The Bayraktar Akıncı UCAV began initial missile firing tests on April 22 2021, using three different variants of the indigenously developed MAM-series of missiles, the MAM-L, MAM-C and MAM-T.

The first three aircraft entered service with the Turkish Air Force on August 29 2021.

Since then, the Akıncı has been used operationally against PKK positions in Northern Iraq.

It is estimated that about eight are now operational with the



Turkish Land Forces, with six more with the Turkish Air Force and one with the MIT Presidency of about 24 built.

The aircraft has been ordered by the Azerbaijan Air Force, the Pakistan Air Force and the Kyrgyz Air Force.

▲
The 5.5 tonne Akıncı carries a payload of more than 1,350kg

Saildrone follows the dragon to arrive at IDEX

US company, Saildrone, comes to IDEX/NAVDEX on the heels of its participation in Exercise Scarlet Dragon off the coast of North Carolina.

Two of the company's Voyager uncrewed surface vessels (USVs)

took part to provide maritime domain awareness (MDA) in the exercise.

Scarlet Dragon makes use of mission-ready technology to achieve decision advantage through data-centric methods, to

find and identify targets across the sea, air, and land domains.

Scarlet Dragon uses existing platforms and networks, like Saildrone Voyager, to harness intelligence, surveillance, and reconnaissance (ISR) data so that commanders can use it to identify targets among an array of options.

Saildrone used its new 33ft Voyager USV, which enabled the US military to trial ocean-based asset integration with artificial intelligence (AI) enabled mission command, centralised data sets, predictive analysis, and accelerated decision making.

AI-augmented decision-making "significantly increases the scale, speed and accuracy of our targeting process", said General Erik Kurilla, head of US Central Command (CENTCOM).

As part of CENTCOM, Task Force 59, launched in September 2021, has been testing Saildrone's

Explorer and Voyager vehicles in the Arabian Gulf and the Red Sea.

Saildrone says that Voyager is ideally suited for MDA missions and exercises such as Scarlet Dragon. Its larger size, compared to the Explorer platform, allows for a more persistent datalink, increased power available for ISR payloads, versatile payload integration options, and an electric propulsion alternative.

The ISR sensor suite, which is primarily powered by solar, includes an AIS transceiver, a smart camera array, digital radar, and sub-surface passive acoustics.

"With our Voyager platform, Saildrone helps to eliminate maritime gaps above and below the ocean surface," said Richard Jenkins, the company's founder and CEO. "We want to be a force-multiplier for our partners and allies when it comes to ISR capabilities."



▲
A Voyager USV takes part in Exercise Scarlet Dragon, off the US eastern seaboard



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NAVDEX doubles in size as ships cruise in

One of the major attractions of NAVDEX is the number of naval vessels in attendance at the Abu Dhabi National Exhibition Centre Waterfront (ADNEC Marina).

Ships started to arrive at the end of last week, with seven in the first batch.

The vessels were officially welcomed as they entered the Mussafah Water Canal, all the way to ADNEC Marina, which is located opposite the Abu Dhabi National Exhibition Centre.

Zayed Port also received a number of naval vessels that will be participating in NAVDEX 2023.

Among the first to arrive were the UK Royal Navy's minehunter, Bangor, and the UAE Coastguard vessel, Mudhafar.

A close examination of the aft of the British vessel reveals the presence of several miniguns,

designed as a close-range defence against small hostile craft.

Commodore Rashid Al-Muhaisni, chairman of the organising committee for NAVDEX 2023, said: "The current edition of the NAVDEX exhibition is expected to see a significant growth in the number of exhibiting companies, and a wide display of the latest innovative technologies in the maritime defence industry."

"The current edition of NAVDEX will witness the participation of naval vessels from eight countries, which include Pakistan, Bahrain, the United Kingdom, Italy, China, India, and the UAE."

Saeed Al Mansoori, CEO of Capital Events, a subsidiary of ADNEC Group, said: "For the first time, NAVDEX is being held in the new ADNEC Marina Hall, which covers an area of



10,000sqm, making it the largest of its kind in the Middle East.

"This contributed to attracting new companies to take part, recording a 206% increase in the number of exhibitors compared to the previous edition."

▲ The current edition of NAVDEX will witness the participation of naval vessels from eight countries

China shows off new Nanning destroyer



Among the first batch of vessels to arrive for NAVDEX was one of the most modern ships in the China's People Liberation Army Navy (PLAN), the Type 052DL destroyer, Nanning.

The ship, which was only commissioned in 2021, is a 161 metre, 7,500 ton multirole destroyer.

The South China Morning Post said last week that China is now prepared to export the Type 052, which makes Nanning's appearance at NAVDEX particularly timely.

The Type 052s are the first Chinese navy ships to use canister-based universal vertical

launch systems for their missiles.

The Type 052DL has 64 launch cells, in two 'farms' fore and aft. These can launch a mix of HHQ-9 anti-air, YJ-18 anti-ship and CY-5 anti-submarine missiles.

The vessel also has a 24-cell launcher for HQ-19 short-range anti-air missiles. The weapons fit is rounded out with a single 130mm gun on the foredeck and a Type 1130 close-in weapon system (CIWS).

Known informally as the 'Chinese Aegis', the ships mount active electronically scanned array radars, which can be seen as large flat panels below the bridge.

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Jon Lake reports

Although IDEX is not an air show, the daily flypast by UAE forces is always a highlight of the event, and can sometimes spring a surprise or two

The 'Eye' in the sky at IDEX

The UAE's secretive Saab 340 Erieye airborne early warning (AEW) aircraft made its public debut at IDEX, and many will be hoping that its successor, the Saab GlobalEye (or swing-role surveillance system) will also make an appearance. Some industry-watchers were also expecting the UAE's fourth GlobalEye to make its first post-conversion flight in the run-up to the show.

The GlobalEye is a conversion of the Bombardier Global 6000 long-range business jet designed for the multi-domain surveillance role and optimised, as what Saab has called, "the most advanced airborne surveillance solution in the world".

Saab produced the GlobalEye by combining the latest iteration of the company's proven Erieye radar with the Global 6000 airframe – already the go-to special missions platform, providing high-altitude, long-endurance and significant payload capability. As a result, the GlobalEye offers an endurance of more than 11 hours with the ability to operate from 6,500ft runways.

GlobalEye aircraft are delivered as 'green' airframes from Bombardier, undergoing interior completions work by Flying Colours in Peterborough, Ontario, before being delivered to Saab's

factory at Linköping, Sweden, for special mission conversion.

GlobalEye carries a Saab Erieye ER (extended range) S-band (2-4 GHz) AEW radar in a one-tonne 'ski-box' fairing above the aircraft's fuselage.

Using gallium nitride (GaN) technology, the Erieye ER is an active electronically scanned-array (AESA) system that offers double the power efficiency compared to previous Erieye versions, allowing it to detect smaller and faster targets, and giving about 70% greater range, thereby offering earlier detection and identification of threats.

This gives crucial extra time for decision-making and offers a greater likelihood of maintaining

air supremacy in a complex and contested battlespace.

But GlobalEye is more than just an AEW platform. It is also a powerful and versatile multi-domain surveillance system with the ability to seamlessly switch between air, sea or land surveillance in an instant.

Three configurations

It is offered in three distinct configurations. The baseline AEW&C uses the Erieye ER radar for air, maritime and ground surveillance, and has five operator work stations.

Another configuration adds the Leonardo Seaspray 7500E X-band AESA maritime search radar and an under-nose FLIR Systems Star Safire 380HD electro-optical sensor turret for enhanced maritime and ground surveillance capabilities.

Although all GlobalEye configurations include some electronic intelligence/ electronic surveillance measure (ELINT/ ESM) capabilities, the top-of-the-range variant has enhanced ELINT/ESM, including an option for a communications intelligence (COMINT) solution. Up to seven operator stations can be fitted.

The Emirati GlobalEye is understood to incorporate the full suite of sensors, including

Erieye ER and Seaspray 7500E radar, the Star SAFIRE electro-optical sensor, as well as automatic identification system (AIS), and identification friend or foe/ automatic dependent surveillance – broadcast (IFF/ADS-B) systems.

Data from all on-board sensors (and from off-board sources) are fused in the central human-centric C4I command-and-control system.

Other AEW&C aircraft are primarily focused on the detection and tracking of airborne targets, and have only a secondary surface surveillance capability, whereas GlobalEye has more expansive swing-role capabilities, allowing it to detect low-observable air, sea and ground objects, even in heavy clutter and jamming conditions.

The UAE selected the GlobalEye, becoming the type's launch customer, after also evaluating the Boeing 737AEW&C and the Northrop Grumman E-2D Advanced Hawkeye.

Superior capability

The UAE first placed an order for two ex-Swedish Air Force Saab 340-based airborne early warning (AEW) aircraft, carrying the legacy Erieye system, in November 2009 to provide an interim and training capability.

Emirati sources suggested that the GlobalEye was selected because it offered superior capability, while other sources implied that the choice had been heavily influenced by concerns over technology transfer and mission data, which eventually defeated the US offerings.

The UAE's first three aircraft were delivered between April 2020 and February 2021, following an initial order for two aircraft placed in 2015, with a third option exercised in 2017.

Saab announced a \$1.018 billion follow-on contract for two further GlobalEye systems for the UAE in 2021. All five are due to be in service by the end of 2025. ▲



SR5 MULTIPLE LAUNCH ROCKET SYSTEM

SR5 Multiple Launch Rocket System (MLRS) is a medium size high mobility firepower striking weapon system, which is mainly used to conduct fire suppression on clustered targets and precision strikes on high-value targets. The launcher adopts the integrated fire control technology with the capability of firing a variety of ammunition such as 122mm short-range unguided/guided rockets, 220mm medium-range guided/terminal-guided rockets, 300mm/610mm long-range guided rockets, and loitering munition swarm.



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▲ The fifth and final Global 6000 destined for conversion to GlobalEye SRSS configuration for the UAE arriving at Linköping

Bombardier



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Two years ago, at IDEX 2021, the debutant Edge Group was a remarkable show-stunner. Alan Peaford talks to Hamad Al Marar, president of the group's missiles and weapons cluster, about how it has grown

Animations are gone as Edge enjoys a reality check

It was only just over three years ago that the Edge Group was established, bringing in 25 separate companies from Abu Dhabi's leading defence specialists – Emirates Defence Industries Company (EDIC), Emirates Advanced Investments Group (EAIG), Tawazun Holding, and other independent organisations.

The fledgling conglomerate had a clear mandate to disrupt an antiquated military industry generally stifled by red tape, and, according to CEO and managing director Faisal Al Bannai at the launch, bring products to market faster and at more cost-effective price points.

At the February 2021 IDEX, an extensive pavilion showed the depth of the new venture's ambition, with equipment and animation demonstrating an amazing array of products and services.

At this year's show the animations will have gone. "We have so much more to show people on where we are in the programmes," said Hamad Al Marar, president of Edge Group's missiles & weapon cluster. "For example, we are very transparent. If you take our SkyKnight C-RAM (counter-rocket, artillery, and mortar) missile, previously you would have seen animation, but this year we will be showing real footage. This is the kind of progression we're trying to show.

Real engagement."

Edge has four core clusters: platforms & systems, weapons & missiles, electronic warfare & cyber technologies, and trading & mission support. It has been growing, despite the impact of the Covid-19 pandemic and limited opportunity for international travel.

"Having a large group of this size means a growing number of people. Covid makes you rethink on what is important, and that's people," Al Marar said. "We wanted to sustain talent; we wanted to make people feel secure and, gladly, I don't think we let go of any staff to be honest.

"It was a costly endeavour but we never took a materialistic view because we wanted to maintain our talented workforce, and we wanted to also be a reflection of what we are and how strong we are. Of course, since Covid, things have opened up and we see huge interest from people to join the group."

Al Marar also saw the Covid hiatus as giving Edge the opportunity to review its progress so far. "We took the opportunity to refocus on our efforts, either to work on new projects, or to enhance existing ones. We came out of the pandemic with new contracts, new products, new offerings, new ways of doing things. This was important, especially as we are a new nation and you need an ecosystem that

supports everything. From a business reorganisation point of view we had to move a bit slower.

"I believe, in any industry like this, the moment you start focusing on the human element is when you start to strike new heights. You know that a very talented group of people will bring their ideas with them. And this community is very small. So we took this to heart, we maintained our workforce and it also gave us some strategic time alone to reschedule an attempt to re-plan everything. I think of

it as positive."

Al Marar sees it as a clear advantage for Edge to be bringing in talent to work with the growing numbers of home-grown engineers, especially compared to other countries.

"We have not focused on the UAE nationals. There is no shortcut to growing talent," he said. "We know it might take about three to four generations to actually be heavily indigenised, or at least at a high percentage. But this means that we have to look at

● CONTINUED ON P22



Hamad Al Marar: UAE's neutrality and investment in people is helping Edge toward global growth

Edge Group

"Having a large group of this size means a growing number of people. Covid makes you rethink on what is important, and that's people. We wanted to sustain talent; we wanted to make people feel secure"

● CONTINUED FROM P21

well-positioned talent from all over the world that is willing to be part of this journey.

“We need to be accommodating on every level, whether it is religious beliefs, cultural languages, or other differences.

“Other mainstream industry players’ production is dominated by indigenous populations. You might have one of two nations that are operating together on a programme, yet independent. Here in the UAE, just as in the way the UAE nation was established, our industry is built on finding the best talent, welcoming people from different nationalities, and welcoming the cultural differences.”

Many countries fear abuse of their intellectual property (IP) as they develop technologies. As Edge Group exports more of its products and works in closer collaboration with other nations and programmes, it is high on

the agenda. Al Marar believes the UAE’s neutrality is an advantage. “If you look at our political positioning in the UAE, you will see it is mainly neutral. That’s because we’ve always maintained a balanced approach and we respect people’s intellectual property and the protection that they deserve.

“So, one of the main elements that we currently are busy with is to strengthen our intellectual property protection.

“We have a ton of different minds from around the world; we have IP on different programmes; we’re cooperating; we’re selling where the country permits us; and we need to protect technical specifications.”

Al Marar said that Edge Group is agile and repackaging proven technologies to meet new demands. “People sometimes misunderstand me when I say I don’t do R&D; I do engineering,” he said. “From an engineering perspective, I would spend my



Edge Group

▲ Stealing the show: Edge Group dominated the IDEX 2021 show floor – and the news agenda – with its extensive product line-up

time, first of all, researching new threats, and I would engineer my solutions towards that. If I want to engage on water, with whatever threat that may come with, I need to make sure I have the right payload, I need to engage in the

right manner, I need to have the right configuration to engage and be successful. I’m actually packaging what I have.”

Al Marar is confident IDEX will offer an excellent showcase to the UAE’s defence business.

“At every show you will have a new theme. I think this year’s theme is going to be a mega surprise for everyone,” he concluded. ▲

Saab’s self-protection offering enhances crew and platform survivability, writes Alan Warnes

When protection’s the name of the game

Saab is exhibiting its fully integrated defence aids suite (IDAS) at IDEX. As the Ukraine War is showing, operating against the likes of man portable air defence systems (MANPADS) is fraught with danger, leading to the loss the many helicopters through shoot-downs.

Gavin Copeland, Saab business development executive, said: “Equipping aircraft and vehicles with a self-protection capability against hostile fire is vital to ensuring mission success, and enhancing crew and platform survivability.

“As a pioneer in electronic warfare, Saab invests in innovative technologies to help our customers to detect, deceive, and counter threats in the smartest possible ways. These systems are in use globally and we work to constantly evolve the capability to stay ahead of the threats. Important in the self-

protection domain is immediate and automatic countermeasures dispensing, as well as providing a warning and situational awareness to the crew.

“The high degree of automation and speed of response of our systems supports the crew in applying their tactical training and concept of operations (con-ops) to the best effect for achieving the mission and returning.”

Mikael Corp, sales director, electronic warfare at Saab said IDAS “caters for the smaller platforms, especially helicopters, that are constrained by size, weight and power as to what can be fitted”.

IDAS includes a radar warning receiver that can be integrated into missile and laser warning systems and provide both a live-fire indicator and a dispenser of countermeasures.

The system has been integrated on more than 30 platforms, so is

widely operated on such types as Oryx, Rooivalk (popular in South Africa, which has a long tradition of using electronic warfare systems during the Angolan bush war), HAL Dhruv helicopter, Embraer 120, C-130 Hercules, Su-30, Hawk, Mi-17, Saab 2000 Erieye, Dash-8, Tornado and even a DGI Phantom uncrewed air vehicle (UAV).

The IDAS is modular and doesn’t have to be the full system fully integrated with countermeasures, so it can be fitted to UAVs too.

UAVs are growing in importance in military operations, as noted in Ukraine. Protecting them during missions will soon become a necessity and Saab believes it has one solution. ▲



▼ A C-130 spits out flares through its IDAS system

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Development

CAE has designs on naval training... and so much more

Training and simulation specialist, CAE, is continuing to strengthen its presence in the Middle East defence and security sector with several significant programmes, including the creation of a Naval Doctrine and Combat Training Centre (NDCTC) that will be owned and operated by the United Arab Emirates Navy

PAUL DERBY REPORTS

CAE is leading design and development of the new facility, located at Taweelah in Abu Dhabi.

It features a range of integrated ship simulation-based training suites and maritime aircraft sensor stations, enabling individual training as well as 'whole ship collaboration' and joint mission training.

In future, the facility could form part of a wider distributed network of sites in the UAE.

Nabil Azar, CAE's regional director for strategy and business development in the Middle East, says that the NDCTC is an example of how CAE is applying its expertise in digitally immersive training and operational support solutions in the maritime domain.

He also believes it is a concept that could be replicated elsewhere: "As nations seek to expand their maritime capability, we are seeing interest both from the Middle East and more widely in these types of capabilities."

In 2015, CAE established a footprint in the region's defence market with the creation of a UAE-based joint venture called CAE Maritime Middle East. Since then, the company has broadened its presence to include operations in Qatar and Saudi Arabia.

Azar says that the UAE acts as the hub for the rest of the Middle East and that the businesses work collectively to support customers in the region across all domains.

The company has several significant contracts with military and government customers in the region. For example, CAE is prime contractor responsible for delivering remotely piloted aircraft (RPA) type conversion and mission training for the UAE Air Force.

The contract is focused on the



CAE has been selected by BAE Systems to provide its Medallion MR e-Series visual system for Eurofighter Typhoon full-mission simulators destined for the Qatar Emiri Air Force

RQ-1E Predator medium altitude long endurance (MALE) RPA. This includes developing courseware, desktop trainers, and high fidelity RQ-1E mission trainers. CAE instructors are also leading classroom, simulator and live-flying training.

Elsewhere in the region, CAE was selected by BAE Systems to provide its Medallion MR e-Series visual system for Eurofighter Typhoon full-mission simulators destined for the Qatar Emiri Air Force (QEAF).

CAE is contracted to deliver four



"As nations seek to expand their maritime capability, we are seeing interest both from the Middle East and more widely"

NABIL AZAR CAE

Medallion MR e-Series, which, it says, offer exceptional realism and immersion, enabling challenging fighter aircraft missions to be rehearsed in a safe virtual environment.

Also in Qatar, CAE was selected by the QEAF to develop a comprehensive training solution for the NH90 military helicopter under a subcontract from Leonardo Helicopters valued at more than \$111 million. The agreement includes the provision of a new training facility, full mission simulators for both the TTH and NFH variants of the helicopter, as well as a rear-crew trainer and virtual maintenance training system.

In Saudi Arabia, CAE is engaged in follow-on work through BAE Systems to support the Royal Saudi Air Force Hawk Mk 165 Advanced Jet Trainer programme. CAE is now working on the rear crew training component, including a software solution for the T-165 full mission simulators and an augmented reality solution for the procedural trainers.

CAE's growth in the defence and security sector has been further boosted by its acquisition, in 2021, of L3 Harris Technologies' military training business, giving the company a leading role in pilot and maintenance training for the Lockheed Martin F-16.

In Bahrain, the company will apply its training and simulation capability in support of the country's plans to upgrade its F-16 Block 40 fleet. Azar says that increased demand for integrated training that connects air, land and maritime forces will be the key to CAE's growth in the Middle East.

"Armed forces are increasingly planning in a more connected way and we are able to offer them an exceptionally realistic single synthetic environment that links together all their assets to give a common operating picture."

He also emphasises the importance of CAE being platform agnostic: "It means we are able to support all OEMs to create the right solution that works for them," he concluded. ▲

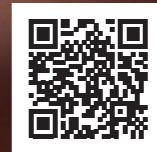
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GCS to launch detection game changer

Global Clearance Solutions (GCS) is the leading solution provider for explosive threat mitigation, enabled through technological and operational excellence. Our equipment is reliable and durable and has proven itself in the Sahara Desert as well as in the harsh Ukrainian winter.

This year, we are excited to offer IDEX visitors an exclusive chance to witness the launch of our new Multi-sensor Detection System (MDS). The pioneering solution is capable of significantly increasing the find rate of explosive threats and can be adapted to any host vehicle and specific client needs.

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30th anniversary

Why IDEX and NAVDEX are drawing in the crowds

It's back after two years! This is the 16th edition of the International Defence Exhibition and Conference (IDEX 2023) and the seventh edition of the Naval Defence Exhibition and Conference (NAVDEX 2023).

Organiser ADNEC Group has said visitors can look forward to "exciting new additions to this year's events".

Saeed Al Mansoori, CEO of Capital Events, a subsidiary of the ADNEC Group, said: "Both events will be showcasing a wide range of new features, including insightful panel presentations and interviews from industry leaders about the role of advanced technology."

Five sessions will cover topics related to artificial intelligence (AI) and autonomous systems, five others will cover diversity and inclusiveness in the defence sector, while the remaining sessions will shed light on emerging technologies and their impact on the sector.

Delegates can hear from defence experts including Dr Mohamed Al Kuwaiti, the UAE Government's head of cybersecurity, Dr Farida Al Hosani, executive director of infectious diseases and official spokesperson for the UAE health sector, Ernesto Damiani, senior director, robotics and intelligent systems institute at Khalifa University, and Martin Spraggon Hernandez, associate professor at the American University of

Ella Nethersole looks at main attractions for this year's big co-located event

Sharjah.

Also new is IDEX NextGen, a space dedicated for start-ups, which will enable entrepreneurs to demonstrate their solutions and technologies in the defence and naval sector.

At NAVDEX, a prime on-water exhibit space will enable exhibitors to berth their vessels on the temporary marina pontoons and participate in daily live on-water demonstrations.

International warships will also moor alongside the dock edge for the duration of the event. NAVDEX exhibitors can invite guests aboard these visiting naval vessels

and present company equipment and technology, which is operational on-board.

The events will also introduce the innovation trail, a focused journey through the exhibition, highlighting the latest products and innovations for the defence and naval community.

NAVDEX talks, located in the new marina hall, will focus on the naval defence industry, whereas IDEX talks will include sessions covering a variety of topics related to the global defence sector. These include: women and youth in defence, defence heroes and motivational masterclasses.

This year's edition of IDEX also marks the 30th anniversary of its launch, and fans of defence history will be treated to a dedicated area called 'defence through the decades' that showcases an interactive gallery, highlighting industry prod-

ucts and technology from throughout the past 30 years.

The last edition of IDEX/NAVDEX was in 2021, and it received more than 62,000 visitors with in excess of 900 local, regional, and international companies from 59 countries exhibiting. There were also 35 national pavilions.

Staff Major General Pilot Faris Khalaf Al Mazrouei, chairman of the higher organising committee, said: "The 2023 edition will witness record participation from pioneering international organisations. This affirms our commitment to enhancing partnerships and cooperation with all stakeholders and employing all resources to organise an exceptional edition that will be the biggest in history and fit for the reputation and standing of the UAE on regional and international levels."

Edge Group has been named as the strategic partner with Mansour Al Mulla, managing director and CEO, saying the company will be showcasing cutting-edge products.

"With huge global participation, the event provides a special opportunity for Edge, one of the world's most advanced technology and defence groups, to highlight the huge leaps that we have made in expanding our global footprint, strengthening the UAE's sovereign air, land, and maritime defence capabilities, and adopting 4IR technologies across all areas of our operations and manufacturing," he concluded. ▲



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Saudi Arabia

Charged with becoming the nation’s defence champion – with the added challenge of doing so in a fraction of the time taken by most established international companies – Saudi Arabia Military Industries (SAMI) is rising to the occasion. Alan Dron reports

Charting the rise and rise of SAMI

Launched in May 2017, SAMI has been given the task of developing cutting-edge technologies, manufacturing world-class products and providing high-quality services to scale up Saudi Arabia’s defence industries sector. “I would say I would be fully pleased when we achieve our ultimate objective and become one of the top 25 defence companies in the world, and localise 50% of our defence spend in the kingdom,” said CEO Walid Abukhaled.

“Having said that, I’m extremely proud of our achievements in such a short time. I started with SAMI in September 2019 and was employee number 120. Now, we’re close to 3,800 and we will be taking on an additional 1,500 people in the next quarter. So that shows the pace of growth.”

That leap in numbers in the coming months is caused not only by new opportunities, but also by taking on assets that are being transferred from other Saudi Government entities.

“From a revenue perspective, our operation started in January 2018. During 2022 we announced we had a backlog of SR10 billion (\$2.66 billion). We were rated number 98 in the world’s top 100 defence companies by *Defense News*,” said the CEO.

Localisation goal

“When the Crown Prince, Mohamed bin Sulman, announced ‘vision 2030’ in 2016, Saud Arabia had the third-largest defence budget in the world, but only 2%-3% of that was localised. For us in SAMI, by the end of 2022, around 10% of the contracts are in Saudi. All our contracts now have a goal of 50% localisation.”

SAMI may be building up its contracts quickly, but will it be able to find enough qualified staff to handle the work, given the shortages of trained people that affects western nations and the difficulty of persuading enough school and college students to take science, technology, engineering and maths (STEM) subjects?

“The biggest advantage Saudi Arabia has is youth,” said Abukhaled. “The biggest percentage of our population is very young.”

Graduates not a problem

Many have been sent on courses in some of the world’s best universities, so finding enough graduates to staff SAMI’s projects is not considered a problem.

“I think the challenge is more with technicians rather than graduates. The General Authority for Military Industries (GAMI) has established a National Academy of Military Industries, of which I’m the chairman.

“The ultimate goal is to graduate Saudi technicians with the best curriculum in the world. We’re working with leading defence companies to help us set that up.”

SAMI has become a national defence champion for Saudi Arabia. With this in mind, the company has set up 12 joint ventures with some of the world’s biggest aerospace companies, such as Boeing, Thales and L3Harris. “I have no doubt that, although it’s a very ambitious goal, we’re on track,” said Abukhaled.

“Some are going extremely well, some we are operationalising as we speak. Our relationship with original equipment manufacturers (OEMs) is excellent and going in the right direction.”



“I’m extremely proud of our achievements in such a short time”

WALID ABUKHALED
SAMI CEO

“I’ve been in this market for 30 years and this was one of the best shows I’ve seen in my life,” said Abukhaled.

Another attraction of IDEX is its cross-domain nature, covering everything except aerospace, which is handled by the Paris and Dubai air shows.

SAMI has been at IDEX since it started and will be attending again this year with a clutch of recent contracts under its belt: “Some are development projects, some are where we’re delivering products to our customer. We can’t talk about programmes, but I can tell you that some are major upgrade projects, some are MRO, and some are platform-related,” concluded Abukhaled. ▲

The CEO rates shows such as IDEX highly: “Defence shows and air shows are extremely important, for a couple of reasons. One, you can showcase your products and programmes but, more important, is networking, where you meet all the key shareholders under one roof.”

Partly for that reason, SAMI was a strategic sponsor of the first World Defense Show, which took place in Riyadh in March 2022:



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BUILDING A FUTURE WE CAN ALL TRUST

The right mix of industrialisation, localisation and education

Some of the most significant challenges brought about by the last few years, are the strained supply chain and the impact of digitalisation across various industries. These challenges have had a direct influence on national sovereignty.

The leadership in the UAE has been ahead of the curve, and with the aim to enhance the position of the country as a global partner and an influential economic hub, the country most recently launched the national vision, 'We the UAE 2031'. The plan is to strengthen socio-economic growth in the country by nurturing in industrialisation, innovation and education independently and through strategic partnerships.

Being longstanding partners, with nearly 50 years of cooperation of the country, building a future that we can all trust has been a strategic imperative for us at Thales. Thales Emarat Technologies (TET) was created in 2019 as part of the Tawazun Economic Program to build these strategic strengths. A 100% local entity, it is the vector of Thales' strategy in the UAE and is integrated in the local Emirati industrial ecosystem to create value and economic impact by providing for the country and beyond.

The local company leverages Thales's unparalleled technological portfolio to serve the country and promote the diversification of the economy. Since its inception, TET has launched the Radar Center of Excellence, the Defence Service Center of Excellence, and the Digital Center of Excellence, all of which aim to promote sustainable technology transfer and support the creation of local jobs and careers.

The entity plays a vital role in providing the country unique and sovereign technology capabilities in line with the national strategy and the vision of its leadership to develop a nation that is at the forefront of innovation, has strong human capital and is self-reliant.

DEVELOPING PRACTICAL ABILITIES IS FUNDAMENTAL

It is essential to provide opportunities for employees to take part in projects with a high level of scientific and technical complexity, and consistently challenge them.

This provides job satisfaction and builds meaningful career paths, supporting talent retention in the long term. It's up to us as industry experts to instill a sense of passion in tomorrow's generation. Having gone from 0 to 160 employees in only four years despite the pandemic and slow down, TET offers career choices that enhances the capabilities of citizens and maximises their contribution in the wider economy.

To attract and retain young national talent, we work closely with educational bodies, colleges and universities. Our partnership with the UAE Tawazun Economic Council's SEEDs programme (Sustain and Enhance Emiratisation in Defence and Security) places home-grown talent in the middle of a bustling environment where they can get a feel of what it means to be part of an international defence and security companies operating in the UAE.

Doing so not only supports the country's wider local skill development goals, but also contributes to economic progress and helps truly build a future we can all trust. TET has a plan to double the workforce by 2025, and to boost local capabilities, 30% of recruitments in 2023 will be UAE Nationals.

Simply put, at the heart of a nation's sustainable growth strategy and the key to a truly sovereign nation is the three-pronged focus on industry, innovation and education.

We at Thales understand that as a dedicated systems integrator, specialising in bringing together the right elements so they work together seamlessly – no matter how complex – is critical. ●



TET has a plan to double the workforce by 2025, and to boost local capabilities, 30% of recruitments in 2023 will be UAE Nationals

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SCD prepares to ramp up capacity to meet increased demand

Worldwide following for SCD's infrared detectors

SCD is a leading supplier of infrared detectors, backed by more than 40 years of experience in the development and manufacturing of field-proven IR sensors for a wide range of applications.

The multi-domain battlespace requires infrared (IR) sensors to be integrated in a wide range of applications such as hand-held imagers, weapons sights, missile warning systems (MWS), infrared search-and-track (IRST), missile seekers and 24/7 surveillance.

The SCD Group, which is owned jointly by Rafael and Elbit, specialises in small size, weight, power and cost (SWaP-C) detectors across the IR spectrum that are especially suitable for the increasing demand, such as in small UAVs or drones, hand-held thermal imagers, situational awareness on any platform and remote weapon stations.

"We are at IDEX as part of our global presence strategy and the UAE is an important part of it," said Kobi Zaushnizer, SCD's VP business development and marketing.

"SCD, as a world leader in the IR domain, has exhibited significant growth over the past years and the future outlook looks very strong."

SCD offers sensor systems for visible/short wave-infrared (VIS-SWIR), medium-wave infrared (MWIR) and long-wave infrared (LWIR). "We have seen significant growth in the microbolometer uncooled detector in the last four years. SCD has more than doubled its production and deliveries of uncooled detectors to the most demanding defence applications, such as missile seekers, armoured fighting vehicle (AFV) situational awareness, APS, driver vision enmeshment and more.

"Our high-sensitivity VOx technology enables significant

advantages to the platform and to the overall system performance.

"We have also seen particular interest in our low SWaP-C MWIR and SWIR detectors for airborne payloads and increased demand for high-definition (HD) sensors across the IR spectrum," Zaushnizer said.

SCD has invested significantly in shortwave infrared (SWIR) sensor technology – a subset of the infrared band in the electromagnetic spectrum, covering wavelengths ranging from 1,000nm to 2,400nm.

"These types of sensors are especially suited to seeing through haze and adverse atmospheric conditions," said Zaushnizer. "SWIR detectors are also useful during what we refer to as the 'twilight zone'. That is, the transition from day to night and night to day.

"When SWIR sensors were first introduced they were deemed expensive and many potential applications/users couldn't afford them. But innovative technology developed at SCD has resulted in both reduced

cost, while maintaining high sensitivity performance as well as adding special functionality and capabilities."

Another example of SCD innovation and technology leadership is the MWIR detectors. Traditionally, MWIR sensors have to be cooled to a very low-temperature environment for maximum performance.

"SCD pioneered the development of its high-operating-temperature or 'HOT' range of MWIR sensors, which enables a very high focal plane array operating temperature of 150 Kelvin (-123 degrees Celsius). These products were developed in response to the market demand for reduced size, weight and power (SWaP) and reduced cost for MWIR detectors," explained Zaushnizer.

This technology also enables the detector to reach a high mean time between failures (MTBF) of more than 20,000hrs, reducing the total system cost of ownership.

"We have also seen significant growth in mid-wave infrared (MWIR) detectors. These are

useful for extended stand-off applications," he added. "After all, it is much safer to operate at a range of 4-5km from the target than just below 1km."

SCD introduced its first cooled two-dimensional (2D) MWIR detector more than 24 years ago and has since reduced the pixel size dramatically. By decreasing the pixel pitch, it is possible to increase their overall number in a given die size, leading to a higher resolution and opening the way for new applications, such as persistent surveillance.

"Cooled thermal IR cameras are extremely sensitive to minute temperature differences, hence enabling detection and tracking of a target with minimal temperature difference from its background," said Zaushnizer.

"SCD's products are selected worldwide to become the core of our customers' electro-optical systems. We deliver tens of thousands of detectors per year and are well prepared to further ramp-up capacity to meet all of the worldwide demand," he concluded. ▲



The i-X factor

Potent interceptor makes IDEX debut

A first-time exhibitor at IDEX is the futuristic Cockerill i-X ground interceptor from Belgian-based Cockerill Defense that made its debut in Riyadh last year.

Whereas light combat vehicles are often open-cab types traditionally transporting personnel for dismounted tasks, the Cockerill i-X is designed to engage incoming threats on the ground – akin to an interceptor aircraft. As such, it is stealthy and fast on- and off-road, while boasting powerful armament to defeat threats from the safety of the vehicle.

The proof-of-concept Cockerill i-X ('i' for 'interceptor' and 'X' for 'modular-multi-weapons system') can carry an array of weapons, from a 25mm or 30mm automatic cannon, coupled with a 7.62mm co-axial machine gun, to rockets or two-to-four anti-tank missiles and a 12.7mm machine gun.

The latter option is currently under development.

The turret completely retracts into the roof, ensuring the stealthy SUV-sized vehicle remains unobtrusive on the road, while enabling significant mobility. The company says that it was born from "the merger of the technological excellence of weapon systems and the expertise of rally raid performance".

It can reach a highway speed of more than 180km/h and, off-road, 150km/h. In the elevated position, the turret can rotate through 360° and tilt from +60° to -10°.

According to chief marketing officer, Simon Haye, the two-person vehicle will typically operate in a small group in which drones can provide long-distance observation. The company is currently designing a virtual-reality interface based on



The Cockerill i-X ground interceptor ▲

Cockerill Defense

cameras to enable the gunner to have a 360-degree view of the vehicle's external environment. The gunner's helmet will automatically detect and classify threats by means of artificial intelligence (AI).

The lightly armoured Cockerill i-X weighs four tons and is built with composite carbon-fibre material. Its stealth and appearance are managed

with adaptive camouflage and modification of IR and acoustic signature. It is powered by a conventional thermal engine or a 750hp hybrid thermal-electric drivetrain.

Thanks to its compact size and weight, the vehicle is rapidly transportable by sea, land or air in a helicopter or aircraft, even drop-able by parachute. ▲

GM Defence's debut showcase features electric, autonomous and connected solutions

GM POWERS INTO THE FUTURE

From a defence legacy spanning more than a century, US-based GM Defense is exhibiting innovative advanced technologies for the first time at IDEX 2023.

According to Sonia Taylor, GM Defense director of communications, the company is at IDEX to showcase some of its advanced battery electric technology.

"By leveraging the advanced technologies of our parent, General Motors, we're demonstrating a more electric, autonomous and connected future for global defence, security and government customers," she said.

On display are the company's infantry squad vehicle (ISV), a light and expeditionary troop transporter based on the Chevrolet

Colorado ZR2, and a four-passenger next-generation light tactical wheeled concept vehicle based on a modified Chevrolet Silverado chassis.

The company's most advanced battery electric technology is the Ultium platform, also on display, which can be applied to standardise battery

technology across military platforms in the US.

The company last year announced that it was providing its GMC Hummer electric vehicle (EV), fitted with the Ultium platform, for the US Army to analyse as a demonstrator for a light-to-heavy-duty battery electric vehicle in operational environments to support reduced

reliance on fossil fuels.

At the time, Steve duMont, president of GM Defense, said the company was able to provide proven commercial technologies adapted to meet specific defence requirements.

GM Defense retrofitted its traditional nine-passenger ISV with battery technology from its high-volume electrification solutions to deliver an all-electric military concept vehicle. This was done in just three months from concept to execution.

GM Defense has committed \$35 billion in EV and autonomous vehicle (AV) investments through 2025 to help achieve its all-electric vision for the future.

"Some of our electric vehicles here at IDEX are powered by the advanced Ultium platform along with GM's Hydrotec fuel cell technology," Taylor concluded. ▲



Left: GM-Infantry ISVs during operations

Inset: GM Defense's family of ISVs, two of which feature at IDEX

GM Defense



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Embraer puts its faith in the new Millennium

Embraer Defense & Security is promoting its product portfolio for the defence and security markets at IDEX.

Bosco da Costa Junior, president & CEO, Embraer Defense & Security said: "The Middle East is a very important region for us and IDEX is one of the finest events to promote our product portfolio."

"We are glad to have the opportunity to meet with customers, partners and suppliers during the event."

Embraer has high hopes for its new C-390 Millennium multi-mission transport aircraft in the MENA region, as nations recapitalise their transport fleets.

Five KC-390 tanker variants have now accrued more than 7,500 flying hours in Brazilian Air Force service, and have demonstrated a mission completion rate of 99%. The company already has orders

for the C-390 Millennium from Portugal and Hungary, while the Netherlands selected the aircraft in 2022.

Embraer's products also include the rugged and versatile A-29 Super Tucano light attack and training aircraft.

In what is a crowded market the A-29 has been selected by more than 15 air forces across the world, including the US Air Force, but faces competition from Textron's AT-6E Wolverine (selected by Tunisia) and from the UAE's own Calidus B-250 and the larger B-350.

Turboprop-powered light attack aircraft, like the A-29, can perform a wide range of missions, including light attack, surveillance, aerial interception, and counterinsurgency, but are facing increasing competition from variants of jet trainers, attack



helicopters, and a growing number of uncrewed air systems.

Embraer, which is responsible for the implementation of the Brazilian Army's integrated border monitoring system (SISFRON), one of the biggest border surveillance projects in the world, will also promote area radars and terrestrial systems at IDEX.

The company offers systems like the Saber M60, a specific radar for low-altitude surveillance and air defence, and the Saber M200 Vigilante, intended for early warning air surveillance.

▲ NEWS IN BRIEF

Evolving a new brand

Visitors to IDEX 2023, who are familiar with Paramount, will be pleasantly surprised to see an evolution of its brand.

Headquartered in the UAE, Paramount is charting new territory, evolving from a legacy manufacturer to a technology-driven, future-focused original equipment manufacturer (OEM).

"The objective for the next five years is to expand portable production across five or six production facilities around the world," explained Steve Griessel, Group CEO.

"Our brand messaging, as reflected in the Paramount logo, has evolved to position us for the next 30 years."



KEEP IN TOUCH

Twitter @TimesAerospace

Earthquake tragedy puts first Hürjet flight in jeopardy

Until this month, TAI was confidently looking ahead to a double celebration on March 18 this year, with the planned roll-out of the MMU, Turkey's new fifth-generation advanced fighter, and the first flight of the TAI Hürjet advanced jet trainer.

That date marks the 107th anniversary of the battle of Çanakkale (Gallipoli), always a

significant date in the country's calendar – the more so this year as 2023 is also the 100th anniversary of the founding of modern Turkey by Kemal Atatürk.

The first Hürjet prototype was rolled out on January 31 this year, and then completed its first engine run-up test.

Ismail Demir, the president of Türkiye's Defense Industries, tweeted: "Our work continues at full speed in the 100th anniversary of our republic. Hürjet started its engine. Now it's time to fly."

However, thanks to the terrible earthquakes in Türkiye, that first flight date may now be in doubt, and the brightly painted red and white mock-up on show at IDEX may be all we see of the aircraft for some months to come!

There will be two flying prototypes, plus a static test airframe and one fatigue test specimen. Prototype P1 will be in the 'minimum configuration for first flight', with no mission or weapons system, and with Hürkus-B avionics and cockpit. It is the aircraft hoped to make the maiden flight on March 18. Prototype P2 will fly in December 2023 and will have a mission system and weapons system installed.

These first two aircraft will be followed by four Block 0 pre-production aircraft in advanced jet trainer (AJT) configuration. The first of these, TP1, will fly in December 2024, with the remaining three following in 2025. There will then be 12 Block 1 serial production aircraft (again in AJT configuration) flying in 2028-29.



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Photographic record made during the unpaved runway test campaign.



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Chinook celebrates 35 years of air-to-air refuelling

The Chinook was at the vanguard of AAR in the late 1980s, but this air defence veteran has its sights firmly set on the future



The MH-47 Chinook features in-built AAR capability on its latest block II variant

An aircraft with a 35-year heritage will still be drawing attention at IDEX this week, where it will be outlining its pivotal role in an important aspect of air defence.

Air-to-air refuelling (AAR) is a critical capability in the defence industry – and the Chinook has been doing it since 1988.

The process of transferring fuel from one aircraft to another while in flight allows Boeing customers to stay in the air longer and cover an extended distance.

With continuous modernisation efforts, AAR has become a state-of-the-art feature on the Chinook – one that comes directly off the production line.

“The Chinook’s ability to refuel in flight has helped customers accomplish missions that were once thought impossible”

KEN ELAND CHINOOK VP AND PROGRAMME MANAGER

“AAR meets customer needs for a variety of mission sets,” said Ken Eland, Chinook vice president and programme manager.

“The Chinook’s ability to refuel in flight has helped customers accomplish missions that were once thought impossible.”

The first AAR system was

installed on 12 CH-47D model aircraft in 1988. By 1991, 26 MH-47Es, the Chinook variant utilised by the US Army Special Operations Command (USASOC), were equipped with the capability.

Under contract

In the early 2000s, Boeing delivered an additional 61 MH-47G aircraft with AAR, and the USASOC has used the feature extensively, logging thousands of hours of flight time – so much so that, in 2014, they received an additional eight AAR-capable aircraft, bringing their total to 69.

The USASOC continues to modernise its fleet of MH-47G

aircraft to the new and more capable block II variant.

Currently, 36 MH-47G block II aircraft are under contract with the capability. Boeing started deliveries for this contract in 2021 and will continue into the future.

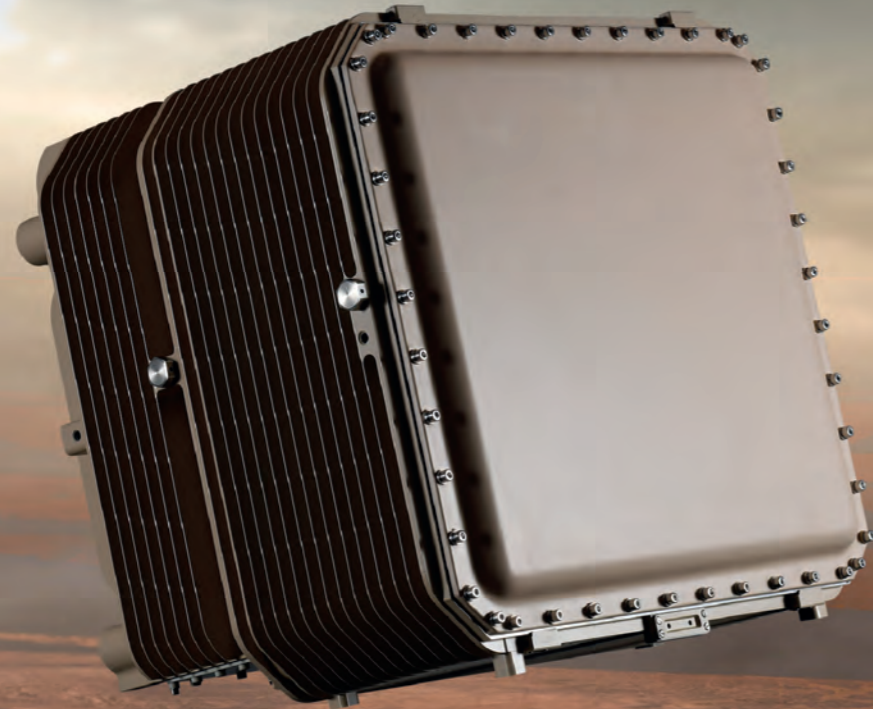
In addition to the USASOC, AAR is in high demand with another customer. Boeing is working with the German Government to provide CH-47F block II aircraft with the AAR capability.

The Chinook has supported the armed forces with its AAR capability for three-and-a-half decades. Now Boeing is determined to see it remain as a key feature for years to come. ▲



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ACCELERATING TECHNOLOGY EVOLUTION



A model of the M-346FA, the fighter attack derivative of the M-346 Master Advanced Jet Trainer is on display at the show

Clarion call for defence alliances

Clarion Defence and Security, the organisers of DSEI, has launched a new, members-only networking platform, Defence Engage, for SMEs, prime contractors and government agencies across the international defence industry.

Developed in consultation with nine of the top defence prime contractors, including BAE Systems, Lockheed Martin, Thales and QinetiQ, the new networking site match-makes and connects small, specialist, and often non-traditional defence companies with the larger manufacturers, based on their requirements and SME capabilities.

Defence Engage already has hundreds of members looking to connect, showcase their solutions and find new ways to enter the defence, aerospace, security and space sectors. Providing networking opportunities, through webinars and events, members can meet and learn about companies they may wish to work with.

Sir Chris Deverell, founder of Deverell Innovation Ventures said: "I often felt blind in terms of how to find an SME capable of meeting the requirement or opportunity that I could see. And I also felt that at times the primes were no better than I was."

"So, I do believe that platforms that would allow you to share information about your capability or information about finding opportunities are really important and need to be encouraged."



TUNE IN TO TATV

YouTube Times Aerospace TV

State-of-the-art offerings unveiled by Leonardo

European defence giant, Leonardo, has a strong presence at IDEX, and is promoting a wide range of its products and services for training cyber security operators, radar systems, uncrewed target drones, helicopters and jet trainer aircraft.

Prominent on the company's stand is a model of the M-346FA, the fighter attack derivative of the M-346 Master Advanced Jet Trainer (AJT).

The M-346FA retains the embedded tactical training system and weapon system officer training capabilities of the trainer variant, but includes specific avionics and airframe provisions to support operations in the air-to-air and air-to-ground combat roles.

Leonardo says that the FA variant is capable of 'downloading' many missions from existing frontline fighters

at a fraction of the cost per flying hour.

The M-346FA is already in service with its first international export customer (the Turkmen Air Force), and has been ordered by Nigeria, while the trainer variant is in service in Italy, Poland, Israel, Qatar and Singapore, with orders from Azerbaijan, Egypt and Greece.

The type came within a hair's breadth of gaining an order in the UAE, before being rejected in 2015, but Leonardo hopes for new opportunities in the MENA region.

Leonardo is also highlighting its latest-generation medium military helicopter, the AW149, at IDEX.

Currently battling for an order from the UK RAF to meet that service's new medium helicopter (NMH) requirement, the AW149 is in frontline service in Egypt and Thailand.

Though of similar outward appearance to the civil AW139 and AW189, the 149 was designed from the ground up as a military helicopter, with unparalleled survivability and crash-worthiness.

The AW149 is optimised for battlefield troop transport and re-supply, the carriage of underslung loads, special forces operations, search-and-rescue (SAR) and personnel recovery, medical and casualty evacuation, and even close air support/armed escort.

The advanced open architecture mission system allows quick and easy integration of customer-specific avionics, weapons, and defence systems. The aircraft provides a modern alternative to the Vietnam-era Black Hawk, with superior performance and survivability, and with a larger cabin, all with a smaller footprint.

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New life-saving seat on display

UK ejection seat company, Martin-Baker, is exhibiting its latest US18E ejection seat that is being qualified for the Lockheed Martin F-16 Block 70/72 aircraft.

Production deliveries have started to the first three customers for the new seat, while 20 more are considering seat retrofit into earlier F-16 aircraft blocks.

The US18E is derived from the US16E seat installed into the Lockheed Martin F-35 Lightning II. It has saved seven lives to date.

For the first time, the US18E will

enable F-16 aircrew to safely eject while wearing helmet-mounted displays (HMD).

The accommodation weight range has been expanded over the legacy seat to include both lighter and heavier aircrew.

Offering substantial maintenance reductions by its modular design, the US18E can be easily removed and installed without removing the F-16 canopy.

With some 7,690 aircrew lives saved to date, the US18E builds on the Martin-Baker legacy for world-leading escape system design.

▶ The US18E ejection seat for the Lockheed Martin F-16 Block 70/72 aircraft



Martin-Baker

International debut for Humvee Saber Blade

Military mobility solutions provider, AM General, is showcasing its Humvee Saber Blade Edition concept outside the United States for the first time.

The move comes barely weeks after winning a follow-on order to build these joint light tactical vehicles (JLTVs) for the US Army.

AM General last week pipped Oshkosh to win a five-year (plus five-year option) contract to manufacture an estimated 20,000 JLTVs, along with approximately 10,000 trailers, for the US Armed Forces.

Oshkosh had won the original contract in 2015 to supply the initial 16,901 vehicles for the US Army and the Marines.

The follow-on contract is reportedly estimated to be worth more

than \$7.3 billion over a decade, and deliveries are expected to begin 17 months after contract award.

The JLTVs will be built at AM General's 96-acre Mishawaka Manufacturing Campus in Indiana.

"We are excited to participate at IDEX, which is the perfect venue to introduce new and innovative products on the world's stage in support of our most important customer – the Warfighter," said John Chadbourne, AM General EVP – chief business development officer. "With this JLTV we continue to push the boundaries of lethality and protection on the battlefield, and we're proud of the collective effort we fostered with AeroVironment and Hornet to develop this concept."

The Humvee Saber Blade edi-

tion integrates AeroVironment's Switchblade loitering munitions and a Hornet Air Guard remote-controlled weapon system with counter-UAS concept by Hornet.

On the JLTV, the Switchblade 300 and Switchblade 600 provide rapidly deployable, loitering precision strike missiles for use against non-line-of-sight targets. The Hornet Air Guard offers anti-drone detection and neutralisation capabilities to the Hornet remote controlled weapon station (RCWS), which provides surveillance, fire, and self-protection thanks to the use of air-burst ammunition and the addition of an independent drone detection ring.

The Humvee Saber contains leap-ahead technology in a redesigned vehicle that offers increased



levels of protection in a truly agile light tactical vehicle, Chadbourne said.

The proprietary cabin design is redefining survivability that allows for 360-degree kinetic energy threat protection, as well as blast threat protection. Built off the Humvee vehicle platform, the Humvee Saber offers maximum commonality, simplified maintenance, and streamlined fleet sustainment.

"The current conflicts have demonstrated the increasing importance of drones, whether to target vehicles or for reconnaissance missions," explained Hornet managing director, Jean Boy.

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Sniper on target for instant data-sharing

Aircraft sensor systems that detect and target threats have become one of the key components in providing the vital information that runs a networked battlespace.

Lockheed Martin is at IDEX with new radio and data-sharing technology, the Sniper advanced targeting pod (ATP).

The company said it could become a key player in joint all-domain command-and-control.

Lockheed Martin is turning the world's most combat-proven targeting system into an airborne communication and computing node with a goal to enable instant data-sharing between legacy aircraft equipped with pods and fifth-generation fighters.

"We're moving quickly to adapt to a rapidly evolving customer

demand," said Tina Frazer, chief engineer for the Sniper ATP programme.

Demonstration flights could start as early as 2023.

Lockheed Martin's investment in Sniper ATP is part of the company's vision for 21st century security, which calls for integrating networking capabilities and Edge computing across the aircraft, sensor pods and weapon systems it produces. That includes connecting legacy and future systems with technology that shares information at 5G speeds.

Upgrading Sniper is also a response to US allies aiming to keep their fleets of F-16 and other fourth-generation fighters ready and capable in an increasingly complex and digital environment.

"Advanced fourth-generation



fighter planes, like the F-16, will be in service around the world for at least the next 40 years," said John Rogers, the programme director. "That's why we continue to cut-in new features and resolve obsolescence issues. That is not going to stop."

Rogers said the upgraded Sniper pod could soon share targeting and reconnaissance data with

uncrewed aircraft, ground-control stations, Navy vessels or satellites.

The electro-optical targeting system provides precision targeting, intelligence, surveillance and reconnaissance for air-to-air and air-to-ground missions over land and sea. The system has proven itself on multinational F-16, F-18, Harrier, Typhoon, Rafale and Mirage fighters.

Black Eagle gains miniature airborne radar

Steadicopter and Bird Aero-systems are showing off a new capability for the Black Eagle 50H advanced hybrid uncrewed helicopter at IDEX. This innovative rotary uncrewed aerial systems



(RUAS) platform will now be offered with a micro maritime patrol radar (μ MPR) for maritime missions at long ranges.

The three metre long, 50kg Black Eagle is a highly reliable uncrewed helicopter powered by a hybrid engine, which gives a maximum speed of 70 knots, (cruising at 45 kts), an endurance of 3.5 hours, and a datalink range of up to 150nm.

The vehicle has a small operational, maintenance and logistics footprint but is capable of providing wide-area persistent surveillance for long durations. Criti-

cally, the helicopter's open architecture modular design allows it to be rapidly reconfigured with a variety of payloads.

Bird Aerosystems' lightweight μ MPR is confined to a single small line-replaceable unit (LRU), and is packed with sophisticated design features.

The lightweight radar incorporates powerful signal processing algorithms, giving it the claimed ability to detect and track maritime vessels with 100% identification accuracy, providing an accurate intelligence picture of the marine environment, out to a radius of

200km in harsh conditions, by day or night.

Installed in conjunction with AIS and an electro-optical (EO/IR) payload, the Black Eagle automatically cross-cues between the radar and the EO/IR sensor to confirm target identification, and automatically provides precise geo-references to ground control.

Ronen Factor, co-CEO and founder of Bird Aerosystems, said: "Bird's innovative μ MPR cuts through sea clutter and significantly increases mission effectiveness and cost efficiency."



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Edge unveils 11 new autonomous products

The UAE's defence group, Edge, is taking centre stage at the IDEX show and, as the event opens today, it will start with a bang with the company revealing no fewer than 11 new cutting-edge uncrewed and autonomous products across air, land, and maritime domains.

The new products and systems cover a wide range of missions, including tactical intelligence, surveillance, and reconnaissance (ISR), logistics support, and sophisticated combat operations.

Mansour Almulla, CEO and managing director, said: "Today marks the culmination of extensive investment in industry-leading companies, innovation, and rapid product development to significantly expand our offerings and ensure our local and global customers can access the most cutting-edge solutions in the market.

"We are proud to debut a portfolio of 'Made in the UAE' autonomy-enabled solutions that will enable our customers to expand their reach to new heights and depths across multiple combat environments."

He added: "Strengthening sovereign capabilities and bringing globally competitive products to market are strategic priorities for Edge, and launching 11 new solutions in this critical domain reflects our steadfast commitment to international security and prosperity."

The new products include, Jeniah, an uncrewed combat aerial vehicle (UCAV) with a substantial payload, extended range, and capable of operating at high speed. Alongside it is a ground control station designed to monitor and command the system.

Airtruck, with an even higher payload of 500kg and a maximum range of 360km at a cruising speed of 120km/h, is designed for

strategic logistics support, such as supplying troops in remote locations, medical evacuation, and reconnaissance.

Another addition to the QX range, QX6-50 is developed for logistics purposes for military and civilian applications. Capable of carrying a 50kg payload for up to 200km, the rotary-wing uncrewed

aerial vehicle (UAV) can operate autonomously and is highly modular with other QX variants for ease of maintenance.

In the maritime sector and designed for ISR missions and underwater mine detection, ADSB's 170 Detector USV can perform a range of surface warfare, surveillance and mapping mis-

sions for naval and civilian forces. It can operate for four hours in silent electric propulsion mode or at speeds up to 40 knots in diesel mode.

For land, Edge is showcasing no fewer than three of its cutting-edge uncrewed ground vehicles (UGVs), including an 8x8 robotic combat vehicle (RCV) concept.



Edge moves into robotics

The Edge Group has acquired a majority stake in Estonia-based Milrem Robotics, a leading developer of robotics and autonomous systems in Europe, giving it a new entity within its platforms and system cluster.

Milrem Robotics specialises in the development of intelligent uncrewed ground vehicles, robotic warfare solutions, concept of operations and doctrine level warfare analysis. Its main products are the THeMIS and multi-scope uncrewed ground vehicles, the Type-X uncrewed combat vehicle, and the MIFIK land vehicle autonomy package.

Edge Group chairman, Faisal Al Bannai, said: "The investment will allow us to realise both companies' objectives and ambitions in an increasingly diverse and fiercely competitive marketplace."

Alan Warnes finds out how the UAE's strategy for self-sufficiency in ISR operations finds a friend in PAL – on a mission to build capacity with next-gen MPAs...

A NEW DROP IN PAL'S OCEAN

PAL Aerospace Services Aircraft Maintenance (PAL) is an Emirati company specialising in maritime patrol aircraft (MPA).

The company's CEO, Keith Stoodley, who moved to Abu Dhabi in 2006, explained in an interview on the eve of IDEX: "PAL's enhanced presence in the UAE and aspirations to building capacity in the region is a direct result of the decision by the UAE leadership to operate its own intelligence, surveillance and reconnaissance (ISR) assets, rather than being dependent upon others."

During IDEX 2009, the UAE Air Force and Air Defence (AF&AD) announced the acquisition of two MPAs from PAL's Canadian parent company. "The MPAs were delivered on time and on budget in 2012," according to Stoodley. He added: "Since they were delivered, our UAE team has provided the in-service support and training, and the development of specialised in-country ISR expertise."

Ten years is a long time in the ISR world. What's next for PAL?

During IDEX 2021, the company launched the P-4 MPA,

built on the de Havilland Q400 platform, as a littoral-centric MPA.

The P-4 development came in response to requests from various south-east Asian countries looking for the fastest turboprop MPA available without compromising on endurance.

During this year's IDEX, PAL will unveil the P-6; a blue ocean-centric MPA built on the Bombardier Global 6000 platform. The P-4 and P-6 will bring the latest generation of mission system and sensor technologies that made up the foundation of the UAE's original MPAs. Stoodley explained that this decision "was not made lightly and was to ensure the investments the UAE has made and the capacities grown over the past 15 years are leveraged to the maximum".

He added: "PAL is committed to working with the UAEAF&AD to learn from the past and leverage our shared foundation to ensure a better future."

A UAEAF&AD Global 6000 MPA acquisition would fit well with its current inventory of ISR aircraft that revolves around five Global 6000s – three GlobalEye AEW&Cs, with an additional two

on order, and a pair of Global 6000s fulfilling what is thought to be a battlefield airborne communications node (BACN) role like the US Air Force's E-11As.

Stoodley said: "2023 will be a year of evolution for our UAE team. We learnt from Covid-19 that our supply chains need to move closer to our customers. For us, that means investing in software development and manufacturing in the UAE, building on our long commitment to capacity-building in the region."

Strategic agreement

This was undoubtedly made easier with the announcement by Thales and PAL last March of a strategic agreement to co-develop the next generation mission systems.

Stoodley said then: "The next generation of mission system will innovate how multi-mission MPAs save lives, defend territorial waters, and build maritime domain awareness."

The partners are targeting capabilities such as crewed-uncrewed teaming, machine learning, computer vision, optionally/remotely piloted

aircraft systems support, underwater warfare defence, and integration of space-based data into a complete mission lifecycle for dissemination in a common operating picture.

This development, Stoodley revealed, will largely take place in the UAE, given both PAL's and Thales' commitment to the region and the strategic advantages of doing business there.

"We have started hiring software programmers in the UAE," he said. "The manufacturing of sensor operator stations, incorporating structures and avionics, will follow. We are rapidly transitioning from a service company to a service, software development, and manufacturing company."

Stoodley concluded by noting the importance of the UAE ecosystem for the next stage of PAL's growth.

"There is a cluster of UAE companies, such as the Edge Group, GAL and Yahsat, that are important to PAL's growth in the UAE. These companies are not only suppliers to, and collaborators with, PAL in the UAE market, they are essential tier-1 suppliers to PAL's international export market." ▲



The P-6, unveiled here at the show, is a blue ocean-centric MPA built on the Bombardier Global 6000 platform

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