

Global monthly E-magazine for Drones



DRONES

WORLD

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**Red Cat and Athena AI announce
breakthrough artificial
intelligence and computer-vision
capabilities for Teal 2
military-grade drone
PG-06**

**INTERVIEW WITH
MR.YOAV AMITAI
CEO OF ELSIGHT LTD
PG-24**



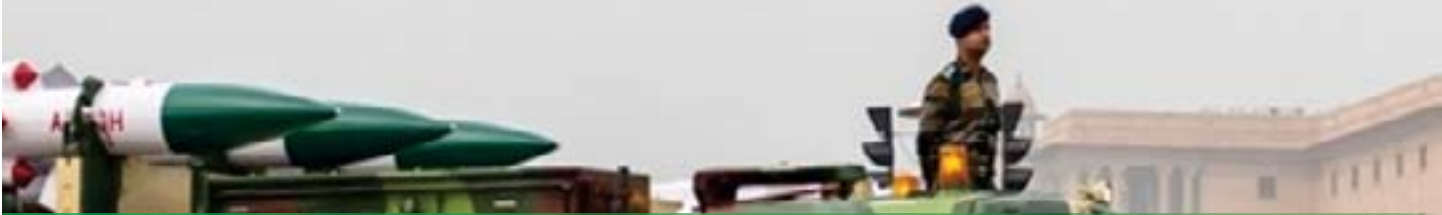


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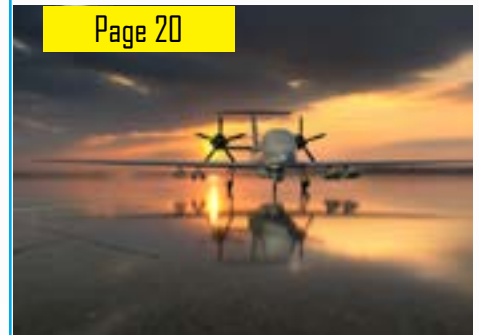


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DRONES WORLD is published by - B. Kartikeya



B. KARTIKEYA

The monthly e-magazine Drones World documents the rapid expansion of the drone market by showcasing the most recent product introductions, evaluations, and UAV-focused initiatives. Current news on developments in the drone industry is given to our readers in the July 2023 issue. The publication covers the most recent advancements in defence, including work in fields like BVLOS and EVTOL.

Similar to the previous issue, the most recent interview-focused issue of Drones World gave you various updates on the drone industry from across the globe. The newest news is covered in the Drones News section, which includes articles like "Airbus launches drone pilot training program in India" and "Valmont Records longest BVLOS flight on the wings of T-Mobile 5G." The successful integration of the RIEGL VQ-840-G Topo-Bathymetric Laser Scanner into the Schiebel CAMCOPTER® S-100 UAS is discussed in the GIS part after that. The world's first hybrid image & LiDAR sensor for large-area aerial mapping, the Leica CountryMapper, has also been unveiled by Leica Geosystems.

Check out the talk with Mr Yoav Amitai, CEO of ElSight Ltd., on the cover interview for more information about the creation of Halo.

Turning the pages in the Counter Drones section will reveal that Dedrone Defense introduces Dedrone Tactical to answer the growing demand for agile, expeditionary multi-sensor counter-sUAS solutions. Don't forget to browse the EVTOL and Defense areas as well.

The material has significant worth thanks to several enhancements introduced in this edition. We constantly endeavour to discuss and expose industry-related issues crucial to the drone sector's expansion.

Drones World Magazine helps link manufacturers, suppliers, component makers, technology providers, installers, purchasers, and consumers by reaching thousands of industry professionals across the commercial drone business.

For now, please sit back, relax, and glimpse the growth and evolution of the drone sector as we transport you over the world's sky.



Airbus launches drone pilot training programme in India

Airbus will offer drone pilot training courses in India, addressing the skilling requirements of a growing industry. The Directorate General of Civil Aviation (DGCA)-approved course will commence from 26 June 2023, and will be provided at the Airbus Training Centre in Bengaluru. Designed for micro and small category drones, the five-day programme will include both theory and flying lessons that will boost the knowledge of aspiring drone pilots and deepen capabilities in the fast-developing drone sector in India.

Speaking on the launch, Laurie Alder, Head of Customer Services, Airbus India and South Asia, said: "Building on Airbus' growing presence in delivering high quality state-of-the-art pilot and maintenance training in India, a broadening of the scope into drone training is a demonstration of our commitment to supporting the upskilling of India's aviation infrastructure development. We believe that this course will provide industry-specific skills and knowledge of safe operations of drones to aspiring drone pilots in the country, which will help them develop their career in this rapidly growing industry."

DGCA-approved Airbus instructors will provide theoretical training covering topics such as drone rules, basic principles of flight, ATC procedures, maintenance, operations and aerodynamics. The students will also receive drone flying lessons, which will include simulator training, and practical flying lessons at an Airbus approved facility in Bengaluru, where drones will be provided by Airbus. Students will be awarded a certificate from Airbus on successful completion of the course.

Candidates who have successfully completed Class 10 and are between 18 and 65 years of age are eligible to apply for the programme. They must also hold a valid Indian passport and would be required to produce a medical certificate of fitness to undergo the training and operate the drones.

Interested candidates can write to dronetraining.india@airbus.com or contact +91-9717892020 for more information.

HHLA Sky wins Red Dot Award for their X4 Drone



The Red Dot Design Award is one of the most prestigious international design competitions. The competition is held in the three disciplines Product Design, Brands & Communication Design and Design Concept. The X4 triumphed in the category Product Design from among more than 7,900 entries from around 60 countries. In the category Drones and Action Cameras, the X4 is even the only product to receive the Red Dot Award: Best of the Best.

The X4 was developed and designed for the special requirements first responders and security professionals. The device provides support to emergency services of the police, fire department, rescue and civil protection, as well as for users in industry, for example in construction site monitoring.

"The Red Dot Award is one of the most prestigious awards for design and showcases HHLA Sky as a pioneer in the European drone industry. This award is further proof HHLA's successful strategy to develop and drive technological innovations and new business models for logistics."

Lars Neumann, Director Logistics at HHLA

Intelligent design down to the last detail: The Red Dot jury praised the design of the X4 as "The best aesthetic result that can be achieved with this build type". They also commended the "coherence" of the design relevant to the intended application context. The restrained and functional use of graphics and color, along with the execution of even the finest details, further impressed members of the jury.

From a technical point of view, the jury emphasized the robust design of the X4 and the fact that it is built with a minimum of moving parts, which also make it less prone to errors. The modular design also allows worn parts to be replaced quickly during operation, the jury added. In addition to optimized flight time, the jury praised the easy handling and straight-from-the-case fast operational readiness as further product advantages.

"The X4 is designed for absolute efficiency and usability," confirms design professor Thomas Hofmann from Osnabruck's University of Applied Sciences. He developed the design for HHLA Sky's X4 together with an interdisciplinary team of industrial designers, and experts in security, drones and IT.

"We focused on a modular concept that is easy to use and integrated industry-proven hardware. Thanks to the great cooperation of everyone involved, the design demonstrates exactly this high standard of quality. It was teamwork that really paid off!" happily notes Matthias Gronstedt, Managing Director of HHLA Sky, together with Marius Schröder, Managing Director of Third Element Aviation.



Red Cat and Athena AI announce breakthrough artificial intelligence and computer-vision capabilities for Teal 2 military-grade drone

Red Cat Holdings, Inc. a military technology company integrating robotic hardware and software to protect and support the warfighter announces it has completed the second phase of its artificial intelligence and computer-vision partnership with Athena AI.

Athena was first announced as a partner for Red Cat's Teal 2 military-grade drone in March. Now, by processing video that the Teal 2's thermal-imaging sensor recorded during a nighttime test flight, Athena's technology has successfully performed target recognition and battle tracking. This capability allows commanders fast decision-making on the battlefield with artificial intelligence assistance.

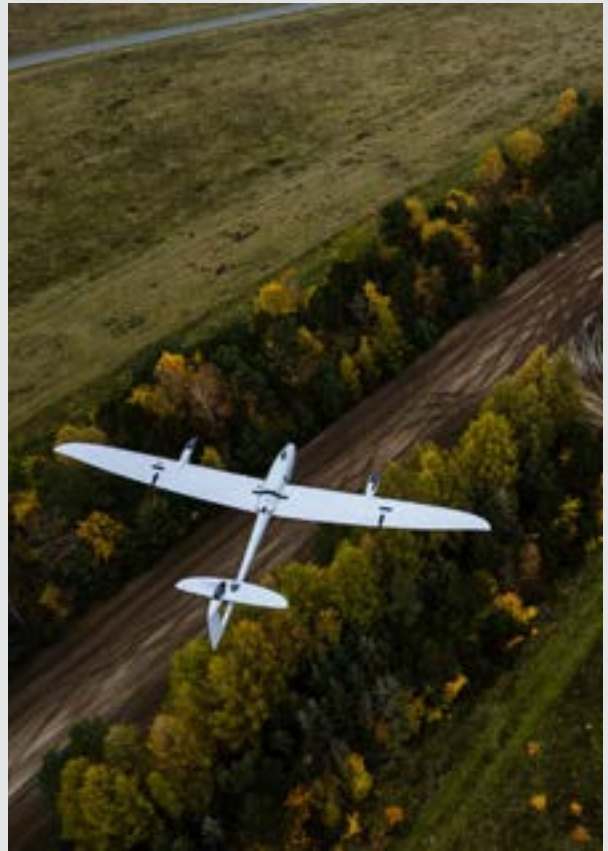
"Nighttime computer-vision capability is a Teal 2 add-on we support for users who need high-value data at night," said George Matus, founder and CEO of Red Cat subsidiary Teal Drones. "The images and insights that Athena's technology deliver are outstanding. Athena's battle-tracking capabilities and artificial intelligence, combined with Teal's best-in-class drone, give warfighters the unfair advantage."

Australia-based Athena, an AI-enabled military decision-support company, has licensed to Red Cat its proprietary computer-vision architecture, which allows high-speed tracking of objects and, at slower speeds, in-depth data exploitation. Athena's solution can identify weapons, humans and other targets at night, as well as Identification Friend or Foe (IFF) markers, such as Cyalume HALOs and IR beacons.

"Unlike a lot of other drones in the sUAS quad space that aren't MISB-compliant, the Teal 2's KLV metadata unlocks the full decision-suite support of Athena AI," said Athena CEO Stephen Bornstein. "This combination of a nighttime sUAS with live-vehicle metadata allows for real-time situational awareness to support battle tracking, common operational picture (COP) at higher echelons of command, and accurate targeting."

Officially launched in April, the Teal 2 is designed to Dominate the Night™ and arrives as the world's leading sUAS for night operations. The Teal 2 is the first sUAS to be equipped with Teledyne FLIR's new Hadron 640R sensor, providing end users with the highest resolution thermal imaging in a small form factor. The Teal 2 also offers the latest intelligence, surveillance and reconnaissance (ISR) technology, delivering time-critical information and enabling operators to make faster, smarter decisions. The Teal 2 airframe has been designed as an open platform that can add software features such as Athena AI, and those combined products improve Red Cat's gross margins.

Quantum-Systems Inc. Selected for United States Department of Defense APFIT Program



Quantum-Systems Inc., a leader in electric vertical take-off and landing (eVTOL) aerial intelligence solutions announced its inclusion in the second set of projects to receive funding for the United States Department of Defense (DOD) pilot program to Accelerate the Procurement and Fielding of Innovative Technologies (APFIT).

The announcement comes after the Office of the Under Secretary of Defense for Research and Engineering (USD(R&E)) published an official release outlining the 11 DoD program offices that will receive FY23 APFIT funding, with U.S. Special Operations Command (USSOCOM) awarding Quantum-Systems Inc. \$20 million.

"We are honored by DoD's decision to allocate FY23 APFIT funds to accelerate procurement of our Vector fixed-wing, eVTOL unmanned aircraft system. This will allow us to increase manufacturing capabilities and get our mission-critical technology into the hands of more warfighters sooner," said David Sharpin, CEO of Quantum-Systems Inc.

Established by Congress in the Fiscal Year 2022 National Defense Authorization Act, APFIT is a competitive, merit-based program with the goal of helping companies to expeditiously transition and field technologies.

uAvionix and the Choctaw Nation Commence First-Ever FCC-Authorized Operational C-Band BVLOS Operations



UAvionix, a leading provider of command, navigation, and surveillance technologies for crewed and uncrewed aircraft, announced that it has received FCC approval, coordinated with the FAA, to operate its SkyLink C-Band Command and Control (C2) radios for Beyond Visual Line of Sight (BVLOS) operations at the Choctaw Nation of Oklahoma Emerging Technology test site. The radios operating on aviation-protected C-band frequencies will be controlled by uAvionix's SkyLine cloud-based C2 network solution that combines fleet management, network health monitoring, detect & avoid, and seamless make-before-break roaming between multiple radio networks and ground stations. With the approval and previous uAvionix BVLOS Waiver, businesses seeking to use aviation-protected C-band and other radio networks, such as LTE, for assured Control and Non-Payload Communications (CNPC) can successfully develop, test and implement solutions for scalable business initiatives such as package delivery and medical resupply.

"In a short period of time – measured in months – uAvionix has achieved multiple BVLOS waivers and FCC approval for operation of C-band radios for critical command and control functions," noted Ryan Reed, General Manager, uAvionix.

"Our continued success is a testament to the strength of our efforts with the Choctaw Nation and speaks volumes about our aviation-grade products and services. The SkyLine cloud-based network control and associated SkyLink and SkyStation radios are the first certifiable C2 network purpose built for BVLOS operations."

uAvionix first obtained FAA approval to test its C-band C2 radios for compliance with RTCA DO-362A and an eventual TSO-C213a in Bigfork, Montana, and then at the Northern Plains UAS Test Site (NPUASTS) in August 2021. C2 radio design assurance is critical to meeting the criteria needed to manage risk during BVLOS operations and to meet the safety case requirements. The successful FCC approval for use of the SkyLink C-band radios at the Choctaw Nation significantly advances riskier BVLOS operations by enabling essential C2 infrastructure to operate on aviation-protected spectrum along-side other frequencies such as LTE and Satcom to deliver reliable command and control capabilities. Utilizing the protected spectrum guards against interference or tampering and enables a consistent, assured connection to the aircraft that meets safety requirements.

The SkyLink Airborne Radios, SkyStation Ground Radios and SkyLine

cloud-based link management system are deployed at the Choctaw Nation's 44,500+ acre Emerging Aviation Technology Center. Four (4) independent C-band radios are networked together through SkyLine. The system continually monitors each link to optimally determine the best link for reliable command and control and ensure make-before-break connections when switching between each available ground station. Additionally, Detect and Avoid (DAA) data from terrestrial sensors is delivered through the C-band radios.

"uAvionix is a phenomenal commercial partner in our Choctaw Nation emerging aviation activities, and we are always impressed by their pace of innovation," says James Grimsley, Executive Director of Advanced Technology Initiatives with the Choctaw Nation of Oklahoma. "This latest FCC approval is a critical step for the industry as we move toward ubiquitous BVLOS operations, and will not only support our Choctaw Nation efforts, but also the industry at large."

Interested businesses attempting to scale BVLOS operations should contact the Choctaw Nation and uAvionix to support implementation and scaling of uncrewed aerial system (UAS) operations with multiple C2 links including aviation protected C-band.



Elbit Unveils New EW Capability to Counter Drone Threats at Paris Airshow

Elbit Systems is unveiling a new and unique Electronic Warfare (EW) capability at the Paris Airshow as part of its Unified EW suite. The new capability is provided via the digital Radar Warning Receivers (RWR), one part of Elbit's proven airborne self-protection EW suite, and enables drone detection and identification as well as locating Personal Location Beacon (PLB) of ground forces and pilots.

Elbit's EW suite, operational on hundreds of rotary-wing and fixed-wing aircraft, comprises of EW Controller, Digital Radar Warning Receiver, IR Missile Warning System (MWS), Laser Warning Systems (LWS), Counter Measure Dispenser System (CMDS), DIRCM and Electronic Counter Measure Jammer, operating individually or in concert; to provide maximum platform protection and aircrew survivability against advanced threats.

This new Radar Warning Receiver capability locates drones and classifies them as a threat, and provides an answer to dealing with one of the most increasing threats facing commercial and military aircraft today. The ability to locate and classify drones as a threat is enabled by adding new processing capabilities to the Radar Warning Receiver digital receivers. As part of an overall Electronic Warfare solution, the sensor continues to function as a Radar Warning Receiver sensor in parallel to the new capability, and enhances mission success for helicopters and transport aircraft.

In addition, the Radar Warning Receivers can be configured with another new capability, the ability to detect and geo-locate the Personal Location Beacon of ground forces or pilots located on the ground. This capability means that any platform with a Radar Warning Receiver can perform this task, which saves time and resources that are critical in a search and rescue (SAR) mission.

Oren Sabag, General Manager of Elbit Systems ISTAR & EW: "We are proud to enable our customer's high-end protection capabilities to ensure their platform survivability and aircrew safety. We will continue to invest significant R&D efforts to supply the most advanced, cutting edge and cost-effective solutions guaranteeing comprehensive protection and mission success."

Teal Drones Secures \$1.2M Additional Funding for US Army's SRR Program



Red Cat Holdings, Inc a military technology company integrating robotic hardware and software to protect and support the warfighter announces that subsidiary Teal Drones ("Teal") has secured an additional \$1.2 million to continue developing a new sUAS prototype for the U.S. Army's Short Range Reconnaissance (SRR) program.

Teal was first awarded a prototype contract for the SRR Tranche 2 program in March 2022, and the Army is now obligating a total of \$2.7 million for Teal's participation. Teal is one of only three vendors competing in Tranche 2, which the Army has advised will now be the final tranche of the SRR program.

After vendors complete a series of testing and demonstration milestones, the winning vendor(s) will be selected to produce a rucksack-portable sUAS. The system will provide Army platoons (20 to 50 soldiers) with a rapidly deployable surveillance and reconnaissance capability to gain situational awareness beyond the next terrain feature.

The newly obligated funding brings additional objective requirements, originally assigned to Tranche 3, for the sUAS prototypes to meet.

"A future SRR production contract is a major opportunity for any company selected, and Teal is excited to give the warfighter the best we have," said Teal Founder and CEO George Matus. "I'm confident the SRR prototype we're developing will meet and exceed the Army's requirements."

"Uncrewed systems are a disruptive technology that provide soldiers an unfair advantage on the battlefield," said Maj. Josh McMillion, U.S. Army SRR APM. "SRR is the Army's solution to provide this capability now to ensure our soldiers have the technological edge over the enemy in any operational environment and never have a fair fight."

Teal's prototype will feature some of the same technology found in its new military-grade sUAS, the Teal 2, officially launched in April. Teal 2 is designed to "Dominate the Night™" and arrives as the world's leading sUAS for nighttime operations. The system offers the latest intelligence, surveillance, and reconnaissance (ISR) technology, delivering time-critical information and enabling operators to make faster, smarter decisions.

Valmont Records Longest BVLOS Flight on the Wings of T-Mobile 5G

Valmont completed an industry-first, unmanned 77-mile beyond visual line of sight (BVLOS) drone operation, enabled by T-Mobile 5G.

Why it matters: BVLOS flights are taking off (literally!) thanks to their ability to reach remote or inaccessible areas more efficiently and quickly collect and share data. By leveraging the nation's largest and fastest 5G network, drones equipped with cameras and sensors can capture high-resolution video and imagery used for near real-time analysis, monitoring and critical decision-making.

Who it's for: Anyone who needs to "put eyes" on nearly any type of infrastructure, agriculture, solar and wind farms, power lines, disaster relief areas and more.

The Un-carrier has earned its wings! Valmont Industries Inc. and T-Mobile (NASDAQ: TMUS) today announced the completion of an industry-first long-distance BVLOS drone inspection flight enabled by 5G.

Traditional methods for infrastructure monitoring typically require extensive manpower, manned aircraft operations or ground-based inspections, which involve significant safety risks, more time and more money.

But not anymore - especially now that the Federal Aviation Administration (FAA) is granting more waivers for BVLOS drone operations. And as one of the first companies in the U.S. to receive said waiver, Valmont is ahead of the game.

In under three hours, Valmont accomplished a non-stop 77-mile drone mission from Childress to Aspermont, Texas inspecting vital infrastructure like power lines, railroads, bridges and more. The drone used a Harris Aerial H6E drone equipped with a T-Mobile 5G connected Sony A7RM5 camera. Significantly faster and more fuel efficient, this task was three times faster than conventional methods, while using less than two gallons of fuel.

Mission highlights: Valmont drone inspection teams used less than one-fourth



gallon of fuel per hour.

Flight pushes average distance of UAS inspections from less than 20 miles per day to more than 60.

Even though the route was very rural, T-Mobile 5G provided live data transfer throughout the three-hour flight.

The Sony A7RM5 combined with the ability to fly closely to utility lines, provided high-resolution details for critical infrastructure inspection.

The flight proves that drones are a viable, safe, and efficient alternative to helicopters for infrastructure.

Harris Aerial's drone and Valmont's proprietary payload are fully National Defense Authorization Act (NDAA) compliant.

"Range has been a hurdle in the drone inspection space, until now," said Jake Lahmann, UAS Manager at Valmont Industries Inc. "To be able to get this kind of range in a single drone flight is really going to revolutionize the way the industry approaches infrastructure inspections."

"5G was built to make life easier," added Ulf Ewaldsson, President of Technology at T-Mobile. "Whether it's connecting a person on their smartphone or improving long-range drone infrastructure inspections, there is no doubt that the reach and speed of

T-Mobile 5G is making it possible for entire industries to revolutionize the way they work." With 5G, Valmont's drone inspection service is another example of 5G-enabled technologies that can be used to quickly respond to or prevent an emergency. By preemptively monitoring infrastructure sites with greater accuracy, Valmont can help prevent malfunctions and breakdowns before they have a chance to have a widespread impact.

Working closely with the FAA on BVLOS drone operation policies, Valmont plans to offer drone-in-a-box (DiaB) services nationwide in 2024. This enables anyone needing aerial inspection services the ability to order a drone, unbox it and watch it run its inspection while a Valmont pilot flies it remotely from virtually anywhere in the U.S.

T-Mobile is the leader in 5G, delivering the country's largest, fastest and most awarded 5G network. The Un-carrier's 5G network covers 326 million people across two million square miles — more than AT&T and Verizon combined. 275 million people nationwide are covered by T-Mobile's super-fast Ultra Capacity 5G, and the Un-carrier plans to reach 300 million people with Ultra Capacity this year — nearly everyone in the country. T-Mobile 5G is available on all T-Mobile phone plans.

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Unlocking the Employment Potential of 1,00,000 Drone Pilots

A shade over a year back Hon Minister Of Civil Aviation Mr Jyotiraditya Scindia estimated the employment potential for 1,00,000 drone pilots in the coming years .

Over a year on the RPTO (Remote Pilot Training Organisation) as a business is yet to get off the ground .Skilling and manpower development are normally the first segments of any industry that has started scaling.

Companies like NIIT, APTECH, SSI imparting coding skills OR the myriad of soft skills training programs that were key to scaling the IT and the ITES industries in India by taking skilling practically to the door steps across the country by establishing training facilities at every street corner, the drone industry needs to replicate the same reach to be able to unlock its full employment potential.

Two factors are currently preventing unlocking of this potential:

The Regulatory requirement of category specific training

The high costs of category specific drones and the risk of crashes to them is an unquantifiable variable that is a major hurdle in scaling category specific training.

Fortunately both these factors can easily be solved by adopting a layered training approach to drone pilot that is an established norm for commercial pilot training across the world.

Like commercial pilot training has multiple stages in terms of aircraft usage drone pilot training should also



adopt a similar approach especially in aircraft types to be scalable leading to the realisation of envisaged employment potential.

Foundation flight training (FFT) that is the basic requirement for any trainee pilot on a single engine aircraft has to be introduced into the drone training program of DCGA for Drone Pilot certification .

Benefits of introducing Foundation Flight Training

The introduction of FFT an accepted norm in the Aviation sector will address the cost viability factor as far as RPTO's are concerned given the availability of lower cost drones like Ajeet MINI around Rs 1 lac per piece. Additionally the fractional cost of replacement spares and accessories of locally manufactured Micro drones will also ensure the viability of RPTO's from an operational perspective.

Introduction of FFT using DGCA Type Certified Micro Drones will also facilitate drone training's reach to be extended to tier 2-3 towns across India as it would require minimal investment

in terms of funds , real estate and other resources to train basic drone pilots at a scale that would unlock the projected employment potential .

DJI micro drones have been used over the past 4-5 years in large number of civilian drone applications and have in fact been the largest population in terms of use cases across India including the defence.

In fact in application terms historically Micro Drones have constituted the largest population in terms of drone type hence a large portion of FFT certified pilots would find gainful employment in Micro Drone based applications like Marriage/ Event photography , survey and mapping , Monitoring and surveillance etc .

Conclusion:

In conclusion the employment potential of 1,00,000 drone pilots as envisaged by the government can easily be achieved by aligning the Remote Pilot training structure with those being followed in the aviation sector with the introduction of " Foundation Flight Training (FFT) "





Esri UK reaffirmed as MOD's Strategic Geospatial Partner

The UK Ministry of Defence (MOD) has announced a ground-breaking Enterprise Agreement with Esri UK, provider of the world's leading Geographic Information System (GIS) software, location intelligence and mapping services. The relationship will help deliver operational benefits to the whole Defence community by enabling collaboration at scale.

Building on a relationship of nearly three decades, and now backed by an Esri-first policy and a "home team" approach, this closer partnership will enable MOD to unlock the power of location, deliver digital transformation and allow data to become the force multiplier it should be.

Worth over £46M, this new three-year contract provides broader and easier access to Esri's location-based technologies and services in an open, scalable and evergreen manner. Supporting MOD's digital transformation journey and its cloud-first and mobile-first strategies, the partnership will help MOD achieve and maintain information advantage across its enterprise, accelerating decision-making cycles so that direction can be given at the speed of relevance, in any situation, at any classification, and on any device.

As everything happens somewhere, location is a key, but often hidden, attribute of almost all data. When harnessed appropriately, this attribute provides much-needed context and coherence, helping turn data into information that can be quickly fused, analysed and shared to provide the insight leaders need to make effective decisions.

Maj Gen Richard Spencer, Director Delivery of Intelligence and Expeditionary Services within Defence Digital, said, "I am pleased to be able to continue to work closely with our Strategic Partner, Esri UK. They have a key role in assisting us in our ambition to digitally transform all aspects of our business, from corporate workflows to front line operations, to help further improve and shorten our decision-making cycles."

Peter Wilkinson, Managing Director at Esri UK, said, "We look forward to working with our extensive Partner network to help MOD achieve three key outcomes: building the MOD's Location Infrastructure, with new location services and analytical capabilities; growing the reach of these capabilities across the entirety of MOD's Enterprise; and developing a world-leading ecosystem of solutions that feed into and off of this Location Infrastructure, enabling a seamless two-way flow of information and intelligence across all their networks. This is how we will unlock the power of location to help MOD achieve and maintain Information Advantage."

BAE Systems unveils NavGuide™ GPS receiver



BAE Systems unveiled NavGuide™, a next-generation Assured-Positioning, Navigation and Timing (A-PNT) device featuring M-Code Global Positioning System (GPS) technology. NavGuide is a field-installable replacement to the Defense Advanced GPS Receiver (DAGR) designed for quick integration into current DAGR mounts and accessories without mission interruption.

NavGuide features a three-inch, full-color graphical user interface for the dismounted soldier, and easily integrates with existing mounted platforms and systems. The device leverages the advanced M-Code GPS signal with enhanced jamming and spoofing protection. NavGuide is portable, versatile, and precise, and enables vehicular, handheld, sensor, and gun laying applications to allow the military to defeat adversaries in a variety of challenging threat environments.

"The market demanded a cost effective and high performance system upgrade that was more intuitive to the user and could be easily integrated into platforms currently using DAGR. The result was NavGuide," said Todd Peterson, Director of Engineering for Navigation & Sensor Systems at BAE Systems. "NavGuide also provides a moving map, situational awareness capabilities, 9-line targeting, and meets key military environmental requirements."

BAE Systems has more than 45 years of military GPS experience and has delivered nearly two million GPS devices on over 280 platforms around the world. The company produces M-Code GPS receivers in multiple form factors and levels of capability which are available to the U.S. armed forces and its allies via foreign military sales.

Production of NavGuide will take place at BAE Systems' state-of-the-art facility in Cedar Rapids, Iowa. The 278,000-square-foot engineering and manufacturing center of excellence is home to more than 800 military GPS experts and continues to expand to accommodate business growth.



YellowScan has partnered with Dutch drone manufacturer DeltaQuad to revolutionize the world of mapping

Dutch drone manufacturer DeltaQuad has integrated a colourized Lidar solution into its latest Evo UAV in partnership with YellowScan, a manufacturer of Lidar mapping solutions. The DeltaQuad Evo is the world's first fixed-wing vertical take-off and landing (VTOL) unmanned aerial vehicle (UAV or 'drone') to offer a combined YellowScan Lidar and RGB system.

The integration of the YellowScan system with the DeltaQuad Evo represents a significant advancement in the field of mapping, providing georeferenced colourized Lidar with extensive terrain coverage. While more powerful quadcopters can currently carry combined Lidar and RGB systems for approximately 30 minutes, covering around 100 hectares, some fixed-wing VTOLs can carry Lidar systems that cover up to 400 hectares but lack integrated RGB sensors. This means they must perform the same flight patterns twice to capture RGB data. The DeltaQuad Evo sets a new standard with a flight time of 2.5 hours, covering up to 500 hectares using the YellowScan Lidar and RGB system in a single flight.

Multipurpose sensor ecosystem : The YellowScan system offers highly detailed and accurate terrain information, with up to 200 data points per square metre. The processing of collected data is facilitated by the YellowScan CloudStation software, which boasts fast and user-friendly data processing capabilities, enhancing the efficiency of large mapping projects. Furthermore, the integration of an RGB sensor allows for the colourization of georeferenced Lidar points, improving usability and enhancing the identification of intricate details.

The modular design of the DeltaQuad Evo ensures its users can create a multipurpose sensor ecosystem. The universal payload bay can accommodate payloads weighing up to 3kg, offering the opportunity to combine two different sensors during a single flight (such as RGB, Multispectral, Thermal, ISR, or any customized sensor) or replace one of these sensors with an auxiliary battery to achieve a flight time of up to 4.5 hours. The open payload bay design allows for the seamless integration of future sensor developments into the DeltaQuad Evo, and the 'Click & Go' mechanism with automated payload recognition simplifies payload swaps without the need for tools.

The partnership between DeltaQuad and YellowScan is a source of pride for both companies. Tristan Allouis, co-founder and CEO of YellowScan, expresses his enthusiasm, stating: "Working with DeltaQuad is a thrilling experience as we collaborate to create inventive solutions for demanding applications. Our shared dedication ensures the delivery of highly efficient and reliable solutions for our valued customers." For Douwe Zeeman, CEO of DeltaQuad, this is another example of customer-centric co-creation. He is proud to add another valuable feature to the DeltaQuad Evo, enabling more efficient data gathering in the mapping industry.

Successful Integration of the RIEGL VQ-840-G Topo-Bathymetric Laser Scanner into the Schiebel CAMCOPTER® S-100 UAS



RIEGL Laser Measurement Systems GmbH and SCHIEBEL have successfully completed the integration of a high-end laser scanning system, the RIEGL VQ-840-G topo-bathymetric LiDAR sensor, on the Schiebel CAMCOPTER® S100 Unmanned Air System (UAS).

Operating a high-end laser scanning system remotely on an Unmanned Air Vehicle (UAV) requires a tailored solution going beyond what is currently available off-the-shelf. In order to maintain the broad operating range of the UAS, it is imperative to keep the weight of the sensor payload low. In addition, the effective execution of the survey mission requires full remote control of the payload instruments and real-time feedback to the operator via a data link.

The compact topo-bathymetric laser scanner was designed for use in a variety of maritime and hydrographic environments. The LiDAR sensor payload system is controlled remotely via a data link, which is a crucial for the integration into the S-100 system.

The scanner is controlled by using the onboard software "RiACQUIRE-Embedded" via the available data link; data acquisition and laser safety are also monitored. Once the survey is completed, the raw data seamlessly integrates into the RIEGL data processing workflow.

The RIEGL VQ-840-G, combined with the outstanding technical specifications and performance of the CAMCOPTER® S-100 UAS, enables an efficient and secure way for surveying shallow waters, where monitoring from boats becomes a challenge. The applications of Airborne LiDAR Bathymetry (ALB) include the mapping of coastlines and river banks as well as the monitoring of natural habitats, water reservoirs and hydraulic engineering applications (e.g., canals, dams, bridges). In a single data acquisition mission, data below and above the water surface are covered. Additionally, the topographic laser scanners RIEGL VUX-1UAV/-LR and VUX-12023 can be integrated in the front payload bay of the CAMCOPTER® S-100

Hexagon collaborates with NVIDIA to transform industrial digital twin solution



Hexagon AB, the global leader in digital reality solutions combining sensor, software and autonomous solutions technologies, announced a collaboration with NVIDIA to enable industrial digital twin solutions that unite reality capture, manufacturing twins, AI, simulation and visualisation to deliver real-time comparison to real-world models.

The collaboration will connect industry-leading technologies from Hexagon and NVIDIA to enable seamless, multi-user workflows through a unified view for factory planning and design, as well as process quality optimisation and operations.

As part of the collaboration, Hexagon's HxDR reality capture platform and Nexus manufacturing platform will be connected to NVIDIA

Omniverse, a platform for developing and operating industrial metaverse applications, based on the Universal Scene Description (USD) framework. The connected platforms provide complementary technologies that enable customers to advance manufacturing for digital factories and accelerate the power of digital twins for intelligent cities, construction and infrastructure.

"Our Hexagon innovation team has been working with NVIDIA to develop opportunities that unite reality capture, AI, simulation, data analysis and visualisation with seamless collaborative planning platforms," said Paolo Guglielmini, President and CEO, Hexagon. "With NVIDIA technologies and Hexagon's Smart Digital Realities, our solutions will deliver real-time comparisons of real- and virtual-world

models."

Through real-time data capture and analyses, Hexagon's Smart Digital Realities™ transform digital twins to provide customers with a 360-degree picture of the real world that helps improve productivity, quality, safety and profitability when used with simulated solutions.

"Every industry is racing to digitalise their physical processes for the next wave of advanced automation," said Rev Lebedian, Vice President of Omniverse and simulation technology at NVIDIA. "In collaboration with Hexagon, we'll bridge the gap between the real and virtual worlds — a prerequisite for building digital twins — allowing us to train robots in virtual worlds and bring autonomy to everything that moves."

Teledyne FLIR Launches Online Support Tools for Streamlined Integration of Boson+ and Hadron 640R



Teledyne FLIR, a subsidiary of Teledyne Technologies Incorporated, has introduced a comprehensive online developer support series for its latest thermal camera offerings, Boson+ and Hadron™ 640R. The program includes integration support videos and additional online content designed to simplify and accelerate thermal product development in defense, industrial, and emerging use cases while minimizing risk.

Teledyne FLIR is renowned for providing comprehensive development-to-production support, and the new online support series further strengthens its commitment to customers. The resources offered include user guides, drawings, app notes, GUIs, SDKs, and development kits, enabling engineers and developers to immediately begin integrating Teledyne FLIR's hardware, software, and tools into their projects.

Dan Walker, Vice President of Product Management at Teledyne FLIR, emphasized the company's dedication to empowering

customers, stating, "The integration support series is a key differentiator for Teledyne FLIR where we provide online support to enable our customers to start developing with our hardware, software, and tools immediately."

The video and download series covers a range of topics, including radiometry setup, tuning, lens calibration, software integration, and MIPI interface integration for Boson+. The step-by-step instructions guide integrators through the process of interfacing the Hadron 640R with cutting-edge Qualcomm and NVIDIA embedded systems. Teledyne FLIR will continue to expand the content by adding additional resources to support integrators in reaching the market faster.

The Boson+ camera line stands out in the market due to its exceptional thermal sensitivity of 20 millikelvin (mK), making it the most sensitive longwave infrared (LWIR) camera available. It is designed as a drop-in upgrade for the widely deployed Boson thermal camera module. Meanwhile, the Hadron 640R offers an

innovative combination of a performance-leading 640×512 resolution radiometric Boson thermal camera and a 64MP visible camera in a single, easy-to-integrate module. Both Boson+ and Hadron 640R are manufactured in the USA, optimizing size, weight, and power (SWaP), and find applications in unmanned ground vehicles (UGVs), unmanned aircraft systems (UAS), automotive, wearables, security devices, handhelds, and thermal sights.

Teledyne FLIR's support extends throughout the entire product lifecycle. The company's offerings reduce costs and risks from development to production and ongoing product support. Their thermal camera modules are AI-compatible, cost-optimized, and designed for SWaP efficiency. Teledyne FLIR provides application notes, videos, tools, and support from their experienced applications team to ensure optimized camera performance. With over 40 years of manufacturing experience in the United States, Teledyne FLIR is a reliable and low-risk supply-chain partner.

Precisely Advances Leading Data Quality Portfolio

Precisely, the global leader in data integrity announced a series of innovations to its industry recognized data quality portfolio. The announcement underscores the company's continued commitment to helping organizations on their path to data integrity – empowering data leaders and practitioners to better understand their data and ensure it is accurate, consistent, and contextualized for confident decision-making.

Thousands of customers around the world rely on data quality solutions from Precisely for their best-in-class address validation and enrichment, sophisticated entity matching, financial reconciliation, and enforcement of data quality rules for their business. Integration with other precisely solutions, including data governance, data observability, data integration, and data enrichment empowers customers to seamlessly address new use cases in their rapidly changing, data-driven world.

With the latest product updates, precisely has further enhanced capabilities in its well-known solutions, building upon decades of leadership in the data quality market:

Precisely Spectrum Quality – now offers expanded capabilities for editing, visualizing, and interacting with graph data for use cases requiring a single view of critical data. It also supports the latest United States Postal Service (USPS) CASS™ Cycle O, allowing customers to benefit from improved address validation and matching to ensure accurate and efficient delivery of mail, and take advantage of reduced mailing costs. Starting in July, it will also provide the option to integrate Spectrum OnDemand directly with Precisely Property Graph – enabling users to understand the intricate relationships between addresses, parcel boundaries, building footprints and points of interest.

Precisely Trillium – offers improved connectivity with double the number of supported data sources now available for Trillium Quality and Trillium



Discovery The updates enhance performance and enable data quality rules to be applied to data originating from sources such as Snowflake, Amazon Redshift, Google BigQuery, and SAP S/4HANA. Starting in July, support will also be available for USPS CASS™ Cycle O.

Precisely Data360 – has been advanced with the option to integrate Data360 DQ+ with Spectrum OnDemand, allowing customers to validate emails and phone numbers, on top of being able to validate and geocode addresses using Spectrum's well-known strengths. Several enhancements have also been made to Data360 Analyze to provide secure and easy access to Microsoft Azure Key Vault, and enable more efficient coding in Python.

These new updates follow the recent announcement of the Precisely Data Integrity Suite's new Data Quality service, which provides complementary benefits for users of Precisely data quality solutions including Spectrum Quality, Trillium Quality, Trillium Discovery, and Data360 DQ+. The new Data Quality service means customers can run data quality processes wherever data lives – including in the cloud. It also empowers them to harness additional value by seamlessly integrating with other Suite services, including Data

Integration, Data Governance, Data Observability, and more.

The announcement comes at a time when organizations are under more pressure than ever to execute on increasingly sophisticated data initiatives, requiring access to high levels of accurate, consistent, and contextualized data to achieve successful outcomes. In fact, new research¹ from the Center for Business Analytics at Drexel University's LeBow College of Business revealed data quality as the number one challenge for organizations (50%), as well as being the top priority (53%) for data leaders to address in 2023, with 66% of all respondents rating the quality of their organization's data as average, low, or very low.

"Advanced data programs ultimately rely on high-integrity data to achieve successful outcomes, and ensuring that your data is accurate, consistent, and contextualized is a critical step on the path to building that trust," said Emily Washington, SVP – Product Management at Precisely. "We are proud to continue to evolve our unique blend of software, data, and strategic services to meet customers wherever they are on their data integrity journey and help them to stay agile in the dynamic market landscape."

Hexagon partners with Sony Semiconductor Solutions to enhance reality capture



Hexagon AB, the global leader in digital reality solutions combining sensor, software and autonomous technologies announced the partnership with Sony Semiconductor Solutions Corporation (Sony), the global leader in image sensors, to further advance Hexagon's industry-leading reality capture solutions, including the Leica BLK product family. Through this collaboration, Hexagon will integrate Sony's advanced Time-of-Flight image sensor and software technologies to enhance the speed and accuracy of its reality capture solutions.

The collaboration between Hexagon and Sony will deliver a seamless data capture and processing workflow, reducing the time between capturing and delivering results. By combining Sony's advanced processing software library with Hexagon's reality capture capabilities, the companies will develop solutions that provide faster feedback in-field and more complete data capture competencies.

Already engaged in the first step of the partnership, Hexagon will integrate Sony's

capabilities into the development of the new Leica BLK2GO PULSE. The handheld reality capture device fuses Sony's advanced Time-of-Flight technology and Hexagon's proven GrandSLAM technology, thereby creating a rapid, simple and intuitive first-person scanning method to capture only what you need, when you need it, from your point of view. The BLK2GO PULSE will be primarily used for short-range indoor applications with instant point cloud visualisation while you capture.

With its release planned in early 2024, the BLK2GO PULSE will add a new, unique and disruptive member to the BLK2GO product family. All BLK2GO solutions share the ability for immediate data access and interaction among project teams to provide effortless uploading to the cloud directly from the device, fostering smarter collaboration.

"Our goal is to advance innovation through industry-leading technology," said Burkhard Boeckem, CTO, Hexagon. "Partnering with Sony Semiconductor Solutions allows us to set the pace and

accelerate reality capture solutions to enable our customers to fuse the real world with real-time digital realities created from sensors to build smart digital twins with stunning precision."

"Through the synchronisation of market-proven technologies led by Hexagon and Sony, in-field data capture and processing efforts will be reduced to allow even faster and more collaborative data sharing through Hexagon's digital reality cloud platform HxDR, the cloud-native platform for geospatial solutions at any scale", continued Burkhard Boeckem.

"Time-of-Flight technology is key to creating a future where autonomous solutions can streamline work processes and boost productivity," said Eita Yanagisawa, Senior General Manager of System Solution Business Division, Sony Semiconductor Solutions. "Through collaboration with Hexagon, we are ensuring that the data capture is reliable and accurate. The potential this partnership creates is transformative in the area of reality capture solutions."

Leica Geosystems introduces Leica CountryMapper, the world's first hybrid imaging & LiDAR sensor for large area airborne mapping



Hexagon's Geosystems division announced at HxGN LIVE in Las Vegas the launch of SurveyTools for BricsCAD. This all-in-one solution for surveying workflows is the latest addition to MicroSurvey's software portfolio. The solution combines the powerful surfacing and point cloud tools from BricsCAD (a native DWG CAD platform) with a complete suite of survey tools for land surveyors in a familiar user interface.

The combined solution includes leading software technology from MicroSurvey, Bricsys and Leica Geosystems - all part of Hexagon.

Combining industry-specific tools developed by surveyors for surveyors with BricsCAD's AI-driven drafting tools enhances the day-to-day workflows and accelerates productivity.

The unique offering is developed with data integrity at its heart, offering a complete audit trail for imported field data and calculated survey points. Survey Tools intelligently filters data when creating lightweight surfaces without compromising on the model's accuracy.

Moritz Lauwiner, President Surveying Solutions at Hexagon's Geosystems division, said "The launch

of MicroSurvey's SurveyTools for BricsCAD demonstrates our drive to deliver on our core values of innovation and customer focus. Through greater integration of our products from across Hexagon's software portfolio, we can offer an end-to-end workflow within the survey ecosystem - delivering greater value to our customers."

SurveyTools for BricsCAD provides unique customer benefits by leveraging seamless workflows and performance improvements with a special focus on surveyors, civil engineers, GIS specialists and other professionals discovering the best DWG-based CAD solution.



THINK DRONE, THINK AeroGCS

Improving Lives with Precision Agriculture Solutions!

AeroGCS GREEN is a cutting-edge Precision Spraying software designed to transform farming practices and enhance crop growth while reducing manual efforts and risks. By harnessing the power of drones, AeroGCS GREEN enables farmers to map their entire fields, collect valuable data, and generate action plans to optimize spraying operations. With its integration capabilities, AeroGCS GREEN facilitates precise spraying techniques, resulting in improved field productivity.



Quicker Workflow



Avoid Multiple Obstacles



Add indentation



Calculate dosage of liquid



Generate Spraying field report



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Leonardo's Growing Role in the Multinational Eurodrone Programme



Leonardo will be developing the mission system for Eurodrone, the MALE-class (Medium Altitude Long Endurance) remotely piloted aircraft set to strengthen Europe's strategic defence autonomy with high-performance independent operational systems. The aircraft's Airborne Mission System (AMS) incorporates a suite of advanced sensors, including radar and the Multi-Purpose Mission Computer (MPMC). Within the programme, worth a total of 7 billion euro, Leonardo is playing a key role through an industrial workshare regarding the on-board electronics and aerostructures component, which in addition to the AMS also includes the Airborne Electrical & Environmental Control System, the Airborne Armament System and the design and production of the aircraft's entire wing structure.

Thanks to the Airborne Mission System's advanced suite of sensors, the Eurodrone will be able to perform Intelligence, Surveillance, and Reconnaissance (ISR) missions at sea and on land, collecting and integrating data

from the various on-board sensors - even in critical operational conditions - while also recording and sending it to the ground station and cooperating units to provide a complete tactical picture. The fusion of data in real time has the advantage of minimising the time and effort needed by operators to analyse and understand events that are happening in the area of interest, thus accelerating response times throughout the entire chain of command.

The design, development, integration and production phases for the AMS system will all take place at Leonardo's Caselle Torinese location. The company will also be engaged in supporting the integration of prototypes at the Manching base and of flight testing activities in the relevant polygons. Through its joint venture MBDA, Leonardo will integrate the air to surface Brimstone missile. The weapon system will allow the platform to engage and neutralise a wide range of static and moving threats day or night in all-weather conditions. The multinational programme, managed by OCCAR (Organisation Conjointe de Coopération en Matière d'Armement), at

present sees the participation of Germany, Spain, France and Italy and has orders for 20 systems, each made up of two ground stations and three aircraft plus Ground Support Equipment, spare parts, training and five years' support in the initial phases of the service.

The innovative technologies that the platform will have available, designed for dual-use purposes, will enable it to become one of the pillars of all next-generation aircraft systems for the benefit of national governments and armed forces. The twin-engine drone is the first unmanned aircraft system conceived for flying in non-segregated airspace. Its modular design will provide advanced operational capabilities for ISTAR (Intelligence, Surveillance, Target Acquisition, and Reconnaissance) missions, helping to expand the independent technology base in the uncrewed sector. Finally, taking the digital approach in drone design, production and services will make possible significant improvements in development times, quality and cost reduction, generating 7,000 highly qualified jobs in Europe.

Israel Aerospace Industries MMR radars, have successfully passed Czech Army military tests



IAI vice president and Elta CEO Yoav Tourgeman: “IAI’s MMR radars can be found in all of Israel’s defensive systems, and have proven their operational effectiveness providing Air Situational Picture for many years and assisting air and missile defense.

The systems supplied to the Czech Republic, and those still to be delivered in the coming months, are intended to fulfil the same function, to safeguard the Czech people, providing them with the most advanced defence against airborne threats. We are proud to be involved in this important cooperation which we have put in place with local companies, sharing knowledge and technologies. Despite three challenging years since signing the agreement, when

we had to deal with the global challenges brought about by the corona pandemic, including shutdowns, and integration to local C2 and NATO systems, IAI-ELTA and the local Czech companies succeeded to develop pathbreaking solutions, transferring both knowledge and technology. The radar was successfully integrated into NATO C@echelons through the Czech C2. The advanced radars to the Czech Republic can simultaneously identify and classify hundreds of targets, drones, missile barrages, rockets, and other new threats in the arena.

Israeli radars are compatible with NATO systems and will replace the previously-used but now obsolete radar technology of Russian origin.

An important part of the project is Czech industry involvement in a contract worth some thirty percent of the total value, which was signed together with the main supply agreement between the Czech and Israeli Ministries of Defence. Under this contract, ELTA Systems has transferred the capability to produce modules that make up the radar antenna, using gallium nitride technology, to its Czech industrial partner, RETIA. The state-owned Military Technical Institute (VTU) is also a partner. An assembly line for radar modules was established in RETIA which will also provide these modules for the Czech Republic. This capability also allows local companies to provide Czech self-reliant maintenance and support for the full lifetime of the radars.

Leonardo Unveils AWHero RUAS' New Developments Showing Unique Technologies and Capabilities for Multi-purpose Maritime Operations

The system enhancements unveiled at SEAFUTURE 2023 reflect the move from basic design to CONOPS (Concept of Operations) focused configuration, particularly for operations in the naval domain. New developments include heavy fuel powerplant, airframe modification, advanced sensor modularity among others; AWHero also builds upon proven basic configuration including rotor system and transmissions, core avionic system, data-link architecture, and control station.

AWHero is part of a forward-looking roadmap that Leonardo is implementing to maintain its leadership in vertical flight and UAS applications in the frame of current and future technological evolutions. Leonardo unveiled today the latest developments for its 200 kg class AWHero RUAS (Rotary Uncrewed Aerial System) during an official ceremony held at SEAFUTURE 2023 (La Spezia – Italy) on board Italian Navy's Paolo Thaon di Revel PPA (Pattugliatore Polivalente d'Altura - Multipurpose Offshore Patrol Vessel). The unveiling was carried out in the presence of representatives from institutions and across industry.

AWHero leverages on Leonardo's unique combination of longstanding and extensive capabilities in rotorcraft system development and within integration in support of the uncrewed aerial system and naval application sectors. The first and only RUAS in its class with a military certification, obtained in Italy in late 2021, and based on worldwide recognised standards, which already demonstrate the robustness of the system, AWHero now features new developments stemming from previously planned and anticipated activities based on a range of enhancements.

The new developments include in particular: a heavy fuel powerplant based on a unique twin-engine solution increasing efficiency safety and Time Between Overhauls; airframe modifications delivering



significant operational and support advantages (powerplant integration, payload bay capacity, system/sensor integration and field of view, maintainability, on-deck stability); advanced sensor modularity; - the Leonardo Gabbiano TS Ultralight maritime radar for unmatched all-weather wide area coverage -; enhanced survivability, and cyber resilience. However, the system builds upon the certified and proven basic configuration with which it shares the rotor system, transmissions, a core avionic system, data-link architecture, and a control station.

Gian Piero Cutillo, MD of Leonardo Helicopters, said “AWHero is part of a forward-looking roadmap that Leonardo is implementing to maintain its leadership in vertical flight applications in the frame of current and future technological evolutions, which will extensively re-shape this industry. Within this roadmap, uncrewed systems and relevant enabling technologies (i.e. automation/autonomy, communications, sensors integration and fusion) are key elements in which the company has been significantly investing, while leveraging a fruitful collaboration with the Italian Military

Authorities. The system enhancements unveiled today reflect the incremental yet firm move from basic design to CONOPS (Concept of Operations) focused configuration. This is particularly true for the relevant naval applications, which remain a priority market for these kind of systems, which are able to meet intelligence and situational awareness extension capabilities with an optimized use of resources”

AWHero is optimized to support a range of assets involved in a range of naval and multi-domain operations such as ISTAR (Intelligence Surveillance Target Acquisition and Reconnaissance), ASW (Anti-Submarine Warfare), Electronic Warfare, Communication Relay, Border Protection, Combat support, and Force Protection, and can be integrated with the naval combat management system. Leonardo's integrated capabilities in rotary-wing platforms, system integration, UAS systems and support/training services as well as proprietary technology delivers AWHero's operators with unmatched system growth and customisation potential and through-life cycle support benefits.

Textron Systems and Anduril Industries Complete Successful Uncrewed-Uncrewed Teaming Demo



Textron Systems Corporation and Anduril Industries, a defense technology company, completed a successful demonstration of a Textron Systems Aerosonde® Hybrid Quad (HQ) UAS operated with multiple payloads onboard to simulate and geolocate threat emitters.

During the demonstration, an operator conducted missions using Anduril's Lattice for Mission Autonomy to command and control multiple first and third-party UAS with mixed sensor payloads and capabilities including one Textron Systems' Aerosonde HQ UAS and three variants of from Anduril's ALTIUS-600 Launched Effects family loitering munitions to demonstrate an autonomous Suppression/Destruction of Enemy Air Defenses (SEAD/DEAD) mission in support of an Army Aviation Air Assault mission. Textron Systems and Anduril integrated multiple sensors, platforms and networks across teams of manned and unmanned systems, molding together hardware and software across domains.

The Aerosonde HQ has vertical takeoff and landing (VTOL) capability and performs as a modular workhorse for land

and sea-based intelligence, surveillance and reconnaissance (ISR) missions. The aircraft has mission-tailorable agility that addresses the need for increased capability, lethality and survivability. Aerosonde has been expanding into the maritime domain, providing real-time situational awareness for surface combatants internationally.

"Building off the technology that we demonstrated last year at the U.S. Army's Cyber Quest and Project Convergence exercises, this is the latest exercise to show our cross-domain interoperability and how easily our systems can integrate with others to meet our user's requirements," said Wayne Prender, Senior Vice President of Air Systems. "This exercise with Anduril allowed us to showcase how our capabilities are directly applicable to next-generation Army programs like FTUAS, SCI and Launched Effects."

Anduril's Lattice for Mission Autonomy is a hardware-agnostic end-to-end software platform that enables teams of robotic assets to work together under human supervision to dynamically perform complex missions in any domain. Lattice for Mission Autonomy

performs the core functions that are essential for mission planning and execution—including autonomous piloting, the ability to sense and make sense of the battlespace, identification of threats and objects of interest, managing signature and communications to enhance survivability, orchestrating multi-asset maneuvers, and synchronizing the delivery of effects. The software platform is built with an open and extensible architecture enabling the integration and interoperability of third-party hardware and software, like the Aerosonde HQ UAS.

"When you view the pace of technology development through a software lens, you approach the problem differently," said Andrew Carter of Anduril. "Modern software platforms can allow you to iterate much faster and focus on bringing an ecosystem of technologies, behaviors, and networks together to accomplish a mission outcome. Anduril and Textron Systems were able to integrate, test, and execute in 15 weeks, highlighting the modular open systems architecture of Lattice for Mission Autonomy and the Textron Systems Aerosonde HQ platform."

elsight | A NEW ERA OF
CONNECTIVITY

Drones World Editor Kartikeya In conversation with

Mr. Yoav Amitai
CEO of Elsight Ltd



Q Can you brief us about your experience in the field of UAV and what were your fields of expertise before ElSight?

A I have a degree in mechanical engineering from the Ben-Gurion University of the Negev and have always loved solving problems. Before joining ElSight I worked for an engineering company, Agor Engineering, as the general manager. I joined ElSight as Chief Innovation & Product Officer, before moving on to become the Chief Operating Officer and then the CEO.

During my time at ElSight, we made the strategic decision to pivot away from being a project-based company and towards becoming a product-oriented company. This allowed us to leverage our advanced technology and helped us shape our technological and business vision.

Q Can you tell us how Halo has developed to where it is now?

A Halo has its background in ElSight's earlier days, when we

focused on video transmission, initially working with police, security, and Homeland Security (HLS) departments.

In 2018 we decided to pivot from the world of defense and to broaden our approach to encompass the emerging world of BVLOS unmanned flight, realizing that our approach to video transmission was also perfectly suited to what UAVs would need to operate smoothly, safely, and securely beyond the visual line of sight (BVLOS).

We worked on making Halo more suitable as a flight component and the rest, as they say, is history. We started with four Long-Term Evolution (LTE) mobile connections then brought in 5G support, Remote ID, and a number of other features. All these features make Halo not only indispensable to our partners, but also the premier BVLOS connectivity solution on the market today.

Q What are the 5G solutions offered by ElSight and the importance of Remote ID?

A ElSight's Halo currently comes in two main variations – strict LTE, or LTE + 5G.

5G has within it some major advantages, such as lower latency and higher bandwidth.

As 5G continues to be rolled out, we're noticing more partners are asking us for the 5G version to capitalize on the advantages mentioned above.

Remote ID is important for several reasons. The first and most important is that regulators have determined that drones must come equipped with Remote ID capabilities.

We realized that enabling Remote ID on Halo makes us even more attractive to partners. They can get all they need from the Halo as a one-stop-shop – not only the best connectivity solution available, but also a means to be compliant with new regulations without needing to purchase and install another component on the drone.



WHAT IS HALO?

Specially designed for unmanned BVLOS operations, Halo's patent-protected solution combines multiple LTE and 5G cellular carriers, RF, and SatCom into one secure pipeline to deliver reliable, high bandwidth, real-time single bonded link **Connection Confidence** with over 99.99% uptime.



WHY HALO

Specially designed for UAVs and with UAVs in mind, Halo has ElSight's patent-protected **6th Sense AI link aggregation technology**, seamlessly optimizing your connection over LTE and 5G cellular, RF and SatCom links without traditional failover. **Absolute Connection Confidence** to fit your BVLOS operational needs

Trusted By



FEATURES

- 5G Offering
- Remote ID & Network Remote ID without additional hardware
- Support for MAVLink
- Allsight cloud configuration and drone management



EXPERIENCE

- Flight time
27,500+ hrs of flight with global partners
- Certifications
Airborne LTE certified & regulated
- Integrations
Compatible with any flight computer
- Regulation ready
Get your certification to go BVLOS



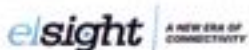
VALUE

- Stay connected
Remain connected to your valuable data
- Fly further
Save power & weight, operate BVLOS
- Optimized SWaP
Save real-estate on your platform
- Hybrid link
Optimize the most effective link



SECURITY

- Privacy
Keep your data safe & private at all times
- Cyber-security
Data split mechanism for maximal defense
- VPN tunnel
Secure & encrypted transmission tunnel
- Authentication
Identify who is using your platform



Email info@elsight.com | Website www.elsight.com | Tel +972-77-751-5600

The second reason Remote ID is important, and the reason the regulators determined Remote ID was a necessity, is the increasing number of drones present as the market grows and expands.

Safety and security are cornerstones of flight, and everyone – regulators, providers, and operators – all recognize the need for safe flight. Remote ID is just one of the means for that to happen.

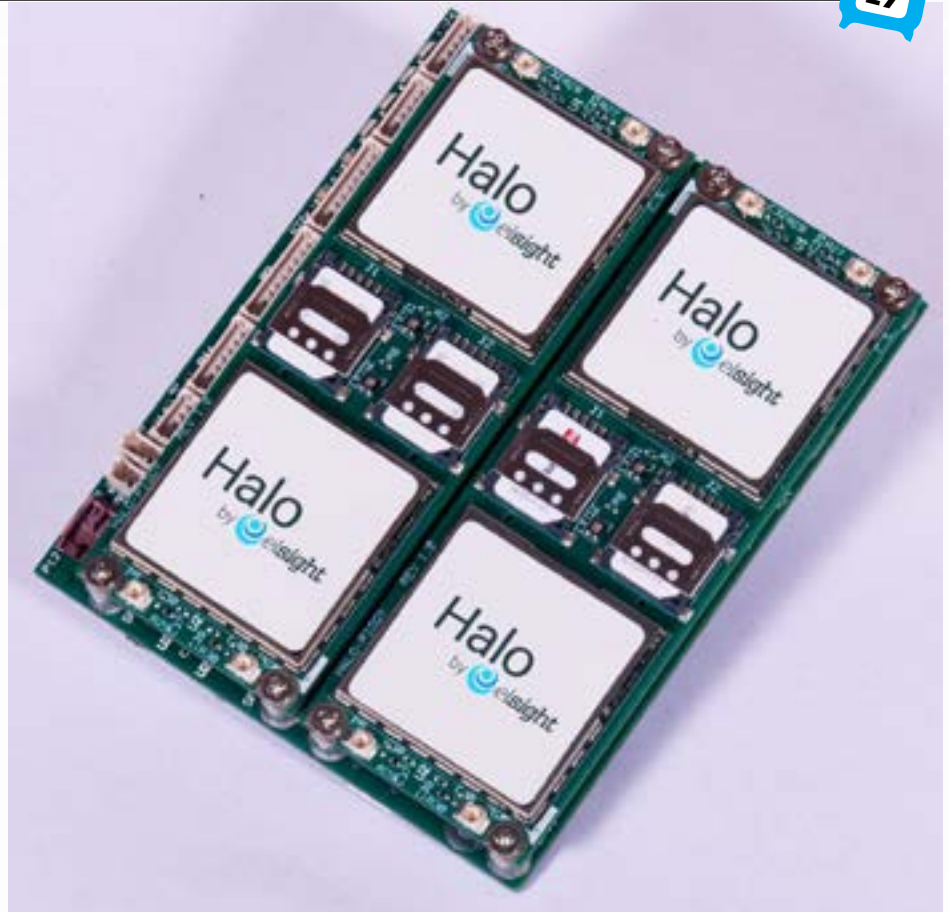
Q Who are your target customers – Commercial/ Defense Drone Manufacturers? Which are the regions you are focusing on to increase sales in future?

A Halo has the benefit of being able to work with anyone and everyone who wants to operate BVLOS. We have numerous commercial partners such as DroneUp, Spright, Speedbird Aero, SkyAir in India and numerous others – 100 partners on six continents.

We also have quite a few defense, security, and HLS partners – Elsieht just won a multi-year public tender with the Israeli police to become their supplier for Communications-on-the-Move. There are also other defense security partners who will have to remain unnamed at this time, but who are putting Halo to good use and are very happy with the results they are seeing.

Halo has an inherent advantage in that it is an industry-agnostic component – anyone looking to operate BVLOS can use Halo to fit their needs without requiring any form of special configurations or changes to make it match their purposes.

As mentioned before, we have 100 partners across the globe, including in the US, EU, South America, the



Middle East, Asia, and Australia. We are not focusing on one region more than any other because the drone market growth is occurring everywhere. Wherever people are looking to operate drones BVLOS, Halo can help them.

Q What types of applications in different industries do you envision Elsieht being used for? Where do you expect most customers?

A We discussed this briefly in the previous answer – Halo is industry agnostic. We are currently operating in quite a few different verticals. These include, but obviously are not limited to, last mile delivery, medical deliveries, utilities inspections, pipeline inspections, mining, defense, homeland security, research and more. Halo is also being utilized by several unmanned ground vehicle companies to help enable autonomous ground vehicle

operations.

We expect customers wherever people are realizing that the drone revolution is happening, and drones are here to stay. The drone market is projected to grow exponentially, being worth hundreds of billions of dollars by 2030 and we expect to be there, every step of the way.

Q What are the challenges and opportunities you see in BVLOS operations?

A Probably the most important challenge is safe and secure BVLOS flights. To do that, you need continuous, unbreakable connections between the UAV and the ground station – what we call Absolute Connection Confidence. Without being able to fly safely, drone companies will never be able to get off the ground, literally and figuratively.

The opportunities are also quite clear to anyone looking at this industry. If you can fly safely, drones are able to provide services to customers and end users at a fraction of the cost of current solutions, and with inherently more flexibility.

Just one example is the world of pipeline and utility inspections.

Drones can do the same job faster, easier, and at a fraction of the cost than people physically climbing and inspecting utility towers or turbines, or a helicopter inspecting hundreds of miles of power lines or pipelines. Add in the environmental advantages to flying a drone over a helicopter or driving a 4X4 all-terrain vehicle, and the opportunities become self-evident. That's just one example, but the principle stands true for every industry in which drones are being used.

Q How would a manufacturer that wants to benefit from your technology approach Elsieht?

A We're available 24/7 on our website, where it's incredibly easy for anyone to reach out and immediately schedule a meeting with a member of our team. In addition, we're also constantly traveling the globe and attending conferences and events where we can be reached by potential partners.

This year we've already been to conferences in North America, Europe, the Middle East, Australia, Japan, India and have more yet to come.

Finally, and this is a testament to Halo and to our partners, we've had potential customers reach out to us by recommendations from our current partners, who have been asked about their connectivity solutions and have immediately



referred back to us.

We are building a community around Elsieht and Halo, and we're always happy to have more people join us in bringing about the BVLOS revolution.

Q What's something about Elsieht that we would not find on your website?

A I believe we can comfortably say that Elsieht is one of the biggest contributors to the worldwide BVLOS market advancement. We are doing it in multiple paths. Not only providing the Halo, which provides our partners with the necessary connection confidence and other peripheral features that helps them make their operations safer and more scalable; we are also contributing to the regulation and tools to move the industry forward. Last, the feedback we are getting from all our partners is that they've never worked with a company that takes its operational experience to help their partners grow in such a productive way. Our team of professional service provides tonnes of value to our partners all the way from the first discovery call and late into the production deployments of the systems.

Q What is your vision for the next 3 years as CEO?

A Our vision in the next three years centers around the

untapped potential of the drone industry, encompassing aerial, ground, and sea drones. While the industry has made significant strides, I firmly believe we have only scratched the surface of what it can achieve. Collaboration, consolidation, and unwavering dedication will be paramount to fully unlock this potential.

Elsieht has already established itself as a significant player in the market, boasting one of the largest market shares in drone BVLOS (Beyond Visual Line of Sight) communications solutions. However, we aim to transform this speedboat into a behemoth, leading the charge in the vast ocean of uncrewed solutions. Over the next three years, we will expand our customer base and product portfolio, amplifying the value we bring to our partners.

While the complete realization of the industry's potential may be more than three years away, the next three years will undoubtedly determine this burgeoning sector's key players and landscape. Therefore, we must seize the opportunity, capitalizing on our expertise and market position to shape the industry's future.

With an unwavering commitment to innovation, customer satisfaction, and strategic partnerships, we are poised to navigate the challenges ahead and emerge as a dominant force in the drone industry. The time is ripe for us to make our mark, and we are going to define the future of uncrewed solutions.

Elbit Awarded \$180M Purchase Order Under Framework Agreement to Supply 1st 3 Watchkeeper X Tactical UAS to the Romanian Ministry of National Defense



Elbit Systems announced further to its announcement of December 21, 2022, that it received a first purchase order worth approximately \$180 million to supply the first three out of a maximum seven Watchkeeper X tactical Unmanned Aerial Systems (UAS) as part of a framework contract with the Romanian Ministry of National Defense with a maximum value of approximately \$410 million (1.89 billion Lei). The purchase order will be performed over a period of two years.

Under the purchase order, Elbit Systems will provide upgraded Watchkeeper X tactical UAS with advanced capabilities including the Spectro XR™ multi-spectral electro-optical payload, new communication capabilities and others.

The Watchkeeper X tactical, Dual Payload UAS is the UK export variant of the British Army manufactured by U-TacS, Elbit Systems' UK subsidiary in cooperation with Thales, and is a derivative of the Hermes™ UAS family. The Watchkeeper X is compatible with NATO standards enabling essential interoperability with NATO and other allied forces.

Yoram Shmuely, General Manager of Elbit Systems Aerospace: "We welcome this partnership with Romania and their trust in our solutions. We also appreciate the continued support and collaboration with the Israeli and UK governments and our business partners on the Watchkeeper program. The ongoing research and development we are investing in the Watchkeeper platform will enhance the capabilities of both the Romanian and British Armed forces to meet evolving operational requirements. This purchase order highlights the strong and growing relationship between Elbit Systems and Romania and illustrates the increased interest in our UAS platforms from countries across Europe and NATO."

Saab Receives Order for Sabertooth



Saab has received an order for the autonomous underwater vehicle Sabertooth from the marine geophysical company PXGEO. The order value is SEK 620 million and deliveries will take place 2023-2025.

The order includes more than 20 Sabertooth vehicles, which makes this the largest Sabertooth order to date. These will form part of PXGEO's MantaRay solution for offshore seismic data acquisition and will be used for deployment and recovery of equipment during ocean bottom surveys.

"Together with PXGEO, we are taking the step to make offshore seismic data acquisition fully autonomous. This is a great achievement, made possible by our combined expertise," says Görgen Johansson, head of Saab's business area Dynamics.

Saab's Sabertooth is a powerful and versatile underwater vehicle. With capability to perform operations to depths of up to 3,000 metres, it is ideal for seabed investigations.

"We are excited to bring the efficiency and reliability of the autonomous Sabertooth platform to the offshore seismic industry. The combined efforts between PXGEO's engineering team and Saab in the development of MantaRay will revolutionize our industry and finally unlock the full potential of ocean bottom node seismic in line with PXGEO's commitment to United Nations' Sustainable Development Goals," says Tony Bowman, CEO of PXGEO.

PXGEO is an innovative marine geophysical service provider with headquarters in Dubai, United Arab Emirates.

GA-ASI Performs 1st Flight of New Heavy Fuel Engine for Gray Eagle ER



General Atomics Aeronautical Systems, Inc. (GA-ASI) conducted the first flight of its new 200-horsepower heavy fuel engine on a Gray Eagle aircraft at its El Mirage flight facility on May 9, 2023. The Heavy Fuel Engine (HFE) 2.0 is being considered by the U.S. Army to become the fleet replacement for the current 180-horsepower engine used by the Gray Eagle Extended Range (GE-ER) Unmanned Aircraft System (UAS). HFE 2.0 is also the cornerstone of the modernized Gray Eagle 25M (GE-25M) aircraft currently being developed under a U.S. Army-funded program to support future Multi-Domain Operations (MDO) missions.

GA-ASI initiated the Internal Research and Development program that led to HFE 2.0 in 2016 with the goal of designing and developing a more reliable and durable engine that would also address diminishing manufacturing sources for aviation heavy fuel engines and components. GA-ASI and its affiliate General Atomics Europe partnered with global leaders in high-performance engines—supported by propulsion technology innovator Cosworth—to develop an engine with increased horsepower, durability, and reliability. GA-ASI also brought in General Atomics Electromagnetic Systems (GA-EMS) to design and build the engine's dual brushless generators, which will dramatically reduce field maintenance and deliver over 50 percent more electrical power for new payloads and mission capabilities.

"We're very excited to see GE-ER powered by this new state-of-the-art propulsion system," said GA-ASI President Dave Alexander. "In order to ensure the highest reliability and durability, we brought together a world-class team from across industry and leveraged our extensive HFE experience to deliver this solution. We're proud to make this engine available to our U.S. Army customer."

The design effort was focused on reducing field maintenance and extending the time between engine replacement by 40 percent over the current engine. HFE 2.0 will continue to undergo planned IRAD flight tests and begin qualification testing this year.

L3Harris Robots Selected by Australian Defence Force to Defeat IED Threats



L3Harris Technologies has been announced as the successful tenderer for a \$30 million contract with the Australian Defence Force (ADF) to provide up to 80 robotic explosive ordnance disposal (EOD) systems to safeguard ADF personnel.

L3Harris will begin the delivery of a variety of medium-sized T4 and large-sized T7 robots to commence in late 2023. The robots are a part of the Land-154 program, which aims to enhance EOD unit capabilities in improvised explosive device (IED) neutralization and exploitation as well as route clearance.

"We're honored the Australian Defence Force has put its trust in us to help safeguard its personnel," said Ed Zoiss, President, Space and Airborne Systems, L3Harris. "The trust in our systems for EOD capabilities is growing around the globe, with units deployed by the U.K., U.S. and now Australia. Following the ADF contract award, we plan to establish a local service center in Australia that will act as a repair hub for all robots within the Asia-Pacific region."

There have been two agreements that have preceded the current contract with the ADF. The U.K. Ministry of Defence replaced its legacy fleet of robots with 122 T7s for Project STARTER, seeing L3Harris robots deployed in the U.K., Cyprus and Gibraltar. Since June 2021, the U.S. Air Force has ordered more than 100 T7s to support global EOD missions. The ADF is the first to adopt both T7s and the T4s.

Thales' Uncrewed Surface Vessel Passes a Significant Milestone in Autonomous Mine Hunting Trials



It has recently been confirmed by the UK Ministry of Defence that the trials were run in December 2022 by the Royal Navy Maritime Autonomous System Trials Team (MASTT), supported by Thales. Observing and approving the trials off Weymouth Bay were representatives from the UK Naval Authority and Technology Group (NATG) and the Mine Hunting Capability team from the Ministry of Defence.

The programme is delivering world leading maritime mine warfare capabilities, which will keep the UK and France at the forefront of naval autonomous systems technology. The delivery of uncrewed mine clearance platforms will allow the Royal Navy (RN) to continue their important role of keeping shipping lanes open without putting sailors or crewed platforms into the threat area. Fitted with a powerful combination of sensors, including radar, LIDAR (light detection and ranging) and electro-optical and infra-red cameras, the vessel's position was continuously relayed to the command and control centre over a secure communications network.

This connection enabled the command and control software to merge the sensor inputs into a single (Coherent) tactical picture using Thales MCube mission management software. It also allows detection and tracking of other vessels and to take appropriate actions, including remotely controlled avoidance manoeuvres. In service, these vessels will be capable of operating in national waters or being air-transported quickly across the world to hunt for mines in danger zones or secure sea lines of communications, while demonstrating high rates of reliability, autonomy and cybersecurity. They can be deployed and operated from ship and shore bases providing configurable and performant capability.

RNMB Apollo is one of the two pre-production Uncrewed Surface Vessels delivered to the Royal Navy and Marine nationale (French Navy) in December 2021 as part of the joint UK-France Maritime Mine Counter Measures (MMCM) programme which will bring autonomous mine hunting capability to the two respective Fleets. With stage two of the contract now in the production phase, Thales is actively working with the customers and will be able to deliver full operating capability to both Nations in 2024.

As the first of their kind, these trials are a significant milestone in the path towards certification of autonomous maritime systems for operational use. They represent one of the first important steps in gaining trust in uncrewed vessels in a complex programme. The trial is a critical remote operation stepping stone towards autonomous mine hunting. Alex Cresswell - Chief Executive and Chairman, Thales UK We have a long tradition of supporting the Royal Navy and Marine nationale in mine warfare, surface ship and underwater operations and we are very proud to be working with them to bring these game-changing autonomous systems into operational service. Gwendoline Blandin-Roger, Managing Director Underwater Systems, Thales

Italian Air Force Begins Training at GA-ASI's FTTC



The Italian Air Force began training its first cohort of pilots and sensor operators to fly its new MQ-9A Block 5 Reaper Remotely Piloted Aircraft System (RPAS) at the Flight Test & Training Center (FTTC) in Grand Forks, N.D., which is owned and operated by General Atomics Aeronautical Systems, Inc. (GA-ASI). When GA-ASI delivers the first MQ-9A Block 5 to the Italian Air Force, it will be the first of several Block 5 deliveries being made to the Italian Air Force as they expand their fleet.

The training began with the Instructor Difference Training (IDT) for current Italian instructors from the 32 STORMO Squadron based at Amendola Air Base. A total of 31 aircrew members (14 pilots and 17 sensor operators) from different Italian squadrons will be trained on MQ-9 Block 1 to Block 5 Transition Courses (TX-4), which includes Basic Qualification Courses (TX-1) for the current Block 1 aircrew, such as Mission Control Elements (MCE), and Automated Checklists (ACL).

The scope of the training is focused on skills required to operate the Block 5 air vehicle and its equipment, including the Multi-Spectral Targeting System (MTS), Synthetic Aperture Radar (SAR), Mission Intelligence Station (MIS), and System for Tasking and Real-Time Exploitation (STARE). Training involves building solid foundations for both normal and emergency operations in Intelligence, Surveillance, and Reconnaissance (ISR) systems, instrument flying, and Automatic Takeoff and Landing Capability (ATLC).

The training includes live flight of the air vehicle.

"Our customers have come to rely on the Flight Test & Training Center," said GA-ASI President David R. Alexander. "The FTTC is GA-ASI's premiere training facility, because of its high quality of instruction, excellent training devices and the availability of airspace to operate in."

Aeronautics Launches Orbiter 5 UAV



Israeli unmanned aerial system (UAS) manufacturer Aeronautics is launching a new unmanned aerial vehicle (UAV), the Orbiter 5, which the company claims enables medium-altitude, long-endurance (MALE) UAV mission capabilities in a tactical UAV, the company announced on 14 June 2023. The system, which is being unveiled at the Paris Air Show between 19 and 25 June, is focused on the global defence and homeland security markets and is professed by Aeronautics to present “a new paradigm in UAS system performance”.

The Orbiter 5 has an endurance of more than 25 hours, with multi-mission capabilities enabled by its capacity to carry two payloads simultaneously amounting to more than 25 kg, and features advanced artificial intelligence (AI) capabilities, according to Aeronautics. In addition, the platform has a dual avionic system and a dual-ignition engine to ensure a high degree of safety and mission success.

The Orbiter 5's four-stroke engine supplies up to 600 W of electrical power for the onboard mission systems, enabling the use of complex payloads for

varied ISTAR applications. According to a specification sheet provided to ESD ahead of the Paris Air Show, the Orbiter 5 has a wingspan of 6.4 m and a length of 2 m, making it the largest UAV in the Orbiter range. As well as an electro-optical/infrared-red sensor with laser pointer/rangefinder/designator, the potential payloads for the Orbiter 5 include those related to electronic warfare, electronic intelligence, communications intelligence.

In addition, “with an advanced miniature radar, the Orbiter 5 is also the ultimate solution for maritime missions,” Aeronautics stated in its press release.

The Orbiter 5 has been designed to facilitate short mission preparation times with rapid and simple assembly in the field using only one tool, enabling multiple platforms to be launched in a matter of minutes “for vast area surveillance and terrain dominance”, Aeronautics stated.

The company added that the system is operable in harsh weather conditions and features an advanced navigation system that is fully operational in GPS-denied areas.

“A highly transportable vehicle-mounted system enables the Orbiter 5 to operate from anywhere without the need for fixed structures such as runways, giving the Orbiter 5 system higher survivability than MALE platforms,” Aeronautics asserted. “The system features autonomous flight and recovery modes and has a small logistic footprint. Its low lifecycle cost compared to other solutions for relevant operational requirements makes the Orbiter 5 extremely cost-effective.”

“The result of years of innovative technological and system development at the Aeronautics Group and in response to customer needs, Orbiter 5 offers the mission ‘sweet spot’ for current and future operational requirements,” Dan Slasky, company president and CEO, was quoted as saying in a press release. “We are proud to say that this system was designed with our customers’ needs in mind and has already logged hundreds of flight hours. We are confident that this newest member to the Aeronautics fleet will [address] current and future customer needs worldwide, together with the other members of the Orbiter family of systems.”

Supernal and GKN Aerospace Announce Agreement for eVTOL

Supernal LLC (the Company) and GKN Aerospace announced a partnership on the design and build of major aerostructures and Electrical Wiring Interconnection System (EWIS) for Supernal's electric vertical takeoff and landing (eVTOL) vehicle. The companies will also mature high-rate manufacturing technologies to produce these parts and assembly methods. This marks the second established aerospace manufacturer agreement Supernal has announced at the Paris Air Show, as the Company works to develop a novel high-rate manufacturing process that will enable the Advanced Air Mobility (AAM) industry to meet expected demand in the coming decades.

GKN will work with Supernal to apply its broad portfolio of design capabilities and manufacturing technologies to the development of the Company's eVTOL vehicle. GKN will supply lightweight aerostructures and high-voltage, high-power electrical wiring systems for Supernal's full-scale technology demonstrator, which the Company will begin flying in 2024. The partnership aims to improve the business case—and process—for introducing advanced materials and rate-enabling assembly processes to the AAM industry. In working with GKN to mature these innovative processes from the outset, Supernal will develop volume ramp-up capabilities that enable the Company to rapidly scale production as aircraft order demand grows.

"Manufacturing is crucial to the success of Advanced Air Mobility and Supernal is pleased to partner with leading suppliers, such as GKN Aerospace, to industrialize existing processes," said Jaiwon Shin, president of Hyundai Motor Group and CEO of Supernal. "Instead of focusing on 'time to market,' Supernal is prioritizing 'time to scale.' Our work with



GKN Aerospace will lay the foundation for producing eVTOL vehicles at scale and will be bolstered by Hyundai Motor Group's high-tech manufacturing processes."

As part of Hyundai Motor Group (HMG), Supernal is working to integrate the automotive leader's expertise—including supply chain management, logistics and distribution, and manufacturing—throughout the AAM ecosystem. In the manufacturing realm, HMG is helping Supernal to develop a scalable digital factory model that will industrialize aerospace material and assembly advancements. Supernal's work with leading aerospace manufacturers, such as GKN Aerospace, is an important first step toward the Company's ability to reduce the cost and time of aircraft production.

GKN Aerospace is a global leader in the design and manufacturing of lightweight aerostructures and EWIS, across global original equipment manufacturers (OEMs) and the growing AAM market. Supernal and GKN

Aerospace's design and manufacturing activities have begun at GKN Aerospace's Global Technology Centre in Bristol and across sites in Europe.

"We are excited to collaborate with Supernal and to support the development of this all-new eVTOL," said John Pritchard, president, civil airframes, GKN Aerospace. "Supernal's eVTOL can play a key role in the transition to zero-emissions flight, and we are delighted to be collaborating on the platform, in line with our mission to be the most trusted and sustainable partner in the sky. GKN Aerospace is proud to bring to this project its wealth of experience in design and high-rate manufacturing, in conjunction with key technological innovations and expertise."

Supernal's partnership with GKN Aerospace is part of the Company's "open ecosystem" approach to address the niche technology needs of AAM. The Company plans to grow its portfolio of manufacturing partners across other vehicle components and assemblies, in addition to airframe.

NEOM and Volocopter: 1st Electric Air Taxi Flight in Saudi Arabia

NEOM, the smart and sustainable regional development in northwest Saudi Arabia, and Volocopter, the pioneer of urban air mobility (UAM), announced the successful completion of a series of air taxi test flights. This marks the first time an eVTOL (electric vertical takeoff and landing) aircraft has received a special flight authorization and performed test flights in the Kingdom of Saudi Arabia.

The flight test campaign lasted over a week and built on 18 months of collaboration between NEOM, the General Authority of Civil Aviation (GACA), and Volocopter, with the aim of implementing and scaling an electric UAM ecosystem and testbed in NEOM. The parties worked closely to ensure full regulatory compliance and safety ahead of the test campaign.

Nadhmi Al-Nasr — CEO of NEOM, “The successful test flight of a Volocopter eVTOL is not just another milestone on the journey towards the creation of NEOM’s innovative, sustainable, multimodal transportation system – it is a tangible example of NEOM as a global accelerator and incubator of solutions to the world’s most pressing challenges. Driving the development of smart, sustainable, and safe mobility systems will improve livability and connectivity in cities around the world and reduce carbon emissions, creating a cleaner future for all.”

His Excellency, Abdulaziz A. Al-Duailej — President of the General Authority of Civil Aviation (GACA) of the Kingdom of Saudi Arabia, “This safe and successful test flight represents an important milestone of the Saudi aviation sector and another steady step towards achieving the aviation sector’s strategy, through innovation and employing emerging technologies to create new industries that contribute to the output



GDP and create more jobs. It also confirms GACA’s commitment to enabling the safe integration of innovative air transport patterns that improve the mobility experience of individuals in urban areas and the quality of life in the Kingdom of Saudi Arabia.”

NEOM and Volocopter share a joint vision of creating a better future through innovative, clean technology. As part of a multimodal transportation system, electric air mobility reflects NEOM’s ambition to revolutionize mobility and transform people’s lives. In 2021, NEOM and Volocopter founded a joint venture to scale advanced air mobility, positioning NEOM as a collaborative, global living lab for the future of transportation.

Christian Bauer — Chief Commercial Officer and Chief Financial Officer of Volocopter “It is beyond exciting to see our work from the past 18 months come to fruition. As the first eVTOL aircraft to ever test in Saudi Arabia, we are proud to have laid the groundwork for our future collaboration here in NEOM.”

The test campaign focused on the flight performance of the Volocopter aircraft in local climate and environmental

conditions, as well as testing its integration into the local unmanned aircraft system traffic management (UTM) system.

Volocopter eVTOLs will be key to NEOM’s smart and sustainable multimodal mobility system, which will be powered by 100% renewable energy generated by solar and wind energy sources. They will be used in a variety of roles, including as air taxis and emergency response vehicles, and are quieter, more easily adaptable, and cheaper to operate than the helicopters often employed today. They have a smaller on-ground infrastructure footprint, fewer operating restrictions, and employ smart and autonomous capabilities that ensure both safety and sustained relevance in future contexts.

The test flight announcement builds on NEOM’s EUR 175 million investment and joint venture with Volocopter and positions NEOM as a leader in future mobility solutions. Volocopter expects to obtain type certification for its VoloCity air taxi in 2024, enabling future commercial operations. Volocopter recently announced the commencement of VoloCity serial production at its facilities in Bruchsal, Germany, with a capacity to deliver more than 50 aircraft a year.

Bao'an District of Shenzhen Municipality and Lilium Partner for eVTOL Service in China



The Bao'an District of Shenzhen municipality and Lilium N.V. developer of the first all-electric vertical take-off and landing ("eVTOL") jet, have signed a Memorandum of Understanding (MoU) for the opening of a regional Lilium headquarters in Bao'an District as a first step in a partnership to establish a safe and sustainable eVTOL service in China with the Lilium Jet. The collaboration will initially focus on the Guangdong-Hong Kong-Macao Greater Bay Area, with a population of over 85 million people, with plans to grow across China and the broader Asia-Pacific region.

The goal of the regional headquarters is to represent Lilium in China and the Asia-Pacific region and to facilitate Lilium Jet sales, services, and support in the area. The Bao'an District's extensive regional knowledge will benefit Lilium as the two parties build the foundation for premium

eVTOL operations in the Greater Bay Area, including defining launch routes, use cases, and other logistics related to the Lilium Jet's entry into service.

A representative of the Bao'an District of Shenzhen municipality said: "As the aerial gateway of Shenzhen and a hub for the aerospace industry, Bao'an District possesses unique advantages in the development of the low-altitude economy, including a central location in the Greater Bay Area, robust industrial support, and a wide range of application scenarios. Lilium has always been at the forefront of the eVTOL field and is a global leader in electric aviation. Going forward, we will create a better environment and provide greater support for the project to land, allowing enterprises to develop in Bao'an with peace of mind. We also hope that Lilium will accelerate its footprint in Bao'an, expanding the establishment of sales centers, research and development

centers, production, and other facilities in Bao'an, to achieve faster and stronger growth."

Klaus Roewe, CEO of Lilium said: "China represents an enormous opportunity for the eVTOL industry we believe, projecting to amount to as much as 25% of the market. We are thrilled to be entering China with such a strong partner – the Bao'an District. Fast, comfortable, and sustainable transport will strongly contribute to the region's development. We are grateful for the commitment and engagement the Bao'an District is offering."

Lilium has strong customer interest for the Lilium Jet worldwide, and to date has a pipeline of potential sales from multiple customers across Europe, South America, the Middle East, the United States, and Asia. Entry into the important Chinese market underlines the rapid global penetration of Lilium as a leading eVTOL manufacturer.

Eve Air Mobility and Nordic Aviation Capital Sign LOI for Up to 30 eVTOLs



Eve Air Mobility has signed a Letter of Intent (LOI) with Nordic Aviation Capital (“NAC”), a global leader in regional aircraft leasing, to promote the electric vertical take-off and landing (eVTOL) aircraft through optimized leasing strategies. The LOI establishes that Eve will have the opportunity to utilize NAC’s global presence and asset management knowledge while NAC will acquire 15 firm plus 15 optional eVTOLs that will be leased to fleet operators, supporting the development and scaling of innovative transportation operations.

As the third leasing company added to Eve’s customer list, NAC plays a key role in the development, expansion and success of the eVTOL and Urban Air Mobility (UAM) industry by providing financing, risk management and industry expertise in additional markets across the world. The partnership also allows Eve and NAC to diversify portfolios,

encourage environmental conservation and technological advancement, and expand eVTOL leasing options. With the UAM industry focused on electric aircraft, successful collaboration emphasizes the development of environmentally friendly aviation technologies and propulsion systems for a more sustainable future.

“This partnership with Nordic Aviation Capital offers the world greater convenience and access to the latest and most advanced air travel solutions,” said Andre Stein, co-CEO of Eve. “By leveraging leading technology and providing exceptional customer experiences, fleet operations will enable the growth and development of the urban air mobility network. With the support of NAC, creating strategic partnerships will continue to allow Eve to improve the network and accessibility of urban air mobility.”

Norman C.T. Liu, President & CEO of NAC, said: “We are pleased to have

signed this LOI with Eve. This is an important step in our ESG strategy, and we look forward to partnering with Eve to bring these innovative and sustainable solutions to market.”

From design to user experience, reliability and usability, Eve is committed to integrating cutting-edge technology into the UAM industry. Eve takes a comprehensive approach to its eVTOL project, Services and Operations Solutions and Urban Air Traffic Management (Urban ATM) to guarantee air commuters a safe and sustainable transportation alternative. Determined to make UAM a reality over the next two years, Eve is backed by Embraer, with renowned aircraft engineering expertise and a record of successful aircraft construction and certification. Eve is looking toward the future by enhancing its products and services to cultivate the success and innovation of air transportation.

SkyDrive Selected Thales to Provide Flight Control System for Its eVTOL, the “SKYDRIVE”



With ground traffic congestion and associated pollution becoming a major concern in cities around the world, eVTOL aircraft represent a disruptive solution to mobility challenges.

With the mission of “taking the lead in the once-in-a-century mobility revolution,” SkyDrive is developing eVTOL aircraft to create a future where everyone has access to eVTOL as their daily transportation. SkyDrive has been selected to participate in Advanced Air Mobility “Smart Mobility Expo” Project at Expo 2025 Osaka, Kansai, Japan and the company aims to fly its “SKYDRIVE” eVTOL aircraft at the Expo. Designed to be flown with one pilot and two passengers on board for intra-city flights, the “SKYDRIVE” requires flight control

solutions securing safe flights above populated areas.

Flight control system is one of the key elements of eVTOL aircraft. Calculating and adjusting the position of the aircraft’s control surfaces and managing engine thrust, the fly-by-wire system is a critical element of flight safety.

Thales pioneered Fly-by-wire solutions in the 1980s with the first installation on Airbus A310. Since then, more than 12,000 aircraft have been equipped with Thales solutions. Today, Thales FlytRise materializes a new generation of flight controls, offering the “SKYDRIVE” the combined benefits of proven experience and adaptation to eVTOL requirements, in particular lightness, compactness, and autonomy-readiness.

Comment by Arnaud Coville,

SkyDrive Inc. Chief Development Officer, “We are very pleased to have Thales as our partner in the field of flight control for our eVTOL aircraft the ‘SKYDRIVE’. Thales’s flight controls have long been trusted in the aviation industry. As an eVTOL manufacturer, SkyDrive values safety above all, and we believe that partnering with Thales in flight control, which is a key safety-related technology, will enable us to achieve the safety objectives of our aircraft.”

Comment by Jean-Paul Ebanga, Thales VP Flight Avionics, “While mobility is seeking new sustainable solutions, we are proud to support SkyDrive in opening the skies to urban transportation, thanks to our new generation flight controls solution enabling ‘SKYDRIVE’ to fly safely.”

SkyDrive Reaches Basic Agreement with Suzuki to build eVTOL Aircraft



SkyDrive Inc a leading Japanese eVTOL aircraft manufacturer headquartered in Toyota City, Japan, announced at Paris Air Show 2023 that the company had signed a basic agreement with Suzuki Motor Corporation for cooperation in manufacturing “SKYDRIVE” eVTOL aircraft.

SkyDrive will establish a wholly owned subsidiary (hereinafter “the manufacturing subsidiary”) for the purpose of manufacturing its eVTOL aircraft “SKYDRIVE.” With Suzuki, the manufacturing subsidiary will utilize a production facility owned by the Suzuki Group in Shizuoka Prefecture, Japan, and aims to start building the SkyDrive “SKYDRIVE” eVTOL aircraft by spring of 2024. Suzuki will also cooperate with the manufacturing subsidiary in securing human resources and making other preparations for the start of manufacturing. More specific terms and conditions will be agreed upon through ongoing discussions.

The “SKYDRIVE” eVTOL aircraft, to be built at Suzuki’s production facility, is a three-seat, electric-powered lightweight aircraft with vertical takeoff and landing capabilities.

Comment by Toshihiro Suzuki, Suzuki Motor Corporation President: “We are excited to cooperate with SkyDrive as we ambitiously work towards creating valuable products that contribute to the realization of a world where people use the sky for their daily transportations.”

Comment by Tomohiro Fukuzawa, SkyDrive Inc. CEO: “At Suzuki, all manufacturing activities are based on a concept, ‘Smaller, Fewer, Lighter, Shorter, and Neater’ and SkyDrive is developing lightweight air mobilities. Suzuki and SkyDrive have been collaborating since March 2022 and we are very excited that SkyDrive will utilize the production facility of Suzuki to build our eVTOL ‘SKYDRIVE.’ In our pursuit to consistently manufacture safe and high-quality aircraft for the world, we are grateful for the valuable know-how we will learn from Suzuki, a global leader in automobile mass production. Suzuki and SkyDrive will work closely towards the shared goal.”

Safran and Volocopter Explore to Drive eVTOL Future Forward



Volocopter, the pioneer of Urban Air Mobility (UAM), and Safran Electrical & Power, one of the world’s leaders in aircraft electrical systems, announced at the Paris Air Show 2023, that they have signed an agreement signifying their intention to collaborate on developing a next generation power train for electric vertical takeoff and landing (eVTOL) aircraft.

The agreement covers the exploration of commercial and engineering partnerships, specifically around the entire electric powertrain ranging from the electrical propulsion system (EPS), battery units, and power distribution system to wider engineering services.

eVTOLs are the next frontier of electric aviation. This emerging industry supplements existing public transportation networks in urban areas with sustainable, battery-powered aircraft offering a safe and quiet mode of transportation. The partners bring together decades of expertise in aircraft development which now is applied to the novel eVTOL and EPS space.

Olivier Andriès — CEO of Safran “Volocopter is pioneering Urban Air Mobility. With a feasible design and a clear ambition to start operations as soon as next summer in Paris, we would be proud to partner with them for their future development in this highly promising new branch of the aviation industry. Safran has always kept up with the times and pushed innovation to decarbonize aviation.”

Dirk Hoke — CEO of Volocopter “The prospect of collaborating with Safran, a leader in powertrain development as part of our UAM-ecosystem is exciting on several levels. Optimizing battery density and improving EPS effectiveness is the biggest performance lever for lightweight aircraft like eVTOLs. And on a personal note, it’s a stellar example of French German industry collaboration to keep European technology innovation competitive on a global level.”

Dedrone Defense Launches DedroneTactical to Meet Rising Demand for Agile, Expeditionary Multi-Sensor Counter-sUAS Solutions



Dedrone, the market leader in smart airspace security announced the launch of DedroneTactical, its agile CsUAS (counter small uncrewed aerial system) response kit, offering modular sensor-fusion and mitigation flexibility in the field, including Radio Frequency (RF) detect and defeat as well as camera and radar. All configurations leverage DedroneTracker.AI, the company's AI-driven autonomous command and control (C2) platform that provides end-to-end CsUAS kill chain capabilities for dynamic situations in a portable solution. By leveraging DedroneTracker.AI, DedroneTactical delivers the fastest and most accurate CsUAS solution in any environment.

To date, Dedrone has sold more than 100 DedroneTactical kits to US and global governments, a key factor in the company's >300% YOY annual growth rate.

"The first half of 2023 has continued Dedrone's incredible momentum from 2022, culminating in the new capabilities and equipment of our DedroneTactical solution, which were inspired by the demand of our federal customer base," said Aaditya

Devarakonda, CEO of Dedrone. "Through this multi-sensor detect and defeat solution, DedroneTactical delivers our advanced AI-driven sensor-fusion technology in an expeditionary format, enabling operators to make decisions quickly and more accurately. We look forward to continuing to innovate with, and in service of, all our federal customers and warfighters working to secure airspaces and protect people, property and information from the threat of drones."

The flexible, plug-and-play DedroneTactical solution consists of two masted kits, one ruggedized laptop and associated peripherals. Each kit is designed for quick and easy toolless set-up and tear-down. All DedroneTactical configurations leverage the DedroneTracker.AI C2 solution to deliver a complete airspace security solution that can be used for any sUAS-based threat profile and location. DedroneTracker.AI's true AI-driven sensor-fusion capabilities utilize autonomous interrogation of potential threats to virtually eliminate false positives and elevate high threat score targets to the operator, in a true "man-on-the-loop" format, for effective, rapid and accurate

responses.

"DedroneTactical was created in close collaboration with our most strategic federal customers to fill the current capability gap for a complete CsUAS kill-chain and support the requirements of the expeditionary warfighter in today's Agile Combat Employment (ACE) mission," said Rob Campbell, Head of US Federal Business, Dedrone. "Dedrone continues to perform at the highest levels of efficacy at both Department of Defense and civilian test events. In fact, at our most recent review, DedroneTracker.AI's AI-driven image recognition and autonomous detection engine performed at an estimated 95% accuracy level."

DedroneTactical's Base Kit supports several ruggedized RF sensors and BlueHalo Titan™ for EW defeat of RF-based sUAS across all protocols. All sensors are mounted on a single tactical mast and can be expanded to include additional remote DedroneSensors via wireless network links. The Extended Kit adds a second mast with radar and camera to enable both non-RF drone detection for autonomously navigated drones and as well as visual confirmation.

Skydio Secures Nationwide BVLOS Approval for Remote Drone Operations in Japan



Skydio, the leading U.S. drone manufacturer and world leader in autonomous flight announced the Japan Civil Aviation Bureau (JCAB) has granted Skydio an unprecedented, nationwide approval to remotely fly drones beyond visual line of sight (BVLOS). Representing one of the most advanced regulatory approvals in the world, the approval enables streamlined BVLOS operations using Skydio Dock and Remote Ops. Whether a customer is monitoring complex infrastructure, inspecting a security perimeter, or assessing a site following a natural disaster — Skydio’s AI and autonomous technology allows drones to safely fly missions in close proximity to structures in a way that would be difficult or impossible with manual drones, even when

operated remotely without a pilot on-site.

Under the JCAB approval, there is no requirement to use additional crew members (such as visual observers) or technology to detect crewed aircraft, eliminating some of the greatest challenges faced by drone operators. The approval is not location or time specific; it applies across Japan, with limited exceptions. Notification of the flight area is required prior to takeoff using JCAB’s web portal. Operators can now remotely inspect critical infrastructure—buildings, roads, power plants and the scenes of natural disasters—safely and quickly without placing people at risk.

“This waiver represents a landmark moment for the drone industry, and is a reflection of regulators responding to

the advances in AI and autonomy that are already defining the next chapter in drones and delivering enormous value for organizations,” said Adam Bry, CEO at Skydio. “With Skydio Dock and Remote Ops, organizations gain access to real-time data to make decisions that keep their workers safe, make their operations more efficient, and help their communities thrive. Autonomous remote drone operations enable inspections of hard-to-reach and dangerous areas from the safety of an office.”

The approval demonstrates Skydio’s commitment to supporting our customers, providing best-in-class products that unlock new use cases coupled with unique regulatory approvals driving unprecedented levels of value.

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