**1 . Date: 18-09-2023Loitering Munition - Small - Contract - Elbit Systems Awarded a $95 Million Contract to Supply Canister Configuration SkyStriker Loitering Munitions to a European CountryURL: https://elbitsystems.com/pr-new/elbit-systems-awarded-a-95-million-contract-to-supply-canister-configuration-skystriker-loitering-munitions-to-a-european-country/**

Haifa, Israel, September 18, 2023 – Elbit Systems Ltd. announced today that it was awarded a $95 million contract to supply SkyStriker loitering munitions (LM) to a European country. The contract will be carried out over a period of two years.

As part of the contract Elbit Systems will provide several hundred SkyStriker units.

Elbit Systems' SkyStriker LM is a fully autonomous loitering munition that can locate, acquire and engage operator designated targets with a warhead of up to 10 Kg, enabling high-precision performance. SkyStriker can be launched from a variety of ground and aerial platforms, including from a dedicated canister on Elbit Systems' PULS™ (Precise and Universal Launching System) rocket artillery systems.

Equipped with an electrical engine, the SkyStriker enables covert operations of up to 2 hours and with a range of 100km. The system can precisely strike targets while maintaining a "man in the loop" even in GPS and communication denied environments.

The Skystriker can use a number of warhead types and thanks to its modular design, it can be interchanged in the field during pre-flight according to the operational requirement.

Yoram Shmuely, General Manager of Elbit Systems Aerospace: "We are pleased to deliver an innovative and effective solution to our cutomers that combines Elbit Systems air and ground solutions. As a covert and agile platform, the SkyStriker loitering munition delivers high performance precision and reliability, providing a mission critical advantage to warfighters on the modern battlefield."

Elbit Systems Ltd. is an international high technology company engaged in a wide range of defense, homeland security and commercial programs throughout the world. The Company, which includes Elbit Systems and its subsidiaries, operates in the areas of aerospace, land and naval systems, command, control, communications, computers, intelligence surveillance and reconnaissance ("C4ISR"), unmanned aircraft systems, advanced electro-optics, electro-optic space systems, EW suites, signal intelligence systems, data links and communications systems, radios, cyber-based systems and munitions. The Company also focuses on the upgrading of existing platforms, developing new technologies for defense, homeland security and commercial applications and providing a range of support services, including training and simulation systems.

**2 . Date: 17-08-2023Armed ISR / ISTAR - MALE - General - PlatformRussia has officially confirmed the first flight of the Sirius attack drone, which copies the MQ-9 Reaper - deliveries will begin by the end of 2023URL: https://gagadget.com/en/uav/295745-russia-has-officially-confirmed-the-first-flight-of-the-sirius-attack-drone-which-copies-the-mq-9-reaper-deliveries-w/**

The Russian company Kronshtadt has officially confirmed that the Sirius attack drone has made its first flight. Moreover, deliveries are expected to start soon.

Russia is currently hosting the forum "Army-2023". Representatives of the Kronstadt company said that the drone took to the skies for the first time, but a series of flight tests are still ongoing.

"Sirius" will be able to carry unguided bombs and missiles. The maritime version of the drone will be used for search and rescue operations and act as an aerial reconnaissance platform.

It is known from public data that the drone is 9 metres long and has a wingspan of 20 metres. The maximum take-off weight is 2.5 tonnes and the cruising speed is 180 km/h. Deliveries of Sirius drones are due to begin by the end of 2023.

**3 . Date: 01-10-2023Armed ISR / ISTAR - MALE - Pitch - Turkey considers supplying Ukraine with new Bayraktar Akinci attack dronesURL: https://gagadget.com/en/uav/326537-turkey-considers-supplying-ukraine-with-new-bayraktar-akinci-attack-drones/**

Ukraine is one of the largest operators of Turkish Bayraktar TB2 attack drones. However, another Baykar Makina UAV may appear in the Defence Forces' inventory in the future. We are talking about the newer Akinci development.

Last week, a defence industries forum was held in the capital of Ukraine. Baykar Makina CEO Haluk Bayraktar attended the event, where he answered a question from Ukrainian journalists about possible Akinci deliveries.

Turkey has handed over dozens of Bayraktar TB2 drones to Ukraine. Ukraine received several UAVs free of charge. As for possible deliveries of Bayraktar Akinci, the company's CEO said that this issue is under consideration.

Akinci was adopted by the Turkish Air Force in 2021, and a year later serial production began. The drone has a length of 12.2 metres, a wingspan of 20 metres and a maximum take-off weight of 5,500kg, including a 1,350kg payload.

The drone can be equipped with Turkish PD-222 or Ukrainian AI-450T engines. The maximum flight duration is 24 hours. Bayraktar Akinci has nine suspended points for weapons, including cruise missiles.

**4 . Date: 04-10-2023Loitering Munition - Small - General - PlatformRaven 145 is a new Serbian kamikaze drone with a 35kg payload that can destroy tanks within a 150km radiusURL: https://gagadget.com/en/uav/328769-raven-145-is-a-new-serbian-kamikaze-drone-with-a-35kg-payload-that-can-destroy-tanks-within-a-150km-radius/**

The Partner 2023 arms exhibition is taking place in Serbia. Local company Yugoimport presented a kamikaze drone called Raven 145.

The drone can be used not only to destroy enemy targets. Raven 145 is equipped with a camera that allows it to conduct reconnaissance and surveillance. In kamikaze drone mode, it can engage stationary and moving targets, including tanks, armoured vehicles and command posts.

The Raven 145 can reach speeds of 150 km/h and climb to an altitude of up to 2,000 metres. The payload weighs 35kg and the total take-off weight of the aerial platform is 50kg. The kamikaze drone is capable of destroying a target within a radius of up to 150 kilometres.

The Raven 145 uses a solid rocket motor to launch. After acceleration and altitude gain, a two-cylinder engine that runs on petrol starts to operate.

**6 . Date: 14-09-2023Armed ISR / ISTAR - MALE - General - PayloadLeonardo unveils Proteus uncrewed helicopter concept at DSEIURL: https://helihub.com/2023/09/14/leonardo-unveils-proteus-uncrewed-helicopter-concept-at-dsei/**

Leonardo and the UK Ministry of Defence (MOD) are pleased to unveil a mature concept of the technology demonstrator, known as project “Proteus” by the British Armed Forces, at DSEI London 2023 .

As part of phase 3a of the RWUAS CCD Phase 3 TDP, awarded in July 2022 by the UK MOD Defence Equipment and Support (DE&S) Future Capability Group (FCG), a design which highlights conceptual maturity for uncrewed VTOL and modularity has been finalised.

Leonardo and UK MOD are adopting a fully integrated team approach, adopting agile principles to drive an outcome-based project. The technology demonstrator’s mission systems and mission modules will ensure rapid role changes for frontline commands, including naval and land forces, with mission flexibility during embarked operations.

In close partnership with DE&S, Leonardo continues to investigate the potential systems which will contribute to the technology demonstrator’s final architecture that will form part of the UK MOD Rotary Wing Strategy, as contracted on the four-year programme. Leonardo is adopting new technologies including the development of a full digital twin and additive manufacturing techniques to consolidate trade-offs between capability, performance, cost, sustainability, and serviceability.

James Gavin, head of the Future Capability Group at Defence Equipment and Support, said: “Key to this project’s success is the close collaboration between the Royal Navy, DE&S’s Future Capability Group and Leonardo’s Team. Our Strategy at DE&S is clear that agility, innovation and team work with industry are essential drivers to ensure our Armed Forces have the operational edge – elements which Proteus embodies.”

Adam Clarke, Managing Director of Leonardo Helicopters UK, commented: “As the onshore design authority, Leonardo is exploring the art of the possible at a capability level, which will also invoke an extensive adoption of autonomy and automation into our future technologies. The RWUAS TDP is unique because it is much more than the technology – it’s about the teamwork and integration that is taking place between us and the UK MOD in enabling a dynamic, transparent, and flexible approach, which will ensure long-term uncrewed capability benefits that will de-risk the path to fully autonomous flight.”

The design selected is optimum for maritime operations. The single-engine RWUAS air vehicle, in the 2-3t class, will be capable of being adapted to deliver a wide range of roles including maritime surveillance, maritime organic air missions, and logistics supply.

The Proteus TDP will inform the Royal Navy’s Future Maritime Aviation Force (FMAF) vision for Anti-Submarine Warfare and AEW support. The technology demonstrator is anticipated to fly by the middle of this decade.

**7 . Date: 28-03-2023Loitering Munition - Mini - General - PlatformAeroVironment Introduces Switchblade 300 Block 20 Rapidly Deployable Loitering Missile SystemURL: https://insideunmannedsystems.com/aerovironment-introduces-switchblade-300-block-20-rapidly-deployable-loitering-missile-system/**

AeroVironment today unveiled the newest version of its Switchblade® 300 rapidly deployable loitering missile system. The Switchblade 300 Block 20 builds on Block 10C’s battle-proven performance with new operational features and significant performance and capability improvements.

Switchblade 300 Block 20 is portable, lightweight, and easy to operate, requiring only a single operator. The new tablet-based Fire Control System allows operators to easily train, plan, and execute missions. Operation of the system is further simplified by offering an integrated control directly onto the launcher tube.

“Since pioneering the loitering missile category with Switchblade 300 more than a decade ago, our tactical missile systems have proven to be a game-changing capability for both U.S. and allied forces, providing a remarkably rapid, precise and effective way to address lethal threats,” said Brett Hush, AeroVironment’s vice president and product line general manager of tactical missile systems. “Switchblade 300 Block 20 will continue to build on the system’s battle-proven legacy.”

Weighing just under five pounds, this lightweight, precision-guided lethal missile can be deployed in less than two minutes via tube-launch from land, sea, or mobile platforms, providing greater mission flexibility. The Switchblade 300 Block 20 features a longer endurance, improved Digital Data Link (DDL) range, new EO/IR panning camera suite, and left-hand commit with continuous positive identification (PID). Like its predecessor, Switchblade 300 Block 20 maintains its patented wave-off capability, enabling the operator to recommit against moving targets in highly dynamic environments.

The Switchblade 300 Block 20 provides small expeditionary units with stand-alone precision and lethal effects with minimal collateral effects. Delivering 20-plus minutes of tactical reconnaissance, surveillance, and target acquisition, the Switchblade 300 Block 20 provides real-time video for use against beyond-line-of-sight (BLOS) targets. Cursor-on-Target GPS coordinates provide situational awareness, information collection, targeting and feature/object recognition, that together will deliver the actionable intelligence and precision firepower needed to achieve mission success across multiple domains.

**8 . Date: 16-05-2023Cargo - Market - Autonomous Air Cargo Prepares for TakeoffURL: https://insideunmannedsystems.com/autonomous-air-cargo-prepares-for-takeoff/**

Remote cargo delivery serving the “middle mile” attracts startups and legacy companies who see it as a large potential market that may have fewer hurdles than other BVLOS operations.

In the race to fly beyond visual line of sight, one market category expected to benefit a wide range of consumers is autonomous air cargo.

Seemingly centered in California, a number of startups and at least one legacy company are at various stages of either developing new aircraft and software with autonomous or unmanned capabilities, or developing systems to provide autonomous capabilities to existing cargo aircraft. Most are aimed at the “middle mile” for delivery.

Meanwhile, they’re collecting intermediate FAA certifications, conducting test flights and demonstrations and building partnerships, both for development and as a future customer base. While several have developed autonomous capabilities, the Holy Grail of full FAA certification that would allow commercial operations remains in the future.

There are many reasons this is such a ripe arena.

First, the need is great and growing greater. Supply chain issues, which came to light during COVID, continue. Then, there are many destinations ranging from underserved towns and rural areas, to disaster sites, to warehouses and other commercial facilities in need of localized and more efficient service. Autonomous cargo craft hold the promise of faster service, more remote service, less loading and unloading and fewer trucks on the road.

Second, because some of the players are using existing aircraft, this can fast-track development and provide a degree of potential customer comfort as well as fewer hurdles to overcome with regulators.

Third, the path to certification for cargo is faster and less complicated than certification for people. In addition, the cargo will not need “convincing” to get on an unmanned or autonomous plane.

An additional factor is that, beyond a certain weight, craft are certified as airplanes, thereby falling within the air traffic control system, rather than BVLOS regulations, even when the operation of the vehicle involves a pilot on the ground rather than in the sky.

Reliable Robotics

Mountain View, California-based Reliable Robotics was founded in 2017 “to bring safety enhancing technology and systems into aviation,” vice president for UAS integration Brandon Suarez said.

Reliable uses the Cessna Caravan, which has both a large U.S. fleet and mechanical systems that can be automated, Suarez said, adding “The automation of these aircraft and the ability to remotely pilot them enables new uses that are not economically viable today.”

Reliable Robotics has demonstrated gate-to-gate fully automated operation of regional cargo aircraft and is now working toward commercialization of technologies for Part 23 cargo as well as Part 25 passenger vehicles.

“Right now, we’re working to get a supplemental type certificate for a package that includes new flight computers, new full authority actuators, and eventually detect and avoid,” Suarez said. “Last year, FAA accepted our certification basis for what we’re calling the continuous autopilot engagement, a very advanced autopilot that would be certified to be on from gate to gate. We believe the end state will be remotely piloted.”

Also last year, the company announced a contract with the U.S. Air Force to explore the automation of large, multi-engine jets, which will include a feasibility assessment of features for cargo operations, and they are partnering with NASA on the National Campaign for Advanced Air Mobility and working on several projects.

Xwing

Marc Piette, CEO and founder of San Francisco based Xwing, was taking flying lessons when it became clear “that we could commercialize unmanned flight in a fairly short time.” So, he quit his job in 2016 with that vision in sight.

The company already flies piloted commercial cargo operations under a Part 135 certificate. In 2021,Xwing conducted the world’s first autonomous gate-to-gate cargo flight with a Cessna 208B Grand Caravan equipped with Xwing’s “Superpilot” autonomous flight system and currently has more than 400 hours of flight time.

The company is operating the converted Caravan under an FAA experimental certificate for research and development, which requires a supervising pilot on board, and Piette expects full certification in about two and a half years. He expects there will always be a degree of supervision for the craft.

“We will always have network control centers that monitor a fleet of uncrewed aircraft, but the level of involvement will keep reducing over time,” especially as air traffic control digitizes clearance and directions, he said, adding he expects modifications to flight plans would be sent to the aircraft in datalink packets.

Xwing is working with NASA and the University of Alaska to evaluate the integration of unmanned aircraft systems in complex environments such as wildfires or offshore operations. “The main challenge in integrating [unmanned aircraft] is not so much the automation piece, but how do these vehicles integrate seamlessly in commercial airspace?” Piette said. “We need to show that these types of systems can handle these uncommon use cases.”

Northrop Grumman

Falls Church, Virginia-based Northrop Grumman, long established in building multiple aircraft, including cargo planes, is working with NASA to develop solutions for integration of large, uncrewed aircraft into the National Airspace. The project will focus on air cargo operations.

Natilus

At the founding of San Diego-based Natilus in 2016, co-founders Aleksy Matyushev and Anatoly Star planned to build autonomous cargo seaplanes that flew low enough to avoid FAA regulations. They soon realized potential customers, such as FedEx and UPS, serve landlocked areas, and turned to the design, construction and sale of very large autonomous cargo drones targeting the middle mile, CEO Matyushev said.

The company already has FAA approval for a testing area at San Diego’s Brown Field for manned, unmanned, piloted and BVLOS operations, he said. “If you were to walk into our hangar, we have the vertical tails already built and software in a loop simulator…We expect to see markets about the end of 2026.” Due to their size and weight, their aircraft will be considered airplanes, rather than drones subject to BVLOS, he said.

Natilus is currently building its first prototype, the Kona 3.8T. A key feature of Natilus aircraft will be their triangle shaped “Diamond” blended wing body design,which allows for 60% more volume, a large configuration of standardized pallets, 60% lower costs, half the CO2 emissions, and the ability to use existing ground infrastructure, according to the website. Their smallest aircraft will have a range of 900 miles, the largest 5,500 miles, enough to travel the Pacific. Their planes use existing ground structure.

The company already has $6.8 billion order commitments, Matyushev said, and see a potential market of $280 billion.

Dronamics

Based in Sofia, Bulgaria, Dronamics Airlines was founded in 2014 with a vision of a completely autonomous operation. It has developed the Black Swan (the name means something considered impossible until it was done) cargo drone, which can carry the same load as a small cargo van—770 pounds and 125 cubic feet—for up to 2,500 kilometers. The company is developing a cargo drone airline that will enable same-day delivery to remote areas faster, cheaper and with fewer emissions than other methods with a network of drone ports that can be installed anywhere there is a paved or unpaved airstrip more than 400 meters long.

In May 2022, Dronamics was awarded the European Union’s Light UAS Operator Certificate, the first such airline to receive it. “The license allows us to self-authorize flight operations of our Black Swan aircraft across the EU, including BVLOS operations,” according to a press released issued at the time.

“We are working toward launching our first commercial flights before the end of 2023,” Kenneth Chircop, general manager (Malta) for Dronamic Airlines Europe, said in an email. “While several elements of our operation will be automated and optimized, the flights themselves will not be autonomous, but remotely piloted from the ground.”

“We have a clear roadmap that outlines a gradual transition from remote piloting to an autonomous operation. However, we will still have a human overseeing the operation and having the ability to intervene when necessary,” he said.

Vertical, helicopter like take-off and landing, when combined with the ability for forward motion, provides a particular advantage to a cargo craft. At least two companies have designed cargo planes with this capability.

Elroy Air

Elroy Air—named after George Jetson’s boy Elroy from the 1960s cartoon—is distinguished by both VTOL capability and a unique cargo module that can be separated from the plane and left on the tarmac for loading and unloading.

In 2016, David Merril, CEO and co-founder of Elroy Air saidhe and co-founder Clint Cope saw an opportunity to build a transformative automated logistics system that would be decoupled from airports and enable same-day shipping to every person on the planet.

While they initially were thinking of an air taxi, they quickly realized carrying people meant a longer path to product realization, he said.

Last year, Elroy unveiled the C1 Chaparral, named after the hearty plant that grows along the California coast, with eight vertical fans for VTOL and four propellers for forward flight.

It has a 300-pound capacity and a 300-mile range and does not need airports—it can take-off and land from anywhere, the company said. Aimed at the middle mile mission, from, for example, a regional warehouse to a last-mile warehouse, the Chaparral fits into a standard 40-foot shipping container, which makes it easy to send around the world.

With fully autonomous certification in the future, Elroy is developing Chaparral to be an automated aircraft with a remote pilot supervisor, with that role expanding to supervision of several aircraft over time. The company will use a radio link and voice relay so the supervisor can speak, through the vehicle, to air traffic control.

Today, the company has letters of intent for more than 900 vehicles, representing about $3 billion in future sales revenue.

MightyFly

San Francisco-based MightyFly was founded in 2019 to provide fast, affordable and efficient delivery services to businesses and governments. Fernanda Sausen, senior director of business development, said they have built an aircraft capable of flying autonomously and are working with the FAA to pursue type and operation certification.

They’ve received the FAA Special Airworthiness Certification for their second-generation aircraft, the Cento, and the Certificate of Authorization for long-range flight to perform flight testing up to 5,000 feet in two large airspaces in California. Currently, they’re testing the hover flights, Sausen said, with expectations to test the forward flight next, and after that, long-range flight. The detect and avoid for autonomous function would follow, she said. The company is working with potential partners to start the first pilot programs later this year.

The Cento was designed for high efficiency, Sausen said, and carries the cargo in, not under, the aircraft. Carrying the cargo inside enables a more flexible itinerary as the vehicle can be loaded for multiple stops. The VTOL propellers are alongside the aircraft body and under the wings.

Future plans include end-to-end autonomous delivery, without having to use airports, and the use of autonomous conveyor systems for loading and unloading cargo. Unlike most companies in this arena, they also plan to provide the service, not just build and sell the planes.

**9 . Date: 14-03-2023Defense Budget Includes Billions for Unmanned Systems Across DomainsURL: https://insideunmannedsystems.com/defense-budget-includes-billions-for-unmanned-systems-across-domains/**

The U.S. Department of Defense released its in-depth budget documents on March 13, showcasing an $842 billion budget for fiscal 2024 that includes increasing investments in unmanned systems to help keep up with what Secretary of Defense Lloyd J. Austin III called the “pacing challenge” of China, and other threats.

“This budget seeks to meet this critical challenge today, tomorrow, and into the future by providing the resources today to continue to implement our National Defense Strategy and keep our nation safe while delivering a combat credible Joint Force that is the most lethal, resilient, agile, and responsive in the world,” Austin said in a statement.

The budget is an increase of $26 billion over fiscal 2023 and $100 billion more than fiscal 2022. While the bulk of the president’s budget has been declared “dead on arrival” on Capitol Hill by some lawmakers, defense spending usually has a larger constituency and more bipartisan support. And while the investment in big-ticket defense items still dwarfs spending on unmanned systems, there are some increases in requested for such systems across the services.

The budget includes $547.8 million for modifying five U.S. Air Force MQ-9 Reapers to meet the U.S. Marine Corps’ interim requirement for a Group 5 UAS. The budget would fund the development, testing and integration of Marine Corps-specific sensors and technology kits for Special Operations Forces.

The budget also includes $15 million to add Link 16 and other avionics and datalinks systems to U.S. Army MQ-1C Gray Eagles. The service bought a dozen of the systems in fiscal 2023 but won’t add any more this year; the Air Force divested its MQ-1s in 2018, replacing them with the MQ-9 Reaper.

The Pentagon plans to buy two additional low-rate initial production MQ-4C Tritons for the U.S. Navy, adding to the three budgeted for fiscal 2023. That $823.7 million request includes the two vehicles and one Main Operating Base-Mission Control System.

The U.S. Navy’s budget request includes nearly $1 billion for three low-rate initial production MQ-25 Stingray carrier-based tanker aircraft, along with advanced procurement to support four future LRIP models. The budget request would also support continued integration of the system’s ground control station and ground and flight testing of the air vehicles, which so far include four engineering development models and two of three system demonstration test articles.

The Navy also seeks $238 million for medium and large unmanned surface vessels, down from the fiscal 2023 amount of $310 million. The Navy is not developing cutting-edge systems, but says it they are “intended to be relatively low developmental technologies that combine robust and proven commercial vessel designs with existing military payloads to rapidly and affordably expand the capacity and capability of the surface fleet.”

The budget request would fund continued development and testing of the vessels and their payloads and procurement of nine large USVs from fiscal 2024 to fiscal 2028. It also seeks $104 million for the Extra Large Unmanned Undersea Vehicle, or XLUUV.

The U.S. Army’s budget includes nearly $1 billion for further development of the Optionally Manned Fighting Vehicle, intended to replace the Bradley Infantry Fighting Vehicle. The budget would fund system designs through critical design review and material costs for seven prototypes. The Army plans to enter low-rate initial production in 2027 with a full-rate production decision in fiscal 2030.

“We are developing a network of connected unmanned and manned sensors that will enable us to see more, farther, and more persistently than our enemies. We will deliver faster, more survivable fighting vehicles, including unmanned robotic systems able to deliver more firepower,” Army budget documents say.

“We are innovating, through experiments like Project Convergence, to transform the Army into a data-centric force where commanders at all levels have the information they need to make decisions. Finally, we are transforming how we sustain the fight, rethinking how the Army provides logistics and sustainment support with lighter and more climate resilient vehicles and headquarters.”

Systems to counter small UAS would get increased funding in the budget. The Army’s research and development budget would fund advanced development of C-SUAS systems at $64 million, up from $35 million in fiscal 2023, along with another $36 million for system development and demonstration, up from $15 million. The Navy seeks $11.8 million for C-SUAS research and development, up from $7.4 million.

**10 . Date: 31-05-2024Cargo - Regulation - FAA Grants Amazon Prime Air Approval for BVLOS Drone DeliveriesURL: https://insideunmannedsystems.com/faa-grants-amazon-prime-air-approval-for-bvlos-drone-deliveries/**

Prime Air’s BVLOS operations rely on detect-and-avoid technology. This system enables drones to autonomously navigate obstacles, ensuring safe flight operations. Amazon provided the FAA detailed engineering data and conducted flight demonstrations, which included real-world scenarios involving planes and hot air balloons, to validate the system’s safety.

With this approval, Prime Air will extend its delivery area in College Station, Texas, using its MK-27 drone airframe. The service will integrate into Amazon’s existing delivery network, with drones deploying from facilities adjacent to Same-Day Delivery sites. This integration will enable faster delivery of household essentials and other products.

Prime Air received an Air Carrier Certificate in 2020, allowing it to operate as an airline. The new BVLOS approval builds on this, enabling Amazon to reach more densely populated areas. The company’s drones are designed to deliver packages in 30 minutes or less, with the goal of delivering 500 million packages annually by the end of the decade.

**11 . Date: 16-02-2023Cargo - Mini - General - FlightOps OS Enables Longest Medical Equipment Drone Delivery in Israeli HistoryURL: https://insideunmannedsystems.com/flightops-os-enables-longest-medical-equipment-drone-delivery-in-israeli-history/**

HERZLIYA, Israel—An autonomous drone, controlled by FlightOps’ multi-drone operating system, recently performed Israel’s longest autonomous medical equipment delivery via air, the company announced. The drone, which operated beyond visual line of sight, successfully carried blood units over approximately 15.5 miles (25 kilometers).

In partnership with the Israeli Ministry of Health’s Medical Centers Division, the Galilee Medical Center used the FlightOps drone operating system to safely deliver medical equipment without compromising the quality of the samples. The drone, operated by DownWind, one of Israel’s largest commercial drone operating companies, transported blood units from the Rambam Medical Center Haifa to the heliport of the Galilee Medical Center. This is the longest distance any medical equipment has been transported by an unmanned aircraft in Israel.

According to Prof. Masaad Barhoum, director of the Galilee Medical Center, “Progress and technology are an integral part of our values. Within this framework, we place special emphasis on projects that combine innovation and bring value to the residents of the area.”

FlightOps’ co-founder, Ofer Haruvi, said, “The route from the Rambam Medical Center to the Galilee Medical Center in Nahariya constitutes a new record for a drone flight licensed by the Civil Aviation Authority for a distance of 25 kilometers in an urban area. We are happy that the technology developed by the company will be used to positively impact public health and supports a viable commercial business model.”

The FlightOps drone operating system was also used for a record-breaking flight for the second time in a public health mission within the last six months. In July 2022, the FlightOps system safely transported medical laboratory tests, including blood counts, urine tests and coagulation tests, between Hillel Yaffe Medical Center and Sha’ar Menashe Mental Health Center, over a distance of 9.7 miles (15.6 kilometers).

FlightOps OS is robotic software that can be installed on drones of any type, replacing human pilots with artificial intelligence. This enables enhanced onboard decision-making and lowers reliance on communication, reducing the exposure to human errors, the company said.

The FlightOps technology allows for automated mission planning and creates smart flight routes that avoid no-fly zones and ground and air obstacles. This allows for massive scalability in both the number and range of missions while reducing operating costs. FlightOps is a cloud-based software that enables drone and air mobility service providers to scale up their operations in terms of range and number of missions.

**12 . Date: 08-04-2025Hybrid Rotary / Fixed Wing - ISR / ISTAR - Small - General - FTUAS Update: Testing Moves ForwardURL: https://insideunmannedsystems.com/ftuas-update-testing-moves-forward/**

But the continuing goal remains: to field a lighter, quieter, nimble and easy to maintain VTOL vehicle that Brigade Combat Teams can deploy to secure actionable intelligence during multi-domain operations.

On April 4th, the service announced that the Future Tactical Uncrewed Aircraft Systems (FTUAS) program had begun developmental testing (DT) on two prototype sets of the MK 4.8 HQ Aerosonde (designated YRQ-10A). The systems were delivered on March 18th to Alabama’s Redstone Arsenal by its manufacturer, Textron Systems, which also produced the Shadow.

Each set included two air vehicles (AV), two ground control stations (GCS), two ground data terminals, one On the Move (OTM) kit and associated ground support equipment.

“Textron Systems is proud to support the FTUAS program developmental testing cycle,” David Phillips, senior vice president air, land and sea systems, said after the announcement. “The Aerosonde UAS is a proven, mature system built on our decades of experience in UAS design, manufacturing, systems integration and lifecycle management. We look forward to continued partnership with the U.S. Army to rapidly bring this critical need to the Brigade Combat Teams.”

While Textron has advanced, another system is supporting FTUAS. In January, a PEO (Program Executive Office) Aviation spokesperson told Inside Unmanned Systems that “the Army has not yet made a selection for FTUAS. The Textron MK 4.8 HQ Aerosonde and Griffon Aerospace’s Valiant are the two remaining competitors currently participating in the FTUAS Rapid Prototyping Effort.” At that time, the Army was anticipating delivery of Griffon’s hybrid-electric tilt-rotor prototype, with ultimate decision-making “currently on schedule to deliver the first unit of issue in 4QFY25” (though cordial, Griffon executives have declined comment throughout).

The Army Test and Evaluation Command Redstone Test Center (RTC) has positioned one Aerosonde AV test set for transportability evaluation to ensure what the Army calls “the system’s organic transport in deployed environments.” The second set has been received by the DEVCOM Aviation and Missile Center Joint Technology Center Systems Integration Laboratory to begin network and cybersecurity testing. “This testing,” the Army noted, “represents a critical step in achieving the system’s Authority to Operate. The ATO demonstrates the system’s resiliency, enabling battlefield distribution of FTUAS data and video over Army networks.

“Rigorous testing of the FTUAS will continue this year,” the Army said. “The ‘DT’ results will capstone the Rapid Prototyping effort and inform the production decision and the Rapid Fielding contract that’s expected this Fall.”

Textron’s experience from the logistics-dependent Shadow to upgrading SWaP from an earlier 4.7 VTOL variant has offered “a bridge” to upgrades over 700,000 hours of operational experience. MK 4.8 HQ specs note 14 hours of endurance, a 30-pound available payload and a 15,000-foot ceiling, flying on compatible JP-8 fuel.

In an amplifying conversation, Phillips outlined how two years of development and testing collaboration have allowed Textron’s own R&D to “be in lockstep with the Army.

“We flew the systems and demonstrated our ground control systems, the aircraft handoffs, out of the box launch in a certain amount of time to show its expeditionary nature. It has a lot to do with predictability, maintainability and soldier cognitive load.”

Contemporary FTUAS priorities such as MOSA—Modular Open Systems Approach—and On the Move command and control have been analyzed to maximize technical capabilities and avoid vendor lock.

Phillips: “We had to do a MOSA demonstration, which we did down in Huntsville. And they were very deliberate. They took our mission computer out of our system and replaced it with a third-party mission computer. They also replaced a mix of third party and vendor software to see if our control stations and the operation of our aircraft were exactly the same. The answer was yes and shows that they can iterate on the system without necessarily having to come back to us. That’s something that is very different than former systems, and something that clearly our system is going to give them the capability to do.”

Textron’s On the Move command and control also was assessed. “After we launched the aircraft, we were able to hand off control to a Humvee that drove around Redstone Arsenal controlling the aircraft on the move,” Phillips recounted. “We were able to demonstrate all the flight performance parameters that they wanted to see.”

This validation and verification paid off in December when ownership was transferred to the Army. “They did their inventory, checked all the boxes, made sure that what we were delivering, was a complete system that met their requirements,” Phillips noted. “And they said, ‘Congratulations, the system is now ours.’ I got a phone call, and that was great news for both us and the Army.”

Again, testing from systems to supply chain maturity over 2025 will lead to a final choice. “We’ve done a ton over the years,” Phillips said, “learning how to make that aircraft as adaptable in the field as possible. What I know is that there are division commanders out that are waiting for their next system to provide them the overwatch and the capability that they’re looking for.”

**13 . Date: 19-06-2023Requirement - Gaining Altitude FTUASURL: https://insideunmannedsystems.com/gaining-altitude/**

Four potential future tactical VTOL systems advance in the quest for modernization.

That’s how Col. Danielle Medaglia, unmanned aircraft systems project manager for the U.S. Army, succinctly described the status of the service’s Future Tactical Unmanned Aircraft System (FTUAS) program during mid-May’s XPONENTIAL 2023. She had a point about the Army’s quest for a runway-independent, rapidly deployable, quiet, compact and robust reconnaissance and surveillance vehicle that will embody the service’s VTOL aircraft modernization effort.

Starting with three operational needs statements in 2017-2018, the FTUAS program has worked to replace the RQ-7 Shadow, which, although significantly upgraded since its 1991 debut, leaves a gap for a nimble, easy-to-fly, less-detectable aircraft at the brigade combat team level. The search for an FTUAS has been marked by long and silent evaluation periods followed by the Army announcing awardees along the way.

Now things have accelerated. After late-February awards to five systems for project consideration, a seven-week Base Period concluded May 24 with “agreement option 1” awards to four Project Agreement Holders (PAHs). Those going forward are Griffon Aerospace’s Valiant, Northrop Grumman’s V-BAT , Sierra Nevada’s VOLY-T and Textron Systems’ Aerosonde Mk. 4.8 Hybrid Quad (HQ) (AeroVironment’s JUMP 20 has not been moved forward, and L3Harris’ FVR-90 was not chosen for Base Period appraisal.)

The option 1 announcement from the Army’s Program Executive Office, Aviation, further described the program’s rationale. “FTUAS will provide a distinct tactical advantage over current systems, due to increased maneuverability through VTOL, improved command and control supported by the on-the-move capability, a reduced transportation and logistics footprint, as well as significantly improved survivability due to reduced noise signature.”

Another Army spokesperson outlined the Base Period-to-option 1 run-up for Inside Unmanned Systems. “The clock started with the 27 February 2023 award. The scope included preparation and conduct of the initial technical review—Systems Requirements Review [SRR]. The SRR is a multi-disciplined review that ensures the developer understands the system requirements and is ready to proceed to subsequent acquisition design reviews.”

During the Base Period, the Uncrewed Aircraft Systems Program Management Office (UAS PMO) examined submissions for performance, cost, schedule, risk—and the Army’s pivotal Modular Open Systems Approach (MOSA) imperative, which is now legally required.

Formerly known as Increment 2, the process is now called the FTUAS Program of Record. Option 1 begins a programmatic flight path across a total of four option periods that are anticipated to yield a fielded FTUAS system. These steps will involve PMO evaluations on a Preliminary Design Review, a Critical Design Review, and flight demonstrations and third-party MOSA verification activities. In option 4, the remaining Project Agreement Holders will furnish four systems, payloads and support equipment for operational assessment, including environmental and electronic environmental effects testing, MOSA verification, and further flight-testing qualification at both PAH and government facilities. A system is scheduled for field testing in 2024, with a final selection in 2025.

“FTUAS will revolutionize the way our soldiers fight and win wars by providing enhanced reconnaissance, surveillance and target acquisition with unparalleled speed and agility,” Medaglia said in the announcement that began the Base Period.

“This is a multiphase program,” Wayne Prender, senior vice president of Textron Systems’ Air Systems business, which develops the Aerosonde, told Inside Unmanned Systems, noting he was not speaking for the Army. Prender reiterated the option 1 to option 4 template, then noted its value to providers. “That design process allows for us to engage feedback from the Army. And they obviously want us to showcase our system in a flight environment.”

Both the Army spokesperson and Prender stressed the importance of MBSE (Model Based Systems Engineering, in a digital simulation environment) in service of MOSA. “The use of MBSE and MOSA,” the spokesperson said, “enables FTUAS to maintain alignment with the UAS Family of Systems and higher-level systems architectures.” Electro-optical sensors, laser designators and rangefinders, modern data links and advanced teaming capabilities are envisioned as modular payloads.

“They’re very keen on a modular open systems approach, which will then allow them to apply new technology throughout the program lifecycle,” Prender said. “As new systems get developed, they want the ability to easily inject those insights.” This fits with the military’s general trend of enlisting more collaborators rather than reverting to vendor lock.

Prender offered a mini-use case on how programmatic give and take has affected the evolution of the Aerosonde system. “By all accounts, the Army liked elements of that [Aerosonde] system. But what they asked for was, ‘Hey, we want more of it.’ So, we went back and scaled the system up from the Mark 4.7 to the Mark 4.8,” which made it larger, with greater endurance and SWaP flexibility. “But we were very careful ensuring that we retained all the things that they liked and really desired to have in the future system.”

He also addressed the human element. “When we look at advantages, they’re not only technological advantages,” he said. “These are all going to go to Brigade Combat Teams and be operated by soldiers in combat. They need to be simple, reliable and maintainable, at scale.”

Representatives of the other option 1 awardees had previously expressed views.

Northrop Grumman highlighted its V-BAT’s strengths in a release about its February, pre-option 1 selection.

“Our team’s enhanced V-BAT embodies more than 30 years of experience designing, delivering and sustaining advanced unmanned aircraft systems combined with a field-proven platform and production facilities,” said Angela Johns, vice president, autonomous and tactical air systems. Earlier V-BAT versions have supported Navy and Marine Corps operations since 2016, and the new model is said to meet Army requests with increased power and the ability to employ electro-optical/infrared, synthetic aperture radar and EW systems.

As early as AUVSI’s XPONENTIAL 2022 conference and exhibition, Griffon Aerospace had taken about 30 pounds out of its vehicle and redesigned its structure. “We’ve come a long way as far as the structures from the first one we did of this,” CTO Larry French told an interviewer at that event.

The VOLY-T rounds out the quartet. “SNC designed the VOLY-T series with the flexibility needed to meet the growing demand for rapid delivery of critical assets and offer the ability to conduct ISR missions,” said Tim Owings, executive vice president of SNC’s Mission Solutions and Technologies business area when the system’s previous inclusion was announced.

At XPONENTIAL this year, Medaglia summarized the value of FTUAS. Soldiers won’t “be chained to the runway,” she said. And MOSA will allow developers and users to “change out payloads rather than having to change the aircraft.” Those payloads, Medaglia said, will begin fielding in 2026. She wouldn’t hazard what they might be because she “doesn’t know what the enemy will be doing in 2026. That’s why MOSA is so important; they have to stay ahead of the payloads.”

Meanwhile, the Army spokesperson expressed confidence FTUAS development is on track, saying, “The FTUAS program is currently executing as planned.”

**14 . Date: 24-08-2023Cargo - Requirement - Navy Demonstrating Programs for Drone Delivery at SeaURL: https://insideunmannedsystems.com/navy-demonstrating-programs-for-drone-delivery-at-sea/**

Making deliveries from shore and at sea could make operations more efficient for the Navy at sea and Marine Corps Warfighters on land.

Consumers aren’t the only ones eagerly awaiting the ability to have packages delivered by drone—the U.S. Navy and Marine Corps are as well, and are actively working to make that day a reality.

The Navy has several projects under way to demonstrate ship-to-shore and ship-to-ship drone delivery, some of which will primarily be operated by the Marine Corps. Similar efforts are also taking place within the U.S. Coast Guard’s Research and Development Center, Defense Innovation Unit and DARPA.

Industry is also taking note, as vertical takeoff and landing has become the name of the game, with even traditional fixed-wing aircraft adding VTOL capability. Why VTOL? For ships, space is at a premium, so not requiring large decks or recovery devices is a plus.

“We want to operate off of any type of ship,” Marine Corps Col. Victor Argobright, program manager for the Navy and Marine Corps Small Tactical Unmanned Aircraft Systems program office (PMA-263), told Inside Unmanned Systems. Larger ships have room for non-vertical takeoffs, but for destroyers, Military Sealift Command vessels or smaller ships, “the only way to get this type of capability on and off is to have that VTOL-type capability.”

Christopher Heagney, the Naval Air Fleet and Force advisor to U.S. Naval Forces Southern Command/U.S. 4th Fleet and ONR, agreed in an email interview. “VTOL offers significantly less footprint,” he wrote. “Logistics delivery doesn’t inherently require VTOL [i.e. Zipline], however, a smaller UAS footprint enables operation from more ships or expeditionary locations.”

Argobright said VTOL is also helpful for land deliveries, such as to hidden Marines. “You want the systems to be able to land in a pretty tight spot.”

DARPA, SIKORSKY DEMONSTRATE AUTONOMOUS LOGISTICS

The U.S. Navy and Marine Corps aren’t the only services interested in using unmanned systems for delivery, as DARPA and Lockheed Martin subsidiary Sikorsky showed the U.S. Army last fall that an optionally piloted Black Hawk helicopter could deliver supplies or carry casualties.

As part of the Army-led Project Convergence 2022, Sikorsky and DARPA conducted three demonstration flights at Yuma Proving Ground, Arizona, with both human pilots and Sikorsky’s MATRIX autonomy system, which combines onboard software and sensors and can be installed on a variety of aircraft.

During one sortie, the aircraft flew as low as 200 feet above ground as a terrain-masking exercise, moving at 100 knots. In another, a ground operator with a secure radio and tablet took control of the unmanned helicopter, commanding it to release its sling load, and then land to evacuate a mock casualty (a mannequin) from a nearby location.

“Our MATRIX technology gave the U.S. Army considerable insight as to how its existing Black Hawk utility helicopter fleet could evade threats on a future contested battlefield,” said Igor Cherepinsky, director of Sikorsky Innovations. “MATRIX is a demonstrated solution that’s ready to be transitioned to the Army whenever they choose to modernize the enduring helicopter fleet, or acquire next generation aircraft.”

In March, Sikorsky announced its collaboration with GE Aerospace to produce a Hybrid-Electric Demonstrator (HEX), a fully-autonomous hybrid-electric vertical-take-off-and-landing prototype.

The company is also working with NASA’s Advanced Air Mobility National Campaign to advance autonomy software and hardware for future advanced air mobility flights, including cargo delivery.

Argobright’s PMA-263 has three unmanned logistics efforts, two intended for the Marine Corps, one mostly for the Navy. The Navy program is the Blue Water UAS effort, which began as a collaboration with Military Sealift Command.

The Blue Water UAS is intended to carry payloads of up to 50 pounds at distances of up to 250 miles. According to a Military Sealift Command study, about 95% of their critical parts weigh 50 pounds or less, so the Navy wanted to see what capability exists “that could deliver a small part a long distance,” Argobright said. Prototypes recently evaluated to participate in upcoming exercises included Shield AI’s V-BAT 128 and a Skyways V2.6b.

The effort is now in what he called the “experimentation exercise phase” to develop the concepts of operation.

“We’re now transitioning to putting this capability in real exercise experiments,” including a Fleet Battle Problem off the coast of North Carolina next month, then another exercise in the early fall, he said.

The North Carolina exercise isn’t solely devoted to drone delivery, but it’s a component, and the Blue Water prototypes will deliver parts “from ship to ship, or ship to shore, over a number of days…it’s really an opportunity for the Navy to learn how they are going to integrate this type of capability into normal operations.”

The Marine Corps-focused systems are the TRUAS, which stands for Tactical Resupply UAS, and MARV-EL. TRUAS is intended to carry heavier payloads than the Blue Water UAS, up to 120 pounds, but for a range of about 7.5 miles.

“Right now, it is land based, but there is an increment later on that we’re working to make that a ship-based type capability,” Argobright said.

MARV-EL, which stands for Medium Aerial Resupply Vehicle—Expeditionary Logistics, is the former Medium Unmanned Logistics System—Air, or MULS-A. MARV-EL, Argobright said, is just a catchier name.

MARV-EL could carry payloads weighing 300 to 600 pounds a distance of 100 miles. “There’s an objective requirement for it to be ship-based,” he said. A heavy payload could be put on MARV-EL, sent to a forward location, then distributed further with TRUAS.

Of all the systems, TRUAS will be the first fielded. “We awarded a contract to Survice for TRUAS in April,” Argobright said, for 21 of Survice Engineering’s TRV-150c vehicles. “We are expecting initial delivery in late September. Those will be fielded to the Marine Corps in support of our logistics Marines.”

Crucially, TRUAS will be operated by the logistics Marines, the Logistics Combat Element, rather than relying on aviation units, which should make the operations more efficient. A training program has been established and the operators will get a special designation. “They are the ones that are going to be operating it, kind of in support for themselves,” he said.

In the meantime, the USMC will continue working with prototypes it bought from Survice Engineering. Lessons learned from TRUAS will filter to the larger MARV-EL. PMA-263 awarded two Other Transaction Authority awards for MARV-EL in January, to Kaman and Leidos.

“They are each going to build a prototype over 18 months and then we’re going to be doing evaluations of each of those prototypes in the field with marines in early fall of 2024,” Argobright said.

Photos courtesy of the U.S. Marine Corps/Lance Cpl. Kayla LeClaire and the U.S. Navy.

Last October, the Navy’s latest Fleet Experimentation Program (FLEX) was held in waters around Key West, Florida, aboard the USNS Burlington (T-EPS-10), a Spearhead-class expeditionary fast transport vessel, building on work that had begun the previous year.

The effort, organized by U.S. Naval Forces Southern Command/U.S. 4th Fleet, along with the Office of Naval Research’s SCOUT initiative, included demonstrations of drone delivery to aid Joint Interagency Task Force South’s fight against illicit trafficking in the U.S. Southern Command’s area of responsibility.

In the email interview with Inside Unmanned Systems, Heagney wrote there’s much work still to be done.

The 4th Fleet “began an experiment campaign focused on contested logistics in 2021,” he wrote. “Many technical problems need to be solved before logistics UAS are ready for fleet use. Each year builds to tackle the next technical hurdle.”

The FLEX work started in 2021 with an operational problem: Getting rid of the launch and recovery equipment on the sending and receiving ships. Heagney said 4th Fleet used two Volansi UAS, a C10 and M20, to deliver cargo from USNS Burlington to U.S. Coast Guard Cutter William Trump and a surface boat, marking the first autonomous ship-to-ship drone deliveries. (The history-making achievement was not enough to save Volansi; a little over a year later, the company’s assets and intellectual property were bought by Sierra Nevada Corp.)

“Three successful sorties were flown delivering cargo without any control by the receiving vessel,” Heagney wrote. “The UAS flew completely autonomously beyond the datalink range [around 7 nautical miles], delivered the cargo and returned. However, the ships required a transmitting beacon for the UAS to detect the landing location.”

The next operational problem, in 2022: Get rid of the beacon.

Heagney said the 4th Fleet teamed with the DIU and Marine Corps Warfighting Laboratory to develop computer vision for intelligent, autonomous navigation. Three UAS—an L3Harris FVR-90, a Skyways V2.6 and and SURVICE Engineering TRV-150—leveraged cameras to land, using deck markings, and to identify the right ship on the horizon.

“We also did USV [unmanned surface vehicle] logistics delivery including a 500 lbs shore-to-ship delivery using a GARC [Greenough Advanced Rescue Craft from Maritime Applied Physics Corp.] to USNS Burlington,” he wrote. “We also used two USVs for shore-to-shore autonomous logistics deliveries to an expeditionary force on an austere island.”

At the time of the FLEX demonstration last fall, Heagney said drone delivery could bolster JIATF-South ships by ferrying repair parts, which could keep the ships on station longer.

Argobright said another benefit is cost. For example, TRUAS isn’t exactly cheap at a bit over $300,000 each, but for a system delivering ammunition or parts, “that’s somewhat attritable,” and very inexpensive compared with a V-22 Osprey or an H-1 helicopter.

“It just really frees up resources, it reduces the risk to the warfighters when you can use an unmanned system to deliver something,” Argobright said.

The Navy’s drone delivery push is driven both by the desire to be more efficient in countering China, and just because it’s a good idea, Argobright said. He’s also keeping an eye on the commercial market, which is seen as being on the cusp of dramatic expansion once regulations are in place.

“I leverage the commercial world. I want the commercial world to go fast, that makes my job easy,” he said, which includes issuing frequent requests for information to industry. “The faster they go, they faster I can go.”

For instance, the TRUAS vehicle is largely a commercial air vehicle based on a vehicle built by the United Kingdom’s Malloy Aeronautics. Survice Engineering buys the systems from Malloy, modifies them for the U.S. military “and that’s what we’re fielding out to the Marines,” Argobright said.

**15 . Date: 01-11-2023ISR / ISTAR - Small - Pitch - PteroDynamics Transwing UAS Flies at Sea During U.S. Navy EventURL: https://insideunmannedsystems.com/pterodynamics-transwing-uas-flies-at-sea-during-u-s-navy-event/**

COLORADO SPRINGS—PteroDynamics announced a successful demonstration of the advanced capabilities of its automated Transwing vertical takeoff and landing UAS at the U.S. Naval Forces Southern Command-4th Fleet Hybrid Fleet Campaign Event on board the expeditionary fast transport USNS Burlington.

PteroDynamics demonstrated the Transwing aircraft to integrate UAS into the fleet for ship-to-ship and ship-to-shore logistics and critical maritime resupply missions. Over the course of six days starting Oct. 8, Transwing aircraft flew nine autonomous launch and recovery demonstrations from USNS Burlington in Key West, Florida.

The Hybrid Fleet Campaign Event focused on the evaluation of combined unmanned and manned systems to allow the U.S. 4th Fleet to execute its larger operational missions. It provided an invaluable experimentation venue for multiple developers of the latest technologies to embark with the operational force, evaluate operational capabilities of new innovative systems in a real-world environment, and receive feedback from Sailors and Marines.

It also served as an opportunity for senior leaders to see for themselves the capabilities of systems that could support the hybrid fleet. In attendance at the Hybrid Fleet Campaign Event were Vice Chief of Naval Operations Adm. Lisa Franchetti and other representatives from the U.S. Navy, the United Kingdom Royal Navy, the Royal Australian Navy, the Royal Netherlands Navy and the Swedish Navy.

“Participating in The Hybrid Fleet Campaign Event brought us closer to our goal of providing the U.S. Navy with a flexible and scalable shore-to-ship, ship-to-ship, and ship-to-shore automated cargo delivery capability,” said Tim Whitehand, PteroDynamics’ vice president of engineering.

“Flight testing on board the USNS Burlington gave us a unique and valuable opportunity to collect performance data on the Transwing system in an operational environment. The information gathered during the event will accelerate development and seed further innovation.”

**16 . Date: 16-04-2024ISR / ISTAR - Small - General - The Trusted Disruptor: Up Close with L3Harris and the FVR-90URL: https://insideunmannedsystems.com/the-trusted-disruptor-up-close-with-l3harris-and-the-fvr-90/**

L3Harris Technologies’ FVR-90 is a vertical take-off and landing (VTOL) UAS that offers flexibility for customizing sensors and payloads based on situational need. The FVR-90 showcases a blend of innovative design and advanced technology. Engineered for long endurance, the UAS is capable of operating from 8 to 16 hours in the air and can carry payloads up to 22 pounds. With its advanced Hybrid Quadrotor (HQ) technology, the FVR-90 merges the agility of quadrotor drones with the efficiency, speed and range of fixed-wing aircraft. This maximizes the range of options available for navigating in challenging conditions, including GNSS-denied environments and poor weather conditions.

Discussing the design features that the FVR-90 offers, Todd Rimbey, general manager, Agile Development Group, told Inside Unmanned Systems, “VTOL obviously is a hot item. It’s very desirable right now, and modularity, you’re hearing that across the industry. We’ve really focused on this system to implement a modular design. One of the features of our design is the [retractable] payload nose, so it’s easy to swap payloads in the field. If you’ve got a different mission [than originally planned for], you swap the nose, and you’re off to the races.”

Interoperability and combinations of sensors and payloads on the FVR-90 is wide open, with the option of a L3 Harris MX-8 EO/IR (Electro-Optical/Infrared) imaging system designed to support tactical surveillance, or any number of other modular, EO/IR, or EW (Electronic Warfare) payloads. A sensor agnostic design allows customers to integrate an array of sensors optimized for specific mission goals.

Rimbey added that speed is also optimized, given the types of dynamic, time-critical situations the UAS will support. “It’s really a focus on rapid integration, how fast can I integrate new capabilities. And when you’re talking about C2 [command and control], whether that’s involving integrating a new radio or integrating a new payload, then we’ve set the system up where we can do that quickly…really set yourself up to be able to respond at incredible speeds and get something out to the warfighter quickly. And that’s really what we’ve been focused on as far as an architecture is concerned with this platform. And we’ve proven that with a couple of payloads that you can just swap in and out on the flightline.”

For in-theater operations in difficult environments—geographically isolated, contested maritime locations, for example—the agile system architecture allows warfighters to “respond at the speed of relevance,” Rimbey said. This can mean potentially landing in very narrowly defined target areas, such as on another autonomous vehicle, or inside another manned or unmanned surface vessel (USV). Remote, maritime locations for in-theater operations have become a focal point for strategic planning. “Our digital engineering ecosystem has definitely been a part of our portfolio and development activities for [the FVR-90], allowing us the additional speed and analysis on this program. And takeoff and landing, that’s an area where I think we shine. We’re currently typically landing within a couple of inches of the targeted landing spot. And so, you talk about some of these platforms that you may want to land on, or land within, different locations around you [depending on the situation]. I think we’re uniquely positioned to do that really well.”

Given the unpredictability and volatility of geopolitical conditions the past few years, there has been a pronounced, public acknowledgement about just how challenged the operational environments are—jamming and spoofing of satellite navigation systems, for example, are widely reported on a weekly basis. Civil aviation in Eastern Europe, for example, has experienced frequent jamming of GNSS signals.

“It’s an extremely dynamic environment right now. The environments are changing rapidly, and the threats are changing rapidly,” Rimbey said. “We [L3Harris] have a wide variety of products and capabilities across the enterprise. I think we’re uniquely positioned as a defense contractor, where there’s a wide breadth of capability and technology. And so all of the change that’s occurring, I think we’re well positioned to respond to all of it, whether it be a tweak to an existing capability or product or a new integration, if you will, that’s an innovative way to approach an existing problem.”

L3Harris’ full suite of defense capabilities can be activated and brought to bear in novel ways to respond to new challenges.

Rimbey reflected on L3Harris’ ability to do so through operational excellence and collaboration.

“I think we’re positioned well, to respond to those threats and those environments, leveraging the enterprise, I’ll call it the muscle in the enterprise. We have a wide breadth of capability; I don’t think it’s very well matched across the industry. So, between the electronic warfare, comms mission systems, there are huge platforms, we’ve got just a wide variety of capability. And that helps us from a competency perspective for sure to design and develop systems that can rapidly change to meet these changing environments.”

He continued, “There’s a trusted disruptor vision…and that’s what I believe we’re based on, if we can lean on all the competencies across the enterprise, we’re able to go offer disruptive solutions very rapidly.”

The FVR-90 is a prime example of how L3Harris plays the role of the “trusted disruptor,” leveraging years of capability development to iterate rapidly as our era’s new challenges require the speed and agility to proactively shape outcomes.

**17 . Date: 03-02-2025Acquisition - Unusual Machines to Acquire Aloft Technologies for $14.5MURL: https://insideunmannedsystems.com/unusual-machines-to-acquire-aloft-technologies-for-14-5m/**

The proposed acquisition brings together companies that share a commitment to strengthening the U.S. drone industry. Aloft Technologies specializes in software for the drone fleet and airspace management sector, powering more than 70% of all FAA-approved Low Altitude Authorization and Notification Capability (LAANC) airspace authorizations in the United States. Aloft has provided more than more than 1.6 million authorizations in total, with 400,000 authorizations provided in 2024.

Aloft has been able to leverage the data collected through millions of safe flights and airspace interactions to launch Air Boss, their new real-time UAS air traffic management (UTM) software. With the FAA forecasting more than 3 million drones in the airspace by 2028, outnumbering traditional aircraft more than 10-to-1, the coordination and integration of all aircraft is critical to national security and the national economy.

“With the transition away from China, we need to care as much about our drone data as we do our drone parts. Aloft is the market leader and the answer to how we provide American software to complement our hardware,” said Allan Evans, CEO of Unusual Machines. “Air Boss is the culmination of their years of work in fleet and airspace management. It will unlock airspace collaboration between governments, business, and consumers in a way that could prevent the confusion of what happened in New Jersey from ever being an issue again.”

“Aloft’s mission has always been to enable flight through better technology and data-driven insights,” said Jonathan Hegranes, CEO and Co-Founder of Aloft. “Joining Unusual Machines will accelerate our ability to achieve this mission at a larger scale while continuing to prioritize cybersecurity and American-made software solutions.”

**18 . Date: 18-04-2024General - Up Close: AeroVironment CEO Wahid NawabiURL: https://insideunmannedsystems.com/up-close-aerovironment-ceo-wahid-nawabi/**

“Autonomy is a spectrum.” So said Wahid Nawabi, president, chairman and CEO of AeroVironment, when Inside Unmanned Systems asked him to discuss the technology behind the company’s ever-expanding “portfolio of intelligent, multidomain robotic systems.” Currently, 55,000 AeroVironment UAVs are deployed in 55 countries, including 6,000 of its Switchblade 600 loitering missiles. And AV’s success isn’t restricted to Planet Earth: Over 72 missions, the Mars Ingenuity helicopter moved from being a test vehicle to becoming a loyal wingman for the Perseverance rover.

Accomplishments like these have empowered AeroVironment’s surging stock price and forecasts of double-digit growth into 2025. Yet, as Nawabi recently told Yahoo Finance, “the world is not a safer place.” As conflict accelerates from Ukraine to the Middle East to the South China Sea, Nawabi continues to advocate for increasingly autonomous, decentralized systems.

IUS: What do you see as macro trends in autonomous defense now?

NAWABI: Autonomy is AI, its computer vision, it’s operating without GPS, it’s being able to identify targets. Some level of autonomy has been in our products for a long time, like identifying and then actually following the target. A waypoint navigation is a level of autonomy; being able to find obstacles and avoid them is a level of autonomy.

IUS: What’s become the main focus?

NAWABI: Over the last 20 or 30 years, we were involved in a COIN [Counterinsurgency Intelligence, Surveillance and Reconnaissance] conflict where we basically owned airspace. When it comes to near-peer or peer adversaries, that has completely shifted and changed. Long-term, more and more of these systems are going to be more autonomous. If you go to the extreme of the spectrum, you have a specific mission or multiple missions, and then you tell the system to go and achieve that.

IUS: What issues arise at that fuller level of autonomy?

NAWABI: It becomes really complicated. Let’s say you launch multiple Pumas [AeroVironment’s small, battery-powered, hand-launched ISR vehicle] to look for assets, and Switchblades to defeat them. And let’s say 10 minutes into the mission, they find two tanks, or one tank and one rocket launcher system, a mile apart from each other. How does the system decide which Switchblade takes which one, and which is a higher-priority target? And if they’re both rocket-launching systems, the algorithm on board has to say, ‘Well, I am geometrically closer to this target, I will take the closer target; you take that further away target,’ sometimes with the absence of actually being able to talk with each other in real-time.

That level of autonomy is what I call the Holy Grail. I think it’s coming and algorithms that we’re developing are going to be able to do those things.

IUS: What are the pieces of this advanced autonomy?

NAWABI: The first piece is to have multiples of these devices able to be [command and] controlled C2C with a single operator or a single device. That’s where our Tomahawk Robotics [which AeroVironment purchased last August for $120 million in cash and stock] and its Kinesis AI-enabled command and control software come into play. That platform allows you to control a ground robot, air vehicle or USV all with one controller, one tablet, with a similar look and feel for the operator. You can reduce the cognitive load.

A battle management system, BMS, which is basically a graphical user interface that shows you pictures of where the items are—that’s much simpler to do than actual C2 [command and control]. C2 is being able to actually control the asset, know exactly what it is doing and how you want to apply the asset to the target or the mission. That’s what Kinesis is all about—that level of integration is a lot more difficult.

IUS: And other characteristics of fuller autonomy?

NAWABI: The second aspect is what we refer to as the learning and active perception, autonomy—LEAP. Learning an accurate perception of autonomy is being able to detect and identify a specific type of target. And that’s where our SpotR G and SpotR Edge and SpotR Geo come into play—that suite of [imagery analysis] software allows you, for example, to identify a Russian T72 tank from an Abrams tank. We have the world’s largest annotated database of military assets because for the last two decades we’ve been analyzing satellite data, images from Predators, Reapers. That’s a huge advantage because it allows us to train our algorithms much more successfully.

The third piece is collaborative autonomy. You have a swarm, and then you collaborate a mission. For example, a Puma finds a target and passes the coordinates and target information to a Switchblade operator, and then the Switchblade operator can launch and take on the mission. And then once the target is defeated, Puma validates and does battle damage assessment. ‘Did I hit the target properly?’ ‘Do I have to go hit it again?’ ‘How catastrophic was it?’ ‘Are there any survivors?’ We’ve been doing some level of that already.

The next level is, now you make multiple Switchblades, multiple Pumas and Ravens [SUAS] and JUMP 20s [long-endurance medium UAS] work together. For us, that’s the trajectory. And we’re staying very agnostic. Kinesis is agnostic: it’s already used by the Short Range Reconnaissance [SSR] program of record for the U.S. Army for multiple quadcopters, and it’s a potential program of record for the U.S. Marine Corps to their common controller system. If you’re a SOF [Special Operations Forces] operator or you want to have agile forces, you can’t carry multiple tablets and controllers and radios. And it has to be interoperable.

IUS: AI, machine learning and computer vision are game changers. How are you incorporating them into your evolution?

NAWABI: This Learning And Active Perception autonomy that I’ve referred to is a flavor of AI. It’s machine learning, it’s really computer vision. We came up with the name because it learns and actively perceives the targets and the imagery in the environment it’s around.

Our VIO, Visual Inertial Odometry, is the ability for a Puma to use its sensors to know where it’s at without GPS, and fly. When we walk into a room, we recognize where we are because we see the assets that are in the room—‘Oh, I remember that picture over there. This is my office.’ This level of learning is the ability for the drone to look at the map in its library, look around, see a building, see a tree, see a road, see a hill, and then put those things together and say, ‘Relative to these distances and coordination, I can tell where I am. Right where I should be going.

The AI piece–it’s LEAP, it’s VIO, it’s autonomy. And it’s also the ability to actually do computer vision.

IUS: What about the other side of things? How are you combating jamming, spoofing, all the electronic warfare?

NAWABI: Our view is, long-term we’re going to get rid of all the controllers. Our autonomy team’s mission in life is to obsolete ground control stations. It’s not going to happen in the next decade, but eventually it will.

Two decades ago, the U.S. military came to us and said, ‘We do not have a right to a proper waveform, to be able to use it for small UAS.’ We developed this waveform called Digital Data Link, DDL, as an IP technology, and it’s become a standard and is used in all of our devices. We developed our own radios to carry the amount of bandwidth that we need and be very what I call immune to jamming.

There are lots of techniques—one of the best ones is frequency hopping. And sometimes we even intentionally broadcast what I call false frequencies. The jamming system holds onto that and basically allows us to communicate without it. That’s why we’ve been so successful in places like Ukraine, with all the cat-and-mouse games of jamming and anti-jamming.

IUS: You brought up Ukraine. What lessons to date do we know?

NAWABI: We immediately learned some things and made some tweaks, and then the enemy learns that tweak and we have to recounter. The cat and mouse game was repeated, let’s say every three months. Now it’s weekly and daily.

Companies like us, one advantage we have is that we are fully vertically integrated. We do all of our subsystems ourselves. We design our radios, digital, propulsion, guided navigation controls, autopilot, you name it. It allows us to iterate quickly.

Because we have sensors on board, we load a very accurate map into the memory of the airplane. And then the sensors look to see defined targets or signpost sites. And they extrapolate from that to figure out where they are. I’ve seen a Puma fly for three hours without GPS.

Spoofing we’re extremely familiar with. For the last decade or so, we’ve been engaged in very contested environments. We have a very large installed base of systems operated on a regular basis with our customers. We collect so much real-world data, and that allows our systems to be what I call ‘real-life hardened.’

IUS: What about a division between sophisticated systems and almost-COTS drones?

NAWABI: In Ukraine, if you remember, the first two months, there was massive hype about TB1s and TB2s. And after three, four months, it died, because they lost 80% of them. It wasn’t designed to be able to withstand the Russian jamming expertise. And thousands of the videos that you see online, these First Person View, FPV, drones, you know, their efficacy is like less than 10%. I’m not saying it’s a bad idea—it’s still part of the strategy of a war. But it’s not the whiz-bang silver bullet.

[Nawabi shared a view from a general concerning more sophisticated decentralization.]

For the last 50 years, warfare has been fought with a centralized command and control in a centralized force structure. The chain of command was, you collect satellite imagery, you go to the Air Force four star, they decide the mission, comes down to the pilot, he flies and he shows up the next day.

He said, ‘The mission costs for me was in the millions of dollars because of the investments in the satellite. Look what you’ve done with a Switchblade. This is distributed architecture warfare; you are giving air capability, imagery, all that to the single operator who can make decisions on an incident. And who can change his mind on the battlefield in a matter of minutes and seconds. You shortcut the decision chain dramatically.’

The reason Puma is the workhorse in Ukraine is because they don’t have an air force. It’s flying in front of every artillery that the U.S. has given them, telling them where the targets are within a matter of minutes. The Switchblade operator can shoot and go somewhere else and then hit the target.

That is an incredibly agile battlespace.

**19 . Date: 06-04-2023Regulation - Xwing’s Superpilot Becomes FAA’s First ‘Standard’ UAS Certification ProjectURL: https://insideunmannedsystems.com/xwings-superpilot-becomes-faas-first-standard-uas-certification-project/**

SAN FRANCISCO—The autonomous aviation company Xwing has submitted a Project Specific Certification Plan (PSCP) to the FAA, becoming the first Standard Category large unmanned aerial system to receive official project designation. This marks the beginning of the process for approval of uncrewed commercial cargo operations in the national airspace.

Unlike other aviation projects that focus on augmenting piloted operations with autonomous technology or have Special Category certification, Xwing’s Superpilot technology integrates into existing type-certified aircraft to enable unmanned operations that work within the existing air traffic control system. Superpilot harnesses advanced AI and machine learning technologies to become the world’s first fully autonomous, gate-to-gate flight technology.

The company’s PSCP submission is the result of years of collaboration between Xwing and FAA officials to develop a certification plan for UAS approval. With project designation, Xwing is now on a recognized path toward regulatory approval for unmanned commercial cargo flights. This process represents the first time the FAA has assigned resources to a UAS for a Standard Category airworthiness certificate. Although focused on air cargo operations, Superpilot will be benchmarked against the current aviation safety standards for passenger aircraft, among the highest standards of avionic safety.

“Xwing is leading the way for aviation automation with a pragmatic approach to compliance and safety,” said Earl Lawrence, the chief compliance and quality officer at Xwing. “Adherence to the existing regulatory framework, our operational expertise as an air carrier, and use of already certified aircraft, enables us to meet the high safety standards required in aviation today. With the ability to work transparently within the air traffic control system, Xwing’s technology has the potential to take safety to an even higher level.”

The company’s pragmatic approach to autonomous system development is accelerating the introduction of complete autonomy within air cargo. Upon certification, Xwing’s Superpilot system has the potential to improve flight operations by:

The news arrives as airlines continue to struggle with pilot shortages, with United Airlines announcing it expects carriers will need 10,000 new pilots this year but only has 6,000 qualified candidates.

Simultaneously, e-commerce sales are set to top $6.3 trillion this year, increasing demand for regional transportation and delivery services. Together with its logistics partners, Xwing plans to bridge this gap in the market upon certification.

**20 . Date: 09-02-2023Requirement - Govt mulls decommissioning SDF rescue planes, combat helicoptersURL: https://japannews.yomiuri.co.jp/politics/defense-security/20221209-76085/**

The government is considering decommissioning some of the Self-Defense Forces’ search and rescue planes and combat helicopters as part of efforts to streamline defense spending, according to government sources.

A “scrap-and-build” approach has been mooted for defense equipment, with drones among possible replacements for the aircraft.

The government is expected to earmark ¥43 trillion over five years on defense spending from fiscal 2023.

The decommissioning plan is expected to be included in reviews of three security-related documents, which are set to be unveiled this month.

One of the plane models eyed for decommissioning is the Air Self-Defense Force’s U-125A, which is currently used by search and rescue units nationwide.

If a fighter jet pilot ejects in an emergency and lands in the sea, search operations to locate the pilot are mainly conducted from the air with radar and infrared night vision equipment.

However, rescue operations can be performed by helicopters alone, as pilots wear beacons that transmit location information.

As Maritime Self-Defense Force rescue helicopters would be utilized for such operations, a decision has been made to retire the U-125A fleet.

MSDF rescue helicopters are likely to be transferred to the ASDF.

The Defense Ministry also plans to downsize the Ground Self-Defense Force fleet, with 12 AH-64D combat helicopters, 47 AH-1S anti-tank attack helicopters and 33 OH-1 observation helicopters eyed for retirement.

An SDF drone unit is expected to be established in the near future and attack drones will be deployed.

The Ukrainian military has used drones and anti-aircraft missiles to repel attacks since the outbreak of the Russian invasion of Ukraine.

The MSDF is considering downscaling its fleet of 33 P-1 patrol aircraft and 75 SH-60K patrol helicopters.

It plans to deploy U.S.-made SeaGuardian unmanned aerial vehicles at its Hachinohe air base in Aomori Prefecture on a trial basis from fiscal 2023. There are also plans to streamline surveillance operations by increasing the number of SeaGuardian planes in the future.

**21 . Date: 22-12-2023ISR / ISTAR - MALE - General - Switzerland to Postpone Final Elbit Hermes 900 Unmanned Aerial Vehicle Deliveries to 2026URL: https://militaryleak.com/2023/12/22/switzerland-to-postpone-final-elbit-hermes-900-unmanned-aerial-vehicle-deliveries-to-2026/**

In response to technical setbacks earlier this year and escalating uncertainties in the Middle East, Switzerland’s armasuisse has reached an agreement with Elbit Systems Ltd, the supplier of the ADS 15 drone system, to prolong the delivery timeline until the end of 2026. The extension comes following a temporary halt in ADS 15 flight operations in Switzerland due to a technical incident in March 2023. In light of incurred costs and delays, negotiations ensued, resulting in Elbit compensating Switzerland for expenses and facing penalties for the disruptions caused. Compounded by the Middle East’s volatile situation and travel restrictions impeding Swiss specialists from conducting necessary tasks in Israel, armasuisse deemed it crucial to grant the supplier an extended timeframe to fulfill contractual obligations. Consequently, an official contract addendum solidified the project’s extension to conclude by the end of 2026, instead of the initial 2024 deadline.

Elbit’s commitments include substantial compensation for the prolonged contract duration and the costs stemming from the spring 2023 incident. An additional support package, valued at a low double-digit million amount, encompasses spare parts and operational materials crucial for the drones’ Swiss operations. Moreover, the warranty period for all Swiss drones has been extended by two years from the successful contract performance date. Elbit faces substantial penalties for potential service delivery delays, surpassing previously estimated contractual penalties. Adapting to the situation, the delivery of three pending Swiss drones and associated ground control stations, originally planned for this year, has been postponed due to ongoing regional uncertainties. With the conflict’s evolving nature impacting ADS 15 procurement, armasuisse and Elbit are collaboratively devising a comprehensive project plan for the upcoming year. Weekly joint project meetings have been scheduled to promptly address any required adjustments or measures necessitated by future developments.

The ADS 15 drones serve as unarmed reconnaissance systems vital for situational awareness, target reconnaissance, and safeguarding critical infrastructures. With capabilities for day-and-night operations, these drones find utility across military and civilian entities, including cantonal command staffs, police, rescue bodies, and the Federal Office for Customs and Border Protection (FOCBS). The Elbit Systems Hermes 900 Kochav, known for its endurance exceeding 30 hours and maximum altitude of 30,000 feet, stands as a medium-altitude, long-endurance UAV designed for tactical missions. Equipped with diverse payload options, including sensors for reconnaissance, communications relay, and electronic warfare, the Hermes 900 series continues the legacy of its widely used predecessor, the Hermes 450.

In June 2014, Switzerland’s procurement agency selected the Hermes 900 to meet the nation’s requirement. The design had been in competition with IAI Heron to replace the RUAG Ranger UAV (ADS 95) of the Swiss Air Force. Planned was to replace the 15 Ruag Rangers with Six Hermes 900 (ADS 15) by 2019. To fulfill the Swiss requirements, extensive changes at the drone where necessary. Among others it was necessary to change wing and wingspan to carry a heavier engine with more power. In August 2020, a drone crashed during a test flight in Israel, the cause was a structural design flaw which has been fixed. The new drones should now begin their operation between 2022 and 2023, the “Sense-and-Avoid” – System not before 2024. The Swiss model of the drone is called Hermes 900 StarLiner, also Hermes 900 HFE (Heavy Fuel Engine) in the Swiss program.

**22 . Date: 27-02-2023ISR / ISTAR - Tactical - General - PlatformBAE unveils the Strix, a fascinating, tail-sitting X-wing VTOL UAVURL: https://newatlas.com/aircraft/bae-strix-vtol-uav/**

The STRIX was unveiled this morning at Australia's Avalon Air Show, in front of air force chiefs from around the world – with the notable exceptions, according to the ABC, of Russian and Chinese delegates, who have been excluded from the conference.

BAE Systems has developed the aircraft in conjunction with Perth-based company Innovaero. It describes the Strix as a "hybrid, tandem-wing, multi-domain and multi-role UAS," capable of performing missions including air-to-ground strike, persistent intelligence, surveillance and reconnaissance, or potentially serving as a "loyal wingman" – style force multiplier to accompany military helicopters.

The airframe is a nuggety design, with medium-width wings at the front and rear. The forward wings are tilted downward, the rear wings upward, giving it an X-wing kind of configuration when viewed from directly in front of it. Large-diameter propellers are mounted at the four wing tips. Landing gear are attached directly to the tail of the aircraft, and on long stilts forward of the center, allowing the Strix to roll along the ground with its nose lifted at an angle.

The wings are foldable, and with the props in the right orientation, the Strix folds down to 2.6 x 4.5 m (8.5 x 14.8 ft) in size, making it easy to roll into a standard size container, so it can easily be moved about on a truck.

It can be launched and landed vertically without the need for a runway; the upward tilt at rest allows it to stand straight up on its back wheels under propeller power, and then lift off and land off the rear wheels alone, like a tail-sitter.

Its hybrid power system gives it an impressive range and endurance, carrying a range of different mission-specific payloads and munitions. It can run fully autonomously, controlled by BAEs own Strix Vehicle Management System – which is already in use for other autonomous platforms, including the M113 autonomous armored vehicle, and the jet-powered MQ-28 Ghost Bat loyal wingman UAV. This can be run from a ground station, or the Strix can be controlled from on board a helicopter to expand its capabilities and protect an air crew in a high-threat environment.

"STRIX could be ready for operational service as soon as 2026 and work is already underway on a STRIX prototype," says BAE Systems Australia CEO Ben Hudson in a press release. "We’re excited that this is the first UAS of its kind to be developed in Australia and look forward to working with partners across the country to deliver this capability to customers."

**23 . Date: 20-01-2025Acquisition - Redwire Acquires UAS Provider Edge Autonomy for $925MURL: https://redwirespace.com/newsroom/redwire-announces-acquisition-of-edge-autonomy-transformational-transaction-creates-a-multi-domain-scaled-and-profitable-space-and-defense-tech-company/**

Redwire Corporation (NYSE: RDW), a leader in space infrastructure for the next generation space economy, today announced that it has signed a definitive agreement to acquire Edge Autonomy, a leading provider of field-proven uncrewed airborne system (“UAS”) technology. Under the terms of the merger agreement, Redwire will acquire Edge Autonomy for $925 million on a debt free, cash free basis and subject to customary working capital, cash and debt adjustments. The merger consideration is expected to be paid using $150 million in cash and $775 million in shares of Redwire common stock, based on the volume-weighted average trading price on the NYSE for the 30 trading days ending on January 17, 2025 of $15.07 (“30-day VWAP”). Transaction financing and closing details are as described below. Following the merger, Edge Autonomy and its subsidiaries would be wholly-owned subsidiaries of Redwire.

The acquisition is expected to transform Redwire into a global leader in multi-domain autonomous technology, broadening its portfolio of mission-critical space platforms to include combat-proven autonomous airborne platforms. Immediately upon closing, the transaction is expected to be accretive to Redwire’s revenue, Adjusted EBITDA, and Free Cash Flow. For the twelve months ended December 31, 2025, Redwire, as a combined company, is forecasting full year, revenues of $535 million – $605 million and Adjusted EBITDA of $70 million – $105 million with positive Free Cash Flow, assuming the transaction had been consummated on January 1, 2025.[1]

Formed in 2021 through the merger of UAV Factory and Jennings Aeronautics, Edge Autonomy harnesses over three decades of experience developing uncrewed and autonomous technology systems. Edge Autonomy is vertically integrated with proven capabilities, extensive mission heritage, and strong relationships with U.S. Department of Defense, Special Operations Forces, and allied governments. Edge Autonomy’s fleet of UAS technology, including its Stalker series and Penguin series, is optimized for long endurance, long range reconnaissance missions and can be deployed quickly for time-critical operations. Executing on multiple programs of record, these field-proven capabilities are critical for the modern warfighter to collect crucial information and make informed decisions quickly and effectively. The combination of Redwire and Edge Autonomy is expected to create a transformative, multi-domain, scaled and profitable space and defense tech company focused on the convergence of integrated autonomous, AI-enabled multi-domain operations for defense and national security. For the last twelve months ended September 30, 2024, Edge Autonomy achieved revenues of $222 million and Adjusted EBITDA of $72 million.[2]

Redwire has strengthened and grown its position as a critical provider of defense technology by scaling its national security space business and investing in enhanced capabilities. Redwire recently added two space platforms to its technology portfolio, Thresher and Mako, designed for software defined, AI-enabled, autonomous operations in low Earth orbit, medium Earth orbit, and geostationary orbit. Additionally, Redwire is currently developing Very Low Earth Orbit spacecraft or “orbital drones” that bridge the gap between airborne and space-based systems. The addition of Edge Autonomy’s UAS technologies with these capabilities expands our coverage across multiple domains and is expected to create new integrated capabilities for our customers that leverage connectivity across space and airborne operations.

“The combination of Redwire and Edge Autonomy creates a uniquely positioned space and defense company focused on two of the fastest growing trends in defense technology,” said Peter Cannito, Chairman and CEO of Redwire. “As space and airborne platforms converge into an integrated network of autonomous, collaborative systems, Redwire will be poised to provide end-to-end solutions for multi-domain operations from the surface of the earth to the surface of the moon and beyond.”

Headquartered in San Luis Obispo, California, Edge Autonomy has a team of more than 600 employees around the world. With more than 265,000 square feet of manufacturing and production capabilities across the U.S. and Europe, Edge Autonomy’s experienced team delivers proven solutions based on real-world mission needs.

“We are extremely excited to join forces with Redwire and merge two industry leaders in advanced multi-domain technologies,” said Steve Adlich, CEO of Edge Autonomy. “Both companies are committed to technology innovation, reliability and satisfying customer demand, and we see significant synergies within our collective capabilities that will positively impact both businesses and enable continued growth.”

Transaction Financing and Closing Redwire will pay the purchase price for the acquisition in a combination of $150 million in cash and $775 million in shares of Redwire common stock issued at $15.07, the 30-day VWAP. The transaction consideration positions Redwire with a stronger balance sheet and enhanced credit quality as a result of significant cash flow accretion, better operational scale, and commercial diversification. Redwire, at its option, may finance the cash portion of the purchase price with cash on its balance sheet, availability under its existing credit facility, or proceeds from new committed debt facilities, taking advantage of the expected significant expansion of its Adjusted EBITDA and free cash flow on a combined company basis. Redwire, at its option, may also elect to use proceeds from a new issuance of Redwire common stock. If Redwire elects to raise cash in a common equity financing, the $15.07 issuance price would be increased or decreased depending on the per share price of such equity financing.

The transaction is subject to customary approvals and closing conditions, including a Redwire stockholder vote and regulatory approvals, and is expected to close in the second quarter of 2025.

In addition to approval by Redwire’s Board of Directors, the transaction has also been approved by a special committee of the Board composed entirely of directors who are independent both with respect to Redwire and AE Industrial Partners, LP and its affiliates (“AEI”). As a condition of the transaction, the stockholder approval must include a majority of the voting power not held by AEI. In connection with the transaction, entities affiliated with AEI, Genesis Park (through its affiliate Genesis Park II LP) and Bain Capital (through its affiliate BCC Redwire Aggregator, L.P.) have agreed to vote in favor of the proposals relating to the transaction at the stockholder meeting to be called for such purpose, representing an aggregate of approximately 73% of Redwire’s outstanding voting power, and over 50% of Redwire’s outstanding voting power held by persons other than AEI and Redwire management, as of January 20, 2025.

At the closing of the transaction, Redwire will enter into an amended and restated investor rights agreement (the “Investor Rights Agreement”) with AEI, Genesis Park Holdings, and Edge Autonomy Ultimate Holdings, LP (“Seller”) and certain of their affiliates, which would provide that (i) AEI would be permitted to designate four directors for election to Redwire’s Board of Directors, which number would be reduced once AEI no longer holds 50% or more of the shares of Redwire common stock issued beneficially owned by AEI (excluding the Seller’s) at the closing of the transaction and (ii) Seller would be permitted to designate one director for election to Redwire’s Board of Directors so long as Seller continues to hold 25% or more of the shares of Redwire common stock beneficially owned by Seller at the closing of the transaction. The Investor Rights Agreement also provides that AEI and Seller will not sell any of such Redwire Shares during the six-month period following the closing of the transaction, subject to certain limited exceptions.

Transaction Conference Call Management will conduct a conference call starting at 9:00 a.m. ET on Tuesday, January 21, 2025 to discuss the transaction. The dial-in number for the live call is 877-485-3108 (toll free) or +1 201-689-8264 (toll), and the conference ID is 13751126. Redwire will live stream a presentation with slides during the call. Please use the following link to follow along with the live stream: https://event.choruscall.com/mediaframe/webcast.html?webcastid=FA5vxeLy

A telephone replay of the call will be available for two weeks following the event by dialing 877-660-6853 (toll free) or 201-612-7415 (toll) and entering the access code 13751126. The accompanying investor presentation will be available on January 20, 2025 on the investor section of Redwire’s website at ir.redwirespace.com.

Advisors J.P. Morgan Securities LLC and GH Partners LLC are serving as financial advisors and Holland & Knight LLP is serving as legal advisor to Redwire. Roth Capital Partners is serving as financial advisor and Richards, Layton & Finger, P.A. is serving as legal advisor to special committee of the Board of Directors. Citi is serving as financial advisor and Kirkland & Ellis LLP is serving as legal advisor to Edge Autonomy.

About Redwire Redwire Corporation (NYSE:RDW) is a global space infrastructure and innovation company enabling civil, commercial, and national security programs. Redwire’s proven and reliable capabilities include avionics, sensors, power solutions, critical structures, mechanisms, radio frequency systems, platforms, missions, and microgravity payloads. Redwire combines decades of flight heritage and proven experience with an agile and innovative culture. Redwire’s approximately 700 employees working from 17 facilities located throughout the United States and Europe are committed to building a bold future in space for humanity, pushing the envelope of discovery and science while creating a better world on Earth. For more information, please visit redwirespace.com.

About Edge Autonomy Edge Autonomy is a leader in providing innovative autonomous systems, advanced optics, and resilient energy solutions to the U.S. Department of Defense, U.S. Federal Civilian Agencies, allied governments, academic institutions, and commercial entities around the world. We believe that innovation – in all forms, from all sources, and at all stages of development – creates solutions that enable mission success. Our highly engineered uncrewed technology systems have been sold across nearly 80 countries in a wide variety of military, civil, and academic applications.

With a team of more than 600 employees, Edge Autonomy draws on over three decades of proven aerospace engineering, manufacturing expertise, and advanced technology. Headquartered in San Luis Obispo, CA and with more than 265,000 square feet of manufacturing and production capabilities across the U.S. and in the European Union, Edge Autonomy’s experienced team delivers proven solutions based on real-world mission needs.

Additional Information and Where to Find It The definitive agreement entered into in connection with the proposed business combination described herein and a summary of material terms of the transaction will be provided in a Current Report on Form 8-K or Schedule 14A to be filed with the Securities and Exchange Commission (the “SEC”). Redwire will file with the SEC a proxy statement relating to a special meeting of Redwire’s stockholders (the “proxy statement”). STOCKHOLDERS ARE URGED TO CAREFULLY READ THE PROXY STATEMENT AND ANY OTHER RELEVANT DOCUMENTS TO BE FILED WITH THE SEC IN THEIR ENTIRETY WHEN THEY BECOME AVAILABLE BECAUSE THEY WILL CONTAIN IMPORTANT INFORMATION ABOUT REDWIRE, Edge Autonomy, THE TRANSACTION AND RELATED MATTERS. Stockholders will be able to obtain free copies of the proxy statement and other documents filed with the SEC by the parties through the website maintained by the SEC at www.sec.gov. In addition, investors and stockholders will be able to obtain free copies of the proxy statement and other documents filed with the SEC by the parties on investor relations section of Redwire’s website at redwirespace.com.

Participants in the Solicitation Redwire and its directors and executive officers may be deemed to be participants in the solicitation of proxies from the stockholders of Redwire in respect of the proposed business combination contemplated by the proxy statement. Information regarding the persons who are, under the rules of the SEC, participants in the solicitation of the stockholders of Redwire, respectively, in connection with the proposed business combination, including a description of their direct or indirect interests, by security holdings or otherwise, will be set forth in the proxy statement when it is filed with the SEC. Information regarding Redwire’s directors and executive officers is contained in Redwire’s Annual Report on Form 10-K for the year ended December 31, 2023 and its Proxy Statement on Schedule 14A, dated April 22, 2024, which are filed with the SEC.

No Offer or Solicitation This press release is not intended to and does not constitute an offer to sell or the solicitation of an offer to subscribe for or buy or an invitation to purchase or subscribe for any securities or the solicitation of any vote in any jurisdiction pursuant to the proposed business combination or otherwise, nor shall there be any sale, issuance or transfer of securities in any jurisdiction in contravention of applicable law.

Forward-Looking Statements Readers are cautioned that the statements contained in this press release regarding expectations of our performance or other matters that may affect our or the combined company’s business, results of operations, or financial condition are “forward-looking statements” as defined by the “safe harbor” provisions in the Private Securities Litigation Reform Act of 1995. Such statements are made in reliance on the safe harbor provisions of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. All statements, other than statements of historical fact, included or incorporated in this press release, including statements regarding our or the combined company’s strategy, financial projections, including the prospective financial information provided in this press release, financial position, funding for continued operations, cash reserves, liquidity, projected costs, plans, projects, awards and contracts, and objectives of management, the entry into the potential business combination, the expected benefits from the proposed business combination, the expected performance of the combined company, the expectations regarding financing the proposed business combination, among others, are forward-looking statements. Words such as “expect,” “anticipate,” “should,” “believe,” “target,” “continued,” “project,” “plan,” “opportunity,” “estimate,” “potential,” “predict,” “demonstrates,” “may,” “will,” “could,” “intend,” “shall,” “possible,” “forecast,” “trends,” “contemplate,” “would,” “approximately,” “likely,” “outlook,” “schedule,” “pipeline,” and variations of these terms or the negative of these terms and similar expressions are intended to identify these forward-looking statements, but the absence of these words does not mean that a statement is not forward looking. These forward-looking statements are not guarantees of future performance, conditions or results. Forward-looking statements are subject to a number of risks and uncertainties, many of which involve factors or circumstances that are beyond our control.

These factors and circumstances include, but are not limited to: (1) risks associated with the continued economic uncertainty, including high inflation, supply chain challenges, labor shortages, increased labor costs, high interest rates, foreign currency exchange volatility, concerns of economic slowdown or recession and reduced spending or suspension of investment in new or enhanced projects; (2) the failure of financial institutions or transactional counterparties; (3) Redwire’s limited operating history and history of losses to date as well as the limited operating history of Edge Autonomy and the relatively novel nature of the drone industry; (4) the inability to successfully integrate recently completed and future acquisitions, including the proposed business combination with Edge Autonomy, as well as the failure to realize the anticipated benefits of the transaction or to realize estimated projected combined company results; (5) the development and continued refinement of many of Redwire’s and the combined company’s proprietary technologies, products and service offerings; (6) competition with new or existing companies; (7) the possibility that Redwire’s expectations and assumptions relating to future results and projections with respect to Redwire or Edge Autonomy may prove incorrect; (8) adverse publicity stemming from any incident or perceived risk involving Redwire, Edge Autonomy, the combined company, or their competitors; (9) unsatisfactory performance of our and the combined company’s products resulting from challenges in the space environment, extreme space weather events, the environments in which drones operate, including in combat or other areas where hostilities may occur, or otherwise; (10) the emerging nature of the market for in-space infrastructure services and the market for drones and related services; (11) inability to realize benefits from new offerings or the application of our or the combined company’s technologies; (12) the inability to convert orders in backlog into revenue; (13) our and the combined company’s dependence on U.S. and foreign government contracts, which are only partially funded and subject to immediate termination, or which may be influenced by the level of military activities and related spending such as in or with respect to the war in Ukraine; (14) the fact that we are and the combined company will be subject to stringent economic sanctions, and trade control laws and regulations; (15) the need for substantial additional funding to finance our and the combined company’s operations, which may not be available when needed, on acceptable terms or at all; (16) the dilution of existing holders of our common stock that will result from the issuance of additional shares of common stock as consideration for the acquisition of Edge Autonomy, as well as the issuance of common stock in any offering that may be undertaken in connection with such acquisition; (17) the fact that the issuance and sale of shares of our Series A Convertible Preferred Stock has reduced the relative voting power of holders of our common stock and diluted the ownership of holders of our capital stock; (18) the ability to achieve the conditions to cause, or timing of, any mandatory conversion of the Series A Convertible Preferred stock into common stock; (19) the fact that AE Industrial Partners and Bain Capital have significant influence over us, which could limit your ability to influence the outcome of key transactions; (20) provisions in our Certificate of Designation with respect to our Series A Convertible Preferred Stock may delay or prevent our acquisition by a third party, which could also reduce the market price of our capital stock; (21) the fact that our Series A Convertible Preferred Stock has rights, preferences and privileges that are not held by, and are preferential to, the rights of holders of our other outstanding capital stock; (22) the possibility of sales of a substantial amount of our common stock by our current stockholders, as well as the equity owners of Edge Autonomy following consummation of the transaction, which sales could cause the price of our common stock and warrants to fall; (23) the impact of the issuance of additional shares of Series A Convertible Preferred Stock as pay in kind dividends on the price and market for our common stock; (24) the volatility of the trading price of our common stock and warrants; (25) risks related to short sellers of our common stock; (26) Redwire’s or the combined company’s inability to report our financial condition or results of operations accurately or timely as a result of identified material weaknesses in internal control over financial reporting, as well as the possible need to expand or improve Edge Autonomy’s financial reporting systems and controls; (27) the possibility that the closing conditions under the merger agreement necessary to consummate the merger between Redwire and Edge Autonomy will not be satisfied; (28) the effect of any announcement or pendency of the proposed business combination on Redwire’s or Edge Autonomy’s business relationships, operating results and business generally; (29) risks that the proposed business combination disrupts current plans and operations of Redwire or Edge Autonomy; (30) the ability of Redwire or the combined company to raise financing in connection with the proposed business combination or to finance its operations in the future; (31) the impact of any increase in the combined company’s indebtedness incurred to fund working capital or other corporate needs, including the repayment of Edge Autonomy’s outstanding indebtedness and transaction expenses incurred to acquire Edge Autonomy, as well as debt covenants that may limit the combined company’s activities, flexibility or ability to take advantage of business opportunities, and the effect of debt service on the availability of cash to fund investment in the business; (32) the ability to implement business plans, forecasts and other expectations after the completion of the proposed transaction, and identify and realize additional opportunities; (33) costs related to the transaction; and (34) other risks and uncertainties described in our most recent Annual Report on Form 10-K and Quarterly Reports on Form 10-Q and those indicated from time to time in other documents filed or to be filed with the SEC by Redwire. The forward-looking statements contained in this press release are based on our current expectations and beliefs concerning future developments and their potential effects on us. If underlying assumptions to forward-looking statements prove inaccurate, or if known or unknown risks or uncertainties materialize, actual results could vary materially from those anticipated, estimated, or projected. The forward-looking statements contained in this press release are made as of the date of this press release, and Redwire disclaims any intention or obligation, other than imposed by law, to update or revise any forward-looking statements, whether as a result of new information, future events, or otherwise. Persons reading this press release are cautioned not to place undue reliance on forward-looking statements.

Use of Data Industry and market data used in this press release have been obtained from third-party industry publications and sources, as well as from research reports prepared for other purposes. Redwire or Edge Autonomy have not independently verified the data obtained from these sources and cannot assure you of the data’s accuracy or completeness. This data is subject to change. Statements other than historical facts, including, but not limited to, those concerning market conditions or trends, consumer or customer preferences or other similar concepts with respect to Redwire, Edge Autonomy and the expected combined company, are based on current expectations, estimates, projections, targets, opinions and/or beliefs of Redwire or, when applicable, of one or more third-party sources. Such statements involve known and unknown risks, uncertainties and other factors, and undue reliance should not be placed thereon. In addition, no representation or warranty is made with respect to the reasonableness of any estimates, forecasts, illustrations, prospects or returns, which should be regarded as illustrative only, or that any profits will be realized. The metrics regarding select aspects of Redwire’s, Edge Autonomy’s and the expected combined company’s operations were selected by Redwire or its subsidiaries on a subjective basis. Such metrics are provided solely for illustrative purposes to demonstrate elements of Redwire’s businesses, are incomplete, and are not necessarily indicative of Redwire’s, Edge Autonomy’s or their subsidiaries’ performance or overall operations. There can be no assurance that historical trends will continue.

The Edge Autonomy financial information, including non-GAAP measures, for the last twelve months ended September 30, 2024 and year ended December 31, 2023 included in this press release is unaudited and subject to change. The historical financial information, including any related non-GAAP information, for Edge Autonomy is subject to the finalization of year-end financial and accounting procedures (which are in process of being performed) and should not be viewed as a substitute for audited results prepared in accordance with U.S. generally accepted accounting principles. The actual results may be materially different from the unaudited results, and therefore undue reliance should not be placed on the unaudited information.

Use of Projections The financial outlook and projections, estimates and targets in this press release are forward-looking statements that are based on assumptions that are inherently subject to significant uncertainty and contingencies, many of which are beyond Redwire’s or Edge Autonomy’s control. Neither Redwire nor Edge Autonomy’s independent auditors have audited, reviewed, compiled or performed any procedures with respect to the financial projections for purposes of inclusion in this press release, and, accordingly, they did not express an opinion or provide any other form of assurance with respect thereto for the purposes of this press release. While all financial projections, estimates and targets are necessarily speculative, Redwire believes that the preparation of prospective financial information involves increasingly higher levels of uncertainty the further out the projection, estimate or target extends from the date of preparation. The assumptions and estimates underlying the projected, expected or target results for Redwire, Edge Autonomy and the combined company are inherently uncertain and are subject to a wide variety of significant business, economic and competitive risks and uncertainties that could cause actual results to differ materially from those contained in the financial projections, estimates and targets. The inclusion of financial projections, estimates and targets in this press release should not be regarded as an indication that Redwire, or its representatives, considered or consider the financial projections, estimates or targets to be a reliable prediction of future events. Further, inclusion of the prospective financial information in this press release should not be regarded as a representation by any person that the results contained in the prospective financial information will be achieved.

Non-GAAP Financial Information This press release contains financial measures that have not been prepared in accordance with United States Generally Accepted Accounting Principles (“U.S. GAAP”). These financial measures include forecasted Adjusted EBITDA and Free Cash Flow for Redwire assuming completion of the acquisition of Edge Autonomy.

Non-GAAP financial measures are used to supplement the financial information presented on a U.S. GAAP basis and should not be considered in isolation or as a substitute for the relevant U.S. GAAP measures and should be read in conjunction with information presented on a U.S. GAAP basis. Because not all companies use identical calculations, our presentation of Non-GAAP measures may not be comparable to other similarly titled measures of other companies. We encourage investors and stockholders to review our financial statements and publicly-filed reports in their entirety and not to rely on any single financial measure. As soliciting material that is filed pursuant to Rule 14a-12, this press release is exempt from the requirements of Regulation G and Item 10(e) of Reg. S-K with respect to Non-GAAP financial measure disclosure.

Adjusted EBITDA is defined as net income (loss) adjusted for interest expense, net, income tax expense (benefit), depreciation and amortization, impairment expense, acquisition deal costs, acquisition integration costs, acquisition earnout costs, purchase accounting fair value adjustment related to deferred revenue, severance costs, capital market and advisory fees, litigation-related expenses, write-off of long-lived assets, gains on sale of joint ventures, equity-based compensation, committed equity facility transaction costs, debt financing costs, and warrant liability change in fair value adjustments. Free Cash Flow is computed as net cash provided by (used in) operating activities less capital expenditures.

We use Adjusted EBITDA to evaluate our operating performance, generate future operating plans, and make strategic decisions, including those relating to operating expenses and the allocation of internal resources. We use Free Cash Flow as a useful indicator of liquidity to evaluate our period-over-period operating cash generation that will be used to service our debt, and can be used to invest in future growth through new business development activities and/or acquisitions, among other uses. Free Cash Flow does not represent the total increase or decrease in our cash balance, and it should not be inferred that the entire amount of Free Cash Flow is available for discretionary expenditures, since we have mandatory debt service requirements and other non-discretionary expenditures that are not deducted from this measure.

**26 . Date: 15-06-2023Armed ISR / ISTAR - MALE - Requirement - Defence ministry approves $3bn drone deal with US for Modi visit. Here’s what India will getURL: https://theprint-in.cdn.ampproject.org/c/s/theprint.in/defence/defence-ministry-approves-3bn-drone-deal-with-us-for-modi-visit-heres-what-india-will-get/1627600/?amp**

New Delhi: In addition to the much-awaited deal for jet engine technology, India and the US will also sign a whopping $3 billion deal for outright purchase of 30 MQ-9 Reaper or Predator B drones, ThePrint has learnt.

Sources in the defence and security establishment said that Defence Minister Rajnath Singh led Defence Acquisition Council (DAC) cleared the mega deal Thursday.

The procurement file moved by the Indian Navy will now go through a bureaucratic process, which is mainly approval from the Cabinet Committee on Security, before Modi leaves for Washington next week.

As reported by the Print in September 2021, the three Services had finally come around to agreeing to go in for the drone deal, which is a tri-service acquisition but is being led by the Navy.

The Reaper comes with nine hard-points, capable of carrying sensors and laser-guided bombs besides air-to-ground missiles. It has an endurance of over 27 hours and can operate up to 50,000 ft with a 3,850 pound (1,746 kg payload capacity that includes 3,000 pounds (1,361 kg) of external stores.

It is capable of carrying multiple mission payloads to include Electro-optical/Infrared (EO/IR), Lynx, Multi-mode Radar, multi-mode maritime surveillance radar, Electronic Support Measures (ESM), laser designators, and various weapons and payload packages.

As per the plan, the Navy, which already operates two unarmed versions of drone — Sea Guardian — on lease, will get the majority share of the pie while the Army and the Air Force will get slightly lower numbers.

The erstwhile Trump administration had expected the deal for 30 armed drones to be announced at the two-plus-two ministerial dialogue in New Delhi on 27 October 2020. However, India did not succumb to the hard American push to seal the deal then.

India wanted American manufacturing firm General Atomics to set up a regional maintenance repair and overhaul facility in India for the drones.

Sources in the defence establishment said that this was a deal that the Americans were very keen for and that India bargained on multiple fronts before agreeing to this deal.

It was in 2018 that the US had offered India the armed version of the Guardian drones, which were originally authourised for sale as unarmed and for surveillance.

India was earlier eyeing both the unarmed Sea Guardian drones for the Navy and the armed Predator B for attack options, but many within the defence and security establishment felt that both operations can be done by one type only.

This was because of the prohibitive price involving American drones. The Navy had initially planned for 22 Sea Guardians which were priced at over $2 billion, but then brought down the number to just 12.

However, since all the three services wanted weaponised drones, a decision was taken to jointly pursue the deal.

The Reaper has been acquired by the U.S. Air Force, U.S. Department of Homeland Security, NASA, the Royal Air Force, the Italian Air Force, the French Air Force and the Spanish Air Force.