**1 . Date: 08-03-2023Armed ISR / ISTAR - HALE - Requirement - US Air Force eyes fleet of 1,000 drone wingmen as planning acceleratesURL: https://www.c4isrnet.com/air/2023/03/08/us-air-force-eyes-fleet-of-1000-drone-wingmen-as-planning-accelerates/**

AURORA, Colorado — The Air Force is ramping up plans for incorporating drone wingmen into its fleet, and envisions 1,000 of the so-called collaborative combat aircraft in service as it sketches out ideas.

Air Force Secretary Frank Kendall said Tuesday that the service will ask Congress for funding in the fiscal 2024 budget to move forward with the CCA program, as well as the Next Generation Air Dominance program of futuristic fighter aircraft, so it can map out how it will operate, organize and support these new systems.

In his keynote address at the Air and Space Force Association’s AFA Warfare Symposium in Aurora, Colorado, Tuesday, Kendall said he and Air Force Chief of Staff Gen. CQ Brown told planners to assume the service might acquire 1,000 CCAs. Under this model, the Air Force would acquire two CCAs for each of 200 NGAD platforms, and two for each of 300 F-35s, Kendall said.

Kendall cautioned those numbers aren’t likely to be what the Air Force’s inventory ends up tallying. Instead, he said, it’s a ballpark estimate to allow the service to estimate its basing needs, organizational structures, training and range requirements, and sustainment concepts.

“The CCAs will complement and enhance the performance of our crewed fighter force structure,” Kendall said. “CCAs will dramatically improve the performance of our crewed aircraft, and significantly reduce the risk to our pilots.”

Kendall has made adopting autonomous CCAs into the Air Force’s future fleet one of his top priorities as he seeks to update its fighter fleet to win a future war.

These drones could carry out a variety of missions, including striking targets, intelligence, surveillance and reconnaissance, or electronic warfare, Brown said in a February talk at the Brookings Institution.

The Air Force envisions these drones as being less expensive than traditional crewed aircraft, and in some cases being cheap enough that the service could afford to lose them in combat. This would allow the Air Force to send CCAs on riskier missions, and avoid putting human pilots in danger.

Kendall stressed in his speech that adopting drone wingmen will not mean the Air Force has fewer crewed fighters in its inventory. Instead, he said, CCAs can be thought of as remotely controlled versions of the targeting or electronic warfare pods or weapons that crewed aircraft now carry.

In a roundtable discussion with reporters at the conference, Kendall said the Air Force wants CCAs to cost a fraction of the F-35, which costs roughly $78 million per air frame in its 14th lot. He said affordability is a requirement for the program.

Kendall said the CCA program will be one of nearly 20 new or significantly ramped up programs in the upcoming budget request. About a dozen of those will be new starts that will require Congress’ approval, he said, and the rest are enhancements to already existing programs such as the Advanced Battle Management System.

Kendall said in September 2022 that he hopes the Air Force will hold a competition for CCAs in 2024, though details on that competition are scarce.

Brown said in another roundtable Tuesday that the Air Force has three lines of effort under way to develop CCAs: Developing the platform itself, developing the autonomous software that will fly the CCA, and figuring out how to organize, train, equip and supply the program.

All three of those efforts are under way “in parallel,” Brown said. The Air Force has brought in operators and maintainers to figure out questions such as how the CCAs would be directed and controlled during operations, he said.

Part of that work is figuring out how to design and mature the drone’s autonomous core, so a fighter pilot doesn’t get overwhelmed with the responsibility of directing and guiding the CCA, Brown said. That includes doing experiments on autonomy with the X-62A Variable In-flight Simulator Aircraft, or VISTA, a heavily modified F-16 fighter at Edwards Air Force Base in California

“There’s a number of ways to do this, whether it’s voice [commands] or touchscreen,” Brown said. “Just think about our day-to-day lives, and the autonomy we have. So the technology is there. It’s just how we bring this into our military applications.”

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**2 . Date: 11-03-2024Armed ISR / ISTAR - HALE - Requirement - US Air Force budget request leans toward R&D, trims fighter purchasesURL: https://www.c4isrnet.com/air/2024/03/11/us-air-force-budget-request-leans-toward-rd-trims-fighter-purchases/**

The Air Force’s proposed budget for fiscal 2025 would cut procurement of two major fighter programs — the F-35A and F-15EX Eagle II — and boost research and development funding for future capabilities.

The service plans to buy 42 Lockheed Martin-made F-35As for $5.9 billion and 18 Boeing F-15EXs for $1.8 billion next year. That would be a reduction from the 48 and 24 fighters, respectively, the service originally expected to buy.

The Air Force plans to stop buying F-15EXs all together after 2025 concludes, which will cap the entire line of Eagle IIs at 98 — six fewer than the 104 the service had been planning to buy. The Air Force’s expected total purchase of 1,763 F-35As remains unchanged.

The Air Force also wants to cut 250 aircraft in 2025, including 56 A-10 Warthogs, 65 older F-15 C and D Eagle fighters, 26 F-15E Strike Eagles with less-capable engines, 11 F-16 Fighting Falcons, and 32 Block 20 F-22A Raptors the service said would be prohibitively expensive to ready for combat. The service expects those retirements, if approved, would save more than $2 billion in fiscal 2025.

The Department of the Air Force’s fiscal 2025 proposed budget requests a total of $217.5 billion, an increase of $2.4 billion, or 1.1%, over its request from this year. Kristyn Jones, who is performing the duties of undersecretary of the Air Force, noted to reporters that the increase does not keep up with inflation.

The service asked for $188.1 billion, a $3 billion or 1.6% increase over its 2024 request. The Space Force’s requested $29.4 billion budget would be a 2% drop from the 2024 request.

Air Force Secretary Frank Kendall told reporters in a March 8 briefing the service “had to make some hard choices” to fit within the constraints of the Fiscal Responsibility Act.

The Fiscal Responsibility Act caps the government’s spending increases as part of a deal Congress struck last year to avoid a default on the nation’s debt. For the Defense Department, that limits its 2025 budget to $850 million, less than the $860 million the administration originally anticipated.

Kendall described the resulting budget as “acceptable,” and “essentially consistent” with the fiscal 2024 budget. But although he said it moves the department forward on key programs and strikes a balance between near-, mid- and long-term programs, he said he’d “like to be able to move faster.”

And more “tough choices” are ahead in fiscal 2026′s budget, he warned, including the first real effects of the LGM-35A Sentinel program’s severe cost overruns. The Air Force’s next intercontinental ballistic missile, slated to replace its aging Minuteman III nuclear missiles, has seen its costs ballon at least 37% and triggered a cost overrun process called a critical Nunn-McCurdy breach.

“Life gets a lot harder as you get past [20]25,” Kendall said.

The Air Force tried to strike a balance between mid-term procurement of more air frames and capabilities that have already been developed, and research and development of future advanced capabilities the service hopes will pay off in the long term.

“My priority is to get to a next generation of capabilities as quick as we can, because of what China’s doing in terms of their modernization,” Kendall said. He added later, “China is advancing very quickly, and they’re not stopping. So we really need, as a priority, to get to a next-generational capability. And you can’t even start to buy that until you’ve done the research and development.”

That resulted in a “tradeoff” in favor of R&D over procurement, Kendall said, to give future administrations options of new capabilities it can choose to buy as threats change.

The Air Force’s proposed procurement budget in 2025 is $29 billion, which would be down $1.6 billion from its 2024 proposal. And its proposed research, development, test and evaluation budget would rise from $36.2 billion in the 2024 proposal to $37.7 billion in 2025.

Rep. Rob Wittman, R-Va., warned at the March 7 McAleese Defense Conference in Washington that Chinese President Xi Jinping is preparing to make a move on Taiwan by 2027. Wittman said military strategies that depend on fielding capabilities by about 2030 will come too late, and the U.S. military must field shorter-term capabilities to be able to dissuade China from trying to take Taiwan by force.

“Anybody that uses a metric and says, ‘We’ll get this stuff done by 2030′ — wrong answer,” Wittman said. “2027 needs to be the metric. That’s how we will have the opportunity to deter” China.

In a gaggle with reporters at McAleese, Kendall said the Air Force has to take a longer view, and will need to counter China not just in 2027, but for years to come.

“It’s a risk balance over time,” Kendall said. “If you fixate only on 2027, you’re going to find that in ‘29, you’re in big trouble. And ‘29 is going to come.”

A variety of rising costs are squeezing the Air Force’s budget, Jones said, and led to the procurement cuts. The department expects to spend about $1 billion more in 2025 to keep the number of flying hours and weapon system sustainment on par with 2024 levels, and personnel costs such as military pay and benefits are also going up, she said.

R&D funding for Sentinel would remain flat from the 2024 request at $3.7 billion. And the service wants to spend $700 million on six construction projects for Sentinel in 2025, as well as another $70 million for planning and design, a major increase from the $140 million it requested for Sentinel construction in 2024.

Jones said some of the changes included in the “reoptimization for great power competition” reorganization the Air Force unveiled last month will help set the Sentinel program back on track. Those changes would include putting a three-star general in charge of the Nuclear Weapons System Center, and having a two-star general serve as a program executive officer for ICBMs. Jones said the Air Force is still studying the program’s requirements and looking for alternative strategies that could save money.

Overall funding for the B-21 Raider stealth bomber will remain fairly steady, although some funds will shift from R&D to procurement as the bomber continues in its low-rate initial production phase. R&D funding for the bomber’s engineering, manufacturing and development phase would dip from $3 billion in 2024 to $2.7 billion in 2025, while procurement funding would increase from $2.3 billion to $2.7 billion.

The Next-Generation Air Dominance program, the service’s future fighter system, would receive an additional $815 million to develop and test its air vehicle, mission systems and capabilities, bringing spending on that program to more than $2.8 billion.

The Air Force’s collaborative combat aircraft, or CCA, program would receive $559 million in R&D funding to continue development, prototyping and integration of its air vehicle, which would be a $166 million boost over 2024 levels.

CCAs are drones outfitted with autonomous software that could fly alongside crewed NGAD and F-35 fighters into battle and carry out missions such as strikes, reconnaissance, and electronic warfare operations. The service now has contracts with five vendors on this program — Lockheed Martin, Boeing, Northrop Grumman, General Atomics and Anduril — and plans to winnow the field to two or three in the months to come.

The CCA program would also receive another $116 million to test its autonomous capabilities and for experimentation programs such as Project Venom and the experimental operations unit. And the service said its proposed 2025 funding for CCAs would allow it to lock down the aircraft’s design, build production-representative test aircraft for the program’s first increment, begin testing and refine the concept for its second increment.

The Air Force also plans to buy 15 KC-46A Pegasus tankers for $3.1 billion and seven T-7A Red Hawk trainers for $233 million. And it would retire 16 KC-135 Stratotankers as it brings on new KC-46s.

The service plans to retire 22 T-1A Texan II training aircraft to free up more resources that can be invested in newer pilot training technologies.

And the budget would provide $13.7 million for the Air Force’s tanker recapitalization effort to serve as a bridge between the current wave of KC-46s and the service’s planned Next-Generation Aerial Refueling System, or NGAS. That choice will likely be between more Boeing KC-46s and a tanker from Airbus. The service expects to finish its acquisition strategy for that tanker this summer, and then release a request for proposal in 2025. The Air Force plans to start requesting procurement funding for that tanker in 2027.

The Air Force started conducting an analysis of alternatives study for NGAS in January, Maj. Gen. Michael Greiner, the Air Force’s deputy assistant secretary for budget, told reporters. The service wants to spend about $7 million on preparing for NGAS, including conducting modeling and simulation studies, so it can field an advanced tanker by the mid-2030s.

The service also wants to boost its purchases of AIM-120 Advanced Medium Range Air-to-Air Missiles, or AMRAAMs, Long Range Anti-Ship Missiles, or LRASMs, and Advanced Anti-Radiation Guided Missile-Extended Range missiles, or AARGM-ERs. The LRASM and AARGM-ER purchases would increase considerably — from 27 in 2024 to 115 in 2025, and from 14 in 2024 to 128 in 2025, respectively.

Kendall said the Air Force is hoping to continue its strategy of multi-year procurement purchases for AMRAAM, LRASM, and the Joint Air-to-Surface Standoff Missile-Extended Range missile.

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**3 . Date: 04-05-2023Armed ISR / ISTAR - Small - General - ArmamentRheinmetall pitches unmanned mothership full of tiny attack dronesURL: https://www.c4isrnet.com/battlefield-tech/2023/05/04/rheinmetall-pitches-unmanned-mothership-full-of-tiny-attack-drones/**

MILAN – German defense contractor Rheinmetall unveiled plans last month for a drone envisioned to carry up to eight loitering munitions and release them close to their targets.

The drone carrier, dubbed Combat Drone, is based on the existing Luna Next-Generation (NG) platform, also manufactured by Rheinmetall and in service with different customers including the German Army.

A video released last month by the company shows the system being launched via catapult, tracking a truck en route to a shed. The drone then releases explosive loitering munitions which first destroy a perimeter sensor and then blow up the truck parked inside the structure.

“The video presents a proof of concept, where the shown elements are in development and currently at different stages of maturity,” Rheinmetall spokesman Jan-Phillip Weisswange told Defense News in an email. “The Combat Drone will be capable of carrying and deploying different types of rotary-wing loitering munitions, which, depending on the kind and configuration, could total 8 effectors,” he added.

The timing for finalizing the idea will ultimately depend on customer interest, according to Weisswange.

While other details about the envisioned capabilities of the strike drone were not available, more is known about the system that inspired its design. The Luna NG, whose predecessor is the Luna X-2000 that has been operated by German troops since the early 2000s, was formerly manufactured by EMT Penzberg before Rheinmetall bought the operation in 2021. It is a lightweight reconnaissance drone capable of remaining airborne for 12 hours over ranges above 100 kilometers. Soldiers can launch it by way of a rope hoist catapult.

While the drone carrier idea is not new by itself, the design was likely influenced by the use of unmanned aerial vehicles in Ukraine, according to Samuel Bendett, research analyst at the U.S.-based Center for Naval Analyses.

“There is a need in Ukraine to provide kamikaze quadcopter capability and delivery beyond the technical specifications of these small drones,” he said.

Bendett points out that both the United States and China have been experimenting with the concept for years, while Russians officials were recently discussing the possibility of launching the Molniya small combat drone from the larger Grom platform.

“At this point, it’s about who will get there first – and the cost in this is a factor,” said Bendett. “In actual combat, this type of drone delivery can be targeted by the adversary, so lowering the cost of such operations is the correct path forward,” he said.

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**4 . Date: 20-06-2024Loitering Munition - Mini - Contract - US approves loitering munitions sale for Taiwan’s ‘porcupine strategy’URL: https://www.c4isrnet.com/battlefield-tech/2024/06/20/us-approves-loitering-munitions-sale-for-taiwans-porcupine-strategy/**

CHRISTCHURCH, New Zealand — Taiwan won approval from main benefactor the U.S. to buy hundreds of loitering munitions, as part of a “porcupine strategy” to use such attritable weapons to help defend the country from a potential Chinese military invasion.

The Defense Security Cooperation Agency’s June 18 approvals included 291 Altius 600M-V loitering munitions from Anduril, plus 720 Switchblade 300s from AeroVironment. The former is valued at $300 million and the latter at $60.2 million.

The Altius 600M-V package includes warheads and electro-optic/infrared cameras, pneumatic launchers, transport trailers and ground control stations. The 47lb (12kg) aircraft has a 276-mile (440km) flight range and 4-hour endurance.

As for the Switchblade 300, it comes with both anti-personnel and anti-armor warheads. It is smaller, with a 3.69lb (1.68kg) weight and just a 20-minute endurance.

Chen Kuo-ming, a Taipei-based defense analyst, told Defense News the Switchblades are suitable for anti-personnel use, and the Altius against armor.

The weapons should be delivered in 2024-2025.

“In the face of the Chinese Communist Party’s frequent military operations around Taiwan, the U.S. side in this case agreed to sell arms items that will have reconnaissance and immediate strike capabilities and can respond quickly to enemy threats,” Taiwan’s Ministry of National Defense said in a statement.

The U.S.-Taiwan Business Council also applauded the potential sales. Council President Rupert Hammond-Chambers noted they “add substantially to Taiwan’s inventory of mobile smart munitions, which can be used during on-island fighting all the way through to attacking People’s Liberation Army assets off Taiwan’s coastline”.

Chen said he believes these loitering munitions are good for Taiwan, since they can be used by independent units, even if the country’s navy and air force have been defeated.

However, he expressed concerns about their price compared to the cost of antitank missiles, for example. He also questioned the ability of Taiwanese frontline units to see and therefore target enemies beyond visual range.

Chen said the National Chung-Shan Institute of Science and Technology – Taiwan’s defense research and development agency – had displayed various drones, including a loitering munition – at a 2023 Taipei defense exhibition. However, “Until now, we have no real loitering munition for the army to use. So after about nine months, the U.S. government decided to sell these to Taiwan.”

Hammond-Chambers also noted, “Taiwan currently has domestic companies who are working with foreign partners to develop their own indigenous mobile smart munitions. In conjunction with Foreign Military Sales cases such as these, we should expect the Ministry of National Defense to also start procuring locally to meet their defensive requirements.”

At last month’s Shangri-Li Dialogue in Singapore, Adm. Samuel Paparo, head of the U.S. Indo-Pacific Command, outlined a plan to strike back if China attacks Taiwan. “I want to turn the Taiwan Strait into an unmanned hellscape using a number of classified capabilities … so that I can make their lives utterly miserable for a month, which buys me the time for the rest of everything.”

Editor’s note: This story was updated to reflect that the per-unit cost of an Altius loitering munition, which the manufacturer has declined to name on the record, cannot be reliably inferred from the overall price tag of the foreign military sale.

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**5 . Date: 19-05-2023Armed ISR / ISTAR - MALE - General - PayloadFur-midable: US Air Force pairs Angry Kitten jammer with Reaper droneURL: https://www.c4isrnet.com/electronic-warfare/2023/05/19/fur-midable-us-air-force-pairs-angry-kitten-jammer-with-reaper-drone/**

WASHINGTON — The U.S. Air Force meshed fearsome with furry in tests of electronic warfare equipment aboard a widely used drone.

The service’s 556th Test and Evaluation Squadron in April completed initial ground and flight testing of an MQ-9A Reaper outfitted with the Angry Kitten ALQ-167 Electronic Countermeasures Pod, a cluster of components contained in a vaguely cat-shaped tube.

The successful trials at Creech Air Force Base, Nevada, focused on providing electronic attack from the Reaper, a General Atomics Aeronautical Systems product typically used to collect intelligence or conduct reconnaissance. The pod is derived from technology developed by the Georgia Tech Research Institute, which in 2013 described the project as using commercial electronics, custom hardware and novel machine-learning for flexibility.

“The goal is to expand the mission sets the MQ-9 can accomplish,” Maj. Aaron Aguilar, the 556th Test and Evaluation Squadron assistant director of operations, said in a statement May 13. “The proliferation and persistence of MQ-9s in theater allows us to fill traditional platform capability gaps that may be present.”

Electronic warfare, or EW, is an invisible fight for control of the electromagnetic spectrum, used to communicate with friendly forces, to identify and suppress opponents, and to guide weapons. Dominance of the spectrum will be critical in a fight with China or Russia, the two most significant national security threats, according to U.S. defense officials.

The Air Force is trying to reinvigorate its EW capabilities after years of neglect; the service in September announced a “sprint” to dig up deficiencies, seek needed resources and identify next steps.

Lt. Col. Michael Chmielewski, the 556th Test and Evaluation Squadron commander, in a statement said electronic attack aboard a Reaper is “compelling.” The Air Force previously used Angry Kitten in training, outfitting aggressor squadrons with the gear to harass trainees and simulate dizzying electronic barrages.

“Fifteen hours of persistent noise integrated with a large force package will affect an adversary, require them to take some form of scalable action to honor it, and gets at the heart of strategic deterrence,” Chmielewski said.

Angry Kitten’s name is a brew of inside joke and design goals, according to a 2013 Newsweek report. It is also a departure from the typical terror-inducing military moniker: Hellfire missile, Predator drone, Stryker combat vehicle.

Roger Dickerson, a senior research engineer with the Sensor and Electromagnetic Applications Laboratory at the Georgia Tech Research Institute, in 2015 told C4ISRNET that although the pod has “an admittedly slightly silly name,” it represents “very serious technology.”

“We’ve been working hard to improve the capabilities and the readiness of the war fighters in our sponsor organizations: the Army, the Navy and especially the U.S. Air Force air combat community,” Dickerson said at the time.

Colin Demarest was a reporter at C4ISRNET, where he covered military networks, cyber and IT. Colin had previously covered the Department of Energy and its National Nuclear Security Administration — namely Cold War cleanup and nuclear weapons development — for a daily newspaper in South Carolina. Colin is also an award-winning photographer.

**6 . Date: 21-02-2024Partnership - General Atomics expands its reach into the Japanese defense marketURL: https://www.c4isrnet.com/global/asia-pacific/2024/02/21/general-atomics-expands-its-reach-into-the-japanese-defense-market/**

SINGAPORE — General Atomics is expanding its cooperation with Japan by investing in the nuclear-energy sector, a growing relationship that executives hope will propel the company’s drone-making defense business there.

“We plan to soon announce another partnership with a Japanese company, which I cannot yet disclose, to create a new type of communications pod for Japan that can provide assistance in part in the face of natural disasters,” C. Mark Brinkley, senior director of communications at General Atomics Aeronautical Systems told Defense News at the Singapore Airshow.

“It would be designed to be used with our aircraft, though podded systems can often also be used with other aircraft as well,” he added.

In recent days, the American drone manufacturer has emphasized how committed it is to strengthening its presence in Japan.

On the first day of the Airshow, organized here from Feb. 19-23, the firm announced that they are collaborating with Japanese partners to advance the development of technologies “in the maritime security, nuclear energy, and rare earth elements sectors.”

The Japan Coast Guard and Japan Maritime Self-Defense Force have been trialing the MQ-9B SeaGuardian drone for surveillance missions since last year. Japan’s Defense Minister Minoru Kihara said that the government plans to expand the scope of the testing period.

From July to September the MQ-9B will operate from Kanoya Air Base on Japan’s southern tip, and a simulated surveillance crisis over the East China Sea will be conducted on three different occasions as part of the tests, he said.

Brinkley said that the company welcomes the tests, suggesting the drones had been performing well.

“SeaGuardian is really going to open up Indo-Pacific monitoring efforts,” he said.

As for eventually purchasing MQ-9B drone, Brinkley said the state of negotiations was “advanced.”

A report published last year by the Washington-based Center for Strategic and International Studies highlights that one of the thrusts of Japan’s Defense Buildup Plan, approved in 2022, is to broaden research and development activities and projects with international partners to boost the country’s technological base.

When asked whether General Atomics’ new investments in the Japanese nuclear-energy and rare-earth sectors were connected to possible future defense contracts, Brinkley said that the company was interested in a “holistic” relationship with Tokyo. “Our defense efforts certainly open doors for conversations in other areas,” he said.

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**7 . Date: 25-04-2023Armed ISR / ISTAR - MALE - Contract - Romania awards $321 million contract for Turkish TB2 combat dronesURL: https://www.c4isrnet.com/global/europe/2023/04/25/romania-awards-321-million-contract-for-turkish-tb2-combat-drones/**

MILAN — The Romanian Defence Ministry has awarded Turkish company Baykar a $321 million contract for TB2 drones, according to recently published documents.

The move comes after the the ministry announced its intention last August to procure three TB2 unmanned aerial system packages from the defense contractor for approximately $300 million, pending approval from Parliament.

“The UAS systems to be purchased will be intended for the Romanian Land Forces. Each system includes six aerial platforms with target engagement capabilities (a total of 18 drones). The program also involves the purchase of an initial logistical support package, necessary training and equipment,” the ministry said in a statement at the time.

This week, the Tenders Electronic Daily website, an online version of the Supplement to the Official Journal of the European Union focused on public procurement projects, published the official contract award notice to the Turkish manufacturer for the production of these systems.

The company is to deliver the drones to the Romanian city Timisoara, where the country’s military used to operate the 93rd Air Base that housed MiG-23 fighters before their retirement. Once received, Romania will become the second European Union member after Poland to operate TB2s, and the third European NATO member to order them beyond Turkey.

These acquisitions are to contribute to ambitions laid out as part of the transformation of the Romanian Army until 2040, which seeks to provide forces with new military equipment and weapon systems that ensure flexibility, expanded situational awareness and increased firepower.

Romania intends to increase its defense budget to 2.5% of gross domestic product in 2023, Bloomberg reported. Last year, the country allocated roughly $6 billion for defense spending.

Earlier this month, a statement issued on the website of Romanian President Klaus Iohannis said the government is also looking to buy F-35 fighter jets to modernize its Air Force.

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**8 . Date: 14-08-2023ISR / ISTAR - Small - Contract - Rheinmetall confirms delivery of reconnaissance drone "Luna NG" to Ukraine later this yearURL: https://www.c4isrnet.com/global/europe/2023/08/14/allies-send-new-reconnaissance-drone-counter-uas-systems-to-ukraine/**

STUTTGART, Germany — Ukraine’s allies in Europe are sending Ukraine new unmanned aerial systems and counter-drone equipment, as the war instigated by Russia enters its 18th month.

German weapons maker Rheinmetall is preparing to send its LUNA NG (next-generation) unmanned reconnaissance drone to Kyiv, the company announced Aug. 14. The system should be delivered by the end of the year, according to a spokesperson.

The LUNA NG is part of a sizable military aid package for Ukraine initiated by the German government in July. The Bundeswehr calls the system “Husar.” Per Rheinmetall, it includes a ground control station and several UAVs, as well as a launch catapult, an optional net equipment for catching the drones when they land, and equipment for rapid repair. The system is mounted on a Rheinmetall HX truck with a swap body system.

The company asserts the drone can remain aloft for over twelve hours and maintain a datalink range of up to 100 kilometers normally, and up to 300 kilometers when fitted with optional satellite communication equipment.

The Bundeswehr has operated LUNA UAV systems since the early 2000s. Those were originally developed by German manufacturer EMT Penzberg, which was acquired by Rheinmetall in 2021.

The German Ministry of Defence did not respond to questions regarding the total number of LUNA NG units procured for the Bundeswehr, nor the number of units going to Ukraine. Rheinmetall described the order value as a “low, double-digit million euro amount.”

Berlin has already delivered a number of reconnaissance drones to Ukraine, including 88 Vector drones from Quantum Systems, 20 RQ-35 Heidrun systems from Danish company Sky-Watch, and 32 unspecified reconnaissance drones, as of August 9.

Meanwhile, Ukraine will also soon receive a series of CORTEX Typhon counter-UAS systems made by Norway’s Kongsberg, after the company signed an agreement via the International Fund for Ukraine.

The delivery consists of several CORTEX Typhon systems, developed to counter a wide spectrum of UAVs with solutions to either physically harm or otherwise disable the aerial threat, Kongsberg said in an Aug. 14 press release.

The International Fund for Ukraine (IFU) is a funding mechanism run by the United Kingdom on behalf of several international partners – including the UK, Norway, Netherlands, Denmark, Sweden, Iceland, and Lithuania – who together have contributed over £770 million ($977 million) to the fund to date. It was established for those partners to identify and procure critical capabilities and deliver them quickly to Ukraine.

The Kongsberg contract value is £56 million ($72 million), per the company. As part of the delivery, the Norwegian government has donated Dingo 2 armored vehicle personnel carriers, Kongsberg remote weapon systems, and additional weapons. The date of delivery, nor the number of units, was not given.

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**9 . Date: 31-10-2023Armed ISR / ISTAR - MALE - General - Are the once-vaunted Bayraktar drones losing their shine in Ukraine?URL: https://www.c4isrnet.com/global/europe/2023/10/31/are-the-once-vaunted-bayraktar-drones-losing-their-shine-in-ukraine/**

BRNO, Czech Republic — The Turkish-made Bayraktar TB2 drones, which reportedly assisted Ukraine in military successes earlier in the war, are now of limited utility amid Russian forces bolstering their air defenses, according to a Ukrainian military official.

The assessment by Col. Volodymyr Valiukh, a commander in Ukraine’s Main Intelligence Directorate, comes as unmanned aerial vehicles of all sizes and flavors continue to play a key role in Ukraine’s defense calculus. But new tactical constraints have come into play, he said.

In the early weeks of the Russian invasion, the drone often singled out in news headlines was the TB2, produced by Turkish manufacturer Baykar. Among the hits logged by Ukrainian TB2s are five tanks, six towed artillery pieces, six naval ships, two logistics trains, two multiple rocket launchers, two anti-aircraft guns and over a dozen surface-to-air missiles, according to the Dutch open-source intelligence website Oryx.

However, over the course of the last year, several reports noted that the drones seemed to have disappeared from available footage of battlefield action and that their use had become more limited in the face of more sophisticated Russian air defenses.

“For the TB2, I don’t want to use the word useless, but it is hard to find situations where to use them,” Valiukh said at the GSOF Symposium here on Oct. 26.

In an interview with Defense News, the Ukrainian commander clarified there is evidently still some use for them, but that the deployment frequency and roles for those drone types had changed.

“We are extremely grateful for the TB2s, but at the beginning of the war they were deployed more and striked more,” Valiukh said. Now that Russian air and electronic defenses have grown in quality, he added, the last TB2 flight he observed lasted a mere 30 minutes.

Per the manufacturer, Baykar, the drones can stay airborne for 27 hours.

The company told Defense News that reports about the limited utility of its flagship product should be taken with a grain of salt.

“Not seeing any videos does not necessarily mean that the drones are not being used,” CEO Haluk Bayraktar told Defense News. “This is a challenging environment to operate in,” with hundreds of medium- to long-range Russian air defenses deployed within range, he added.

“Currently, the Bayraktar TB2s are mainly used to conduct daily flights to track the targets, which can be as valuable as attacking,” Bayraktar said.

In that reconnaissance role, the usage rate in Ukraine is still high, according to company logs seen by Defense News.

“TB2s don’t attack unless they figure out open windows, no need to be an easy target for Russian air defense systems,” Bayraktar said. “This is the same for any other flying platform such as fighter jets, helicopters et cetera unless it is an affordable, low-cost mini drone,” he added.

Since June, Ukrainian TB2s have received upgrades that include advanced camera gear, the Mx-20, provided directly to the embattled country by Canadian manufacturer L3Harris Wescam. The new imaging equipment enables higher-altitude and longer-range surveillance missions, per the vendor.

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**10 . Date: 03-11-2023Armed ISR / ISTAR - Requirement - German air chief urges haste in fielding strike, utility dronesURL: https://www.c4isrnet.com/global/europe/2023/11/03/german-air-chief-urges-haste-in-fielding-strike-utility-drones/**

COLOGNE, Germany — German air force chief Lt. Gen. Ingo Gerhartz wants to see faster progress in the fielding of new military drones than what the time line for the envisioned trinational Future Combat Air System can offer.

“We can have remote carriers out of that project much much earlier,” the air force chief told Defense News in an interview, referring to a class of drones that is envisioned to accompany the FCAS program’s central, sixth-generation warplane on future missions. “And we need to have it much, much earlier.”

Gerhartz’s comments reflect a certain degree of angst in military circles here about the fluid target date for the German-Franco-Spanish project – currently pegged at “2040-plus,” he said in an interview – which could risk putting Berlin behind the curve.

Asked about what timing he had in mind, Gerhartz demurred, saying only the contracting for the FCAS drones was far enough along to support the fielding of unmanned technologies before the totality of the program comes online.

Remote carriers is catch-all term for different types of drones with tasks that range from reconnaissance to electronic jamming to strike. Smaller ones also could be used to swarm enemy air defense positions with the goal of overwhelming their radars and targeting software.

The idea is for the pilot of the FCAS program’s manned warplane, dubbed the Next Generation Fighter, to command all unmanned elements from the cockpit depending on the nature of a given mission.

Germany, with lead contractor Airbus Defence and Space, has the lead for remote carrier development within the overall program. The German and French arms of pan-European missile maker MBDA are also involved, along with Spain’s SATNUS consortium representing local specialists Sener, GMV and Tecnobit.

According to MBDA, the company envisions leaning on existing missile technologies in developing its remote carrier offerings. They include the Taurus cruise missile – sought by Ukraine for its defense against Russia, as well as the Spear 3, Metor and Scalp missiles.

Gerhartz said he also wants to push the tempo on a dedicated strike drone for Germany. The larger vehicle class is internationally dubbed a UCAV, short for unmanned combat aerial vehicle.

France’s national lead for FCAS, Dassault Aviation, has been developing such a weapon for years, in parallel to the trinational program, Gerhartz noted.

“Now were are looking for partners to push UCAV, or loyal wingman, on our side,” he said. “We need that earlier.”

After the interview, when asked about details, a Luftwaffe spokesman wrote in a statement that the service is looking for “synergies” with partner nations grappling with the same problem of integrating manned and unmanned strike platforms into scenarios for “collaborative combat.”

Meanwhile, the FCAS program has had a wobbly history, mainly fueled by mistrust between Airbus and Dassault that has at times bled into the bilateral political discourse between Germany and France over the usefulness of any bilateral defense programs at all.

According to a Nov. 1 report in the London-based Times, citing unnamed sources, German Chancellor Olaf Scholz was considering abandoning the €100 billion ($107.3 billion) program in favor a British-led rival effort dubbed Tempest because he had grown impatient with what he viewed as too capricious of a partner in Paris.

A spokeswoman for the German ministry of defense said Berlin is sticking with FCAS, calling reports to the contrary “false.”

Contractors began building an demonstrator in March, putting the project on a “good path,” the spokeswoman said.

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**11 . Date: 24-01-2024Armed ISR / ISTAR - MALE - Requirement - Poland nears acquisition of SkyGuardian drones, General Atomics saysURL: https://www.c4isrnet.com/global/europe/2024/01/24/poland-nears-acquisition-of-skyguardian-drones-general-atomics-says/**

ABU DHABI, United Arab Emirates — Poland is close to finalizing the acquisition of MQ-9B SkyGuardian drones from General Atomics, following two years of leasing the Reaper model, according to the company’s president.

Since October 2022, General Atomics Aeronautical Systems has been under contract by the Polish government to fly company-owned MQ-9A Reapers on reconnaissance missions over the eastern European country.

“With the Poland mission, we’re learning new things about this portion of eastern Europe and the overall threat environment there, and these lessons are feeding into new tactics and approaches for these operations,” C. Mark Brinkley, senior director of communications with the company, told Defense News at the UMEX trade show here this week.

Polish leaders have said they want to buy the SkyGuardian variant, which has greater endurance, range and payload capability. The number of drones sough by Warsaw has not been made public.

According to GA-ASI’s chief executive, the signature of a contract is imminent, which could prove to be a substantial boost to the country’s reconnaissance capabilities as it shares a border with Ukraine.

“Negotiations for Poland to acquire the MQ-9B are very close to being finalized,” company president Dave Alexander said.

Last year, the company offered to provide two Reaper drones to Ukraine for the symbolic price tag of $1. The offer still stands but has yet to receive approval from the U.S. government.

A number of Ukrainian industry experts present at the show here told Defense News that Russia’s jamming of unmanned aircraft is a major problem on the battlefield.

General Atomics has taken note, according to Alexander. “I wouldn’t go as far as saying we are investing more than we already have, but we’re definitely paying more attention to mitigation techniques,” he said.

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**12 . Date: 25-03-2024Armed ISR / ISTAR - HALE - Requirement - Eurodrone program bags fresh round of EU subsidiesURL: https://www.c4isrnet.com/global/europe/2024/03/25/eurodrone-program-bags-fresh-round-of-eu-subsidies/**

MILAN — The European Commission is poised to jolt the Eurodrone program by injecting a second round of funding into the project to allow for the development of new capabilities.

On March 15, the European Commission, responsible for promoting cooperation and facilitating the integration of defense capabilities between EU member-states, published its 2024 call for proposals.

Among the 30 different project requests outlined in the document, one stands out as having the largest budget up for grabs: the development of a fully European medium-altitude, long-endurance, remotely piloted aircraft system.

The request, for which 100 million euros ($108 million) is allocated, pertains specifically to the ongoing Eurodrone program, according to a Commission representative.

“The Commission is not planning to support the development of another European MALE drone – the call for proposals in the EDF annual Work Programme 2024 aims at developing additional capabilities for the actual Eurodrone, expected to fly before the end of this decade,” a Commission spokesperson told Defense News.

According to the document, the primary objective behind having a European-made MALE RPAS is to move away from foreign suppliers when it comes to intelligence, surveillance and reconnaissance (ISR) missions.

“Today, most of the ISR capabilities of member states rely on non-EU manufacturers in order to carry out their missions … the development of a fully European MALE RPAS is key to reduce dependency on non-EU solutions,” the document said.

The Eurodrone program, which began in 2015, received $107 million in funding from the EU-run European Defense Industrial Development Program in 2021.

The effort involves four governments – Italy, Spain, Germany and France – as well as three contractors, Leonardo, Dassault Aviation, and Airbus Defence and Space.

According to a recent report released by the German Ministry of Defense, the Eurodrone program experienced some setbacks in 2023 that may delay key deliverables

A preliminary design review, one such milestone, was initially slated to be carried out last September, but is still being reviewed due to coordination issues between Airbus and Dassault, the document said. The delay may affect the subsequent critical design review of the platform that was planned for September 2024, a necessary step before companies can start building the first drone.

It remains to be seen if the first flight of the European MALE drone will take place as scheduled in January 2027.

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**13 . Date: 18-06-2024Small - Requirement - France rethinks military light-drone acquisition as Army falls behindURL: https://www.c4isrnet.com/global/europe/2024/06/18/france-rethinks-military-light-drone-acquisition-as-army-falls-behind/**

PARIS — France is changing its acquisition process for light military unmanned aerial vehicles to become more nimble and signed a pact with local drone makers as the country’s Army threatens to fall behind in a technology that military leaders say is remaking warfare.

French Armed Forces Minister Sebastian Lecornu signed a “defense UAV pact” at the Eurosatory defense show here on Monday that provides the basis for working with the nation’s industry on defense drones below 150 kg (331 lbs), French armament agency DGA said.

The country “may have run up a bit of a delay” in the area of drones, and rather than developing drones for the coming years, France will cooperate with UAV makers to make a technological jump to the next generation of drones for the early 2030s, Lecornu said in a speech at Eurosatory.

All aerial drones that France sold to Ukraine were developed in-house by manufacturers without development input from the French armed forces, retired Maj. Gen. Claude Chenuil, a fomer military-acquisition executive, said during a round table discussion at Eurosatory. He said the Ukrainian armed forces will be using 1 million drones this year, compared with a French Army target to buy “a few thousand drones.”

France is investing €5 billion ($5.4 billion) in drones through 2030 as part of its military programming law, with the stated goal of developing a French loitering-munitions industry by the end of this decade, as well as achieving swarm-flight capability. The defense budget law included a target for the Army to have 3,000 tactical drones by 2025.

Drones are changing combat, from loitering munitions to intelligence gathering, “and if we’ve fallen behind, it’s high time that we catch up,” said Maj. Gen. Erwan Salmon, the head of the ground combat management unit at DGA.

France needs to be able to acquire drones quickly and renew them as required by the pace of drone innovation, as well as be able to mass produce UAVs, “that’s the whole point of the defense drone pact,” Salmon said. That will require changing acquisition strategies to avoid ending up with drone systems “completely out of step with the innovations.”

French defense contracts often start from an armed forces requirement, after which the armament directorate drafts the specifications before organizing a contract, leading to programs that can take 10 years between the expression of a need and delivery, said Bastien Mancini, the CEO of French drone manufacturer Delair.

“Structurally, this is not possible with drones,” Mancini said. “Technologies are evolving fast. We need to be able to shorten lead times.”

The armament directorate will probably need to set up some financing to be able to quickly buy and test off-the-shelf products, to determine whether they should be acquired in larger numbers, Salmon said. The directorate’s acquisition service is looking into financing of technology bricks that could underpin the development of new systems, he said.

The defense UAV pact will be a useful forum for industry cooperation, including between smaller French drone makers and larger defense firms, according to Éric Lenseigne, vice president for drone warfare at Thales. Given the size of the French market, exports will be needed to reach critical size, and export commitments could be an area of further cooperation, Lenseigne said.

Thales estimates the global market for drones of less than 150kg to be worth more than €2.5 billion, with growth rates of 14% per year, according to Lenseigne, with the market expected to remain “dynamic” even in case of cessation of hostilities in Ukraine.

Four French drone makers – Parrot, Eos Technologie, Delair and Hexadrone – have delivered drones to Ukraine, where they seem to be doing “a good job,” Mancini said.

Still, the industry for military UAVs in France is fragile, with the development of an industrial-scale drone requiring an investment of €5 million to €10 million, compared with revenue for Delair of around €30 million this year, according to the CEO. “So consolidation is bound to come naturally.”

There will be a minimum threshold of buying required to allow the French drone industry to develop new solutions and payloads, according to Col. Hervé Mermod, program coherence officer with the French Armed Forces General Staff. France would need to finance a strategic reserve that would pay for maintaining an industrial capacity to scale up drone production in case of need, he said.

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**14 . Date: 04-09-2024Loitering Munition - Small - General - PlatformPolish arms maker pitches new strike drones amid long-range trendURL: https://www.c4isrnet.com/global/europe/2024/09/04/polish-arms-maker-pitches-new-strike-drones-amid-long-range-trend/**

KIELCE, Poland — Polish defense company WB Group has presented an expanded portfolio of unmanned aerial vehicles (UAVs) at this year’s MSPO defense industry show here, responding to the rising interest in long-range strike capabilities by Poland’s military, but also other countries across the region.

“At this edition of the MSPO event, we have a number of premieres,” Remigiusz Wilk, the head of communications at WB Group, told Defense News. “In the field of unmanned systems, this includes the Warmate TL-R reconnaissance system, FT5 mini tactical class UAV in new variants, Warmate 20 loitering munition, and our latest extended-range addition, Warmate 50.”

Asked about the ranges of the systems, Wilk said that Warmate 20 has a range of “several hundred kilometers” and the range of Warmate 50 is “operational,” suggesting that it exceeds that of Warmate 20.

The expansion of the company’s portfolio comes as Russia’s invasion of Ukraine is driving Poland’s efforts to modernize its armed forces and acquire enhanced combat capabilities.

The distance between Poland’s capital Warsaw and the Russian capital Moscow is around 1,151 km (715 miles).

The privately-owned manufacturer is one of the few major industry players in Poland that are not run by the state. WB Group supplies various unmanned systems to the Polish military, but also to foreign customers. The producer makes unmanned solutions, as well as communication, command, reconnaissance and weapons control systems, among others.

Jaroslaw Adamowski is the Poland correspondent for Defense News.

**15 . Date: 21-11-2024Fixed Wing - Armed ISR / ISTAR - MALE - General - PlatformTurkish strike drone completes first carrier landing, takeoffURL: https://www.c4isrnet.com/global/europe/2024/11/21/turkish-strike-drone-completes-first-carrier-landing-takeoff/**

ISTANBUL — The Baykar TB-3 combat drone landed and took off from the flight deck of the amphibious assault ship Anadolu for the first time this week, a demonstration that officials called a milestone for Turkey’s military capabilities.

Turkish drone maker Bayraktar publicized the Nov. 19 event on social media and shared videos of the flight. The tests were conducted off Aksaz Naval Base in the Mediterranean Sea.

The TB-3 unmanned combat aerial vehicle (UCAV) is specially developed for use onboard the Anadolu. The drone is 8.35 meters long and has 14 meter folding wings. It weighs in at 1,600 kilograms, with a payload capacity of 280 kilograms. The aircraft has a 125 knots cruise speed, and it is constructed with six hardpoints from which to hang ammunitions.

According to information shared by the company, the second prototype of TB3 took off from the runway of TCG Anadolu, which has a 12-degree inclined ramp. The UCAV landed after a 46 minute flight back on the ship without the need for any landing support equipment.

The TB-3 is powered by Tusas Engine Industries’ PD-170 engine. The takeoff and landing on the carrier followed more than 700 hours of test flight conducted on land.

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**16 . Date: 28-04-2025Training - European drone training sites mushroom in nod to Ukraine war tacticsURL: https://www.c4isrnet.com/global/europe/2025/04/28/european-drone-training-sites-mushroom-in-nod-to-ukraine-war-tactics/**

MILAN — Drone tactics emerging from the war in Ukraine have inspired other European countries to intensify their military-experimentation campaigns, with a new crop of testing facilities designed to test the small aircraft in war-like conditions.

Estonia inaugurated its first drone training center, located in the western part of the Baltic country, last week. The facility is meant to enhance the unmanned systems training of the Estonian Defense Forces and NATO allied units.

“The experience from the war in Ukraine shows that drones and unmanned systems are crucial in modern combat – developing Estonia’s defense capabilities requires that we elevate our drone training,” Estonia’s Defense League quoted Defense Minister Hanno Pevkur as saying.

The site, which cost roughly €5 million ($5.7 million) and was financed by Luxembourg, covers 1,300 square meters and includes classrooms, storage, equipment maintenance areas as well as accommodations, according to Estonian public broadcaster ERR.

It will seek to integrate and draw from Ukraine’s wartime expertise in drone warfare as well as NATO’s to offer key infrastructure for national forces and industry players.

An increasing number of European states are following similar steps in attempts to trial drones in real-world scenarios to test their performance and reliability.

Obstacles to be expected in actual conflict include bad weather and enemy jamming of control signals, for example.

Earlier this month, Denmark announced the creation of a new drone centre at the Hans Christian Andersen airport in Odense to serve as a training site for the Danish military.

The airport already has another testing facility. Dubbed the UAS Denmark Test Center and launched in 2013, it focuses on training personnel in beyond-visual-line-of-sight, or BVLOS, flight zones.

In March, the Danish government said it would dedicate $110 million to the new section, building on lessons from the Ukraine war. By 2026, approximately 100 Danish drone operators are expected to be training there, as reported AFP.

In another example, ZenaTech, a company headquartered in Canada that specializes in artificial intelligence, announced in January that it was setting up a BVLOS drone trial facility in Turkey.

“The facility will serve as a product testing site for the company’s subsidiary ZenaDrone 1000 model drones designed for the U.S. defense branches and NATO – it will be fully set up and operational during the first quarter of 2025,” ZenaTech said in a statement.

As part of Finland’s recently published national drone strategy, the country will seek to prioritize investments in drone infrastructure, specifically large-scale laboratories and open-air test sites. The document cites Finnish Arctic conditions as a unique and challenging testing environment.

In 2024, the European Organization for the Safety of Air Navigation, known as Eurocontrol, conducted a survey of 31 civil and military test centers across member states to report on their capabilities and the challenges.

A majority of the respondents were from the European UAS Test Centres Alliance, which comprises 35 organizations from over 17 countries, that seek to enhance and support the development of the drone ecosystem and leverage synergies between the different sites.

The three main operational concerns faced by the facilities were listed as airspace integration, technical reliability, and privacy. The non-operational ones included flight approval by authorities and funding.

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**17 . Date: 21-02-2023Armed ISR / ISTAR - MALE - Pitch - General Atomics, UAE advance talks over MQ-9B dronesURL: https://www.c4isrnet.com/global/mideast-africa/2023/02/21/general-atomics-uae-advance-talks-over-mq-9b-drones/**

ABU DHABI, United Arab Emirates — Multiyear negotiations for the United Arab Emirates to procure MQ-9B SeaGuardian drones are in their late stages, executives from manufacturer General Atomics said in an interview at the IDEX arms fair in Abu Dhabi.

David Alexander, president of General Atomics Aeronautical Systems, said the relations his company has enjoyed with the Gulf country have remained continuous. “For about 10 years, we have been working closely with the Emirati Air Force, primarily through the MQ-1 program and the UAE showing interest in acquiring some of our other platforms, which has allowed us to maintain a tremendous and enduring relationship with them,” he noted.

However, it can be a lengthy process for capabilities such as the MQ-1 or MQ-9B to receive export approval and clearance. The former can collect intelligence and target threats, while the latter is touted as a maritime-focused system providing surveillance and reconnaissance, among other uses.

“The Emiratis couldn’t wait forever for U.S. export policy decisions to be made, so in the meantime they did purchase stuff from the Chinese, from Turkey and other partners,” Alexander said. “It has been this way all along. Does it bother us? I mean, it’s competition, but we are in no way afraid of competition.”

Two years ago, the UAE withdrew its letter of offer acceptance after the Biden administration stalled an agreement, previously cleared by the Trump administration, concerning the sale of precision strike weapons, F-35 fighter jets and MQ-9B drones.

But the company said talks over the drones never stopped.

“Negotiations with the UAE to acquire MQ-9B SeaGuardians are ongoing and showing continued signs of healthy progress,” said C. Mark Brinkley, a spokesman for General Atomics.

Given the important amount of ship traffic moving through the Gulf country, having effective and continuous maritime domain awareness is critical for Emirati security.

General Atomic officials hope to advance a push this year to integrate its drones with low-Earth orbit satellite communications systems, which could reduce operational costs and leave a smaller hardware footprint. Recently, General Atomics carried out three successful trial flights of the MQ-9A fitted with an LEO relay system in an evaluation configuration.

Although the company did not disclose the identity of the LEO provider, it is believed to be Space X’s Starlink.

“The next phase [for this] would be to provide a path for integration of the system into existing Reaper fleets for customers to use in an operational capacity,” said Brinkley, adding that company officials had already pitched the option to multiple customers.

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**18 . Date: 21-02-2023UAE’s Edge Group unveils logistics drone at IDEX weapons showURL: https://www.c4isrnet.com/global/mideast-africa/2023/02/21/uaes-edge-unveils-airtruck-logistics-drone-at-idex-weapons-show/**

ABU DHABI, United Arab Emirates — Local conglomerate Edge Group unveiled 11 new unmanned and autonomous systems for intelligence and strike missions at the IDEX global weapons exhibition here.

The Emirati defense group, now composed of 20 different technology and security entities, debuted a large portfolio of “made in the UAE” products on the opening day of the International Defense Exhibition and Conference (IDEX 2023) on Monday, including many cargo-delivery aircraft.

For example, there was the rotary-wing “Airtruck,” designed for strategic logistics support such as supplying troops in remote locations, providing medical evacuation and reconnaissance. It has a payload of 500 kilograms and a maximum range of 360 kilometers at a cruising speed of 120 km/hour.

Over the last decade, many armies, especially in the West, have largely taken a wait-and-see approach to logistics drones, rushing to buy uncrewed combat and surveillance aircraft instead. But the allure has remained strong for new resupply and combat evacuation methods that keep human pilots out of harm’s way. Now, a crop of new systems claims to be ready for deployment.

The U.S. Army has experimented with the technology over the last year through the development of a fully autonomous version of the Black Hawk helicopter. In the context of Russia’s war on Ukraine, several manufacturers and organizations have sent cargo drones to support Ukrainian troops. Among this list is the UK, which has sent the heavy-lift Malloy T150 quadcopter, and U.S.-based producer Aquiline is also said to have supplied 40 Spartacus Hurricane search-and-rescue drones.

Another interesting design here was the QX6-50, another rotary-wing drone. The latest addition to Edge’s QX range, the system is capable of carrying payloads of 50 kilograms for up to 200 kilometers. The company further displayed a new unmanned combat aerial vehicle, Jeniah, with a maximum munition payload of 480 kilograms and capable of reaching a maximum speed of 1,000 km/hour.

Edge recently acquired a majority stake in the Estonia-based company Milrem Robotics, which represented the largest foreign investment in Tallinn’s defense industry. Following this transaction, the Emirati group showcased two of its cutting-edge UGVs at the event: the THeMIS Combat, which provides high-precision, direct fire support for maneuver units, and the THeMIS Observe ,built for tactical reconnaissance operations.

Another up-and-coming company Edge has shown interest in is Torino, Italy-based Sortie Cargo. The startup designs and manufactures fast cargo delivery drones in Italy. Umit Yelken, the company’s co-founder, told Defense News in an interview that the UAE group has approached them to possibly purchase the RUAV724. The final prototype of this long-range cargo aircraft is being finalized, with the hope that it will undergo its first trial flight this year.

Umit said what makes Sortie Cargo’s technologies unique is the combination of rocket engine and turbo jet engine into their systems. Regarding the weapons presented by Edge, he said, “many of their drones only use turbo-jet engines, which leads to a higher consumption of fuel and in this way decreases payload capabilities. Several also require a runway to take off or land.” In contrast, the RUAV 724 can be deployed from anywhere, reaching the same maximum speed of 1,000 kilometers per hour as the Jeniah but over a 2,500 kilometer delivery range.

In terms of maritime platforms, the Emirati group has developed, in cooperation with Abu Dhabi Ship Building, the 170-M Detector unmanned surface vessel for intelligence, surveillance and reconnaissance missions as well as underwater mine detection. The diesel-powered USV can be configured for either manned or unmanned operations while operating for four consecutive hours at speeds up to 40 knots silently under electric propulsion mode.

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**19 . Date: 20-02-2023Requirement - Estonia’s drone-buying spree finds local vendors eager for dealsURL: https://www.c4isrnet.com/global/mideast-africa/2023/02/22/estonias-drone-buying-spree-finds-local-vendors-eager-for-deals/**

ABU DHABI, United Arab Emirates — The Estonian drone industry, which has been developing at a slow pace over the last decade, is seeing a significant push from domestic manufacturers and has unveiled its first loitering munition.

According to John Cornish, sales director at Viimsi, Estonia-based Threod Systems, Russia’s invasion of Ukraine has greatly accelerated the demand for these platforms and shown how unprepared smaller countries are to face this type of conflict.

“The war has truly made us realize how weak Europe’s drone industry has been and how several countries have lagged in acquiring the right kind of systems to be in a position to effectively defend themselves,” he said at the IDEX arms fair here.

Only two weeks ago, the Estonian firm Terramil unveiled its first loitering munition, the K12, also exhibited at IDEX. The quadcopter is the first of its kind the company has produced, and it is best suited for short-range strike missions against armored targets. Weighing in at 4.4 kilograms, it can carry payloads up to 7.6 kilograms and fly for 17 minutes out to a range of 5 kilometers. In contrast to other loitering munitions, such capabilities may not be considered advanced, but the company says it is only now beginning to experiment with these technologies.

“We are currently working on a second, much larger drone that will be able to carry bigger payloads covering distances approximating 100 kilometers. We expect it will begin to undergo testing in one to two months,” a Terramil representative here said.

Earlier this month, Estonian Defence Minister Hanno Pevkur stated that the country is looking to procure an important quantity of loitering munitions to enhance its indirect fire capability, though it was unclear whether the push would involve national, European or global suppliers.

As domestic manufacturers do not really possess extensive experience in this domain and almost none have produce advanced variants, Cornish concurs that it is likely that Estonia could decide to contract with an international partner.

Israel may have a shot at securing a deal – it has in the past supplied Estonia with Elbit munitions and a coastal defense system from IAI.

Meanwile, Threod Systems has seen such a surge in the demand for its EOS vertical-takeoff-and-landing surveillance drones, that the company is opening a second production plant in Estonia.

“We are currently working at full capacity to meet 2023 orders and delivering approximately 16 systems a month,” said Cornish. Our drones currently are operating in two conflict zones with high success rates – in Ukraine and Mozambique.”

The EOS aircraft have an endurance of three hours and are in use globally with 16 countries. When asked about possible new customers, the company representative said that Pakistan and India had recently shown interest.

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**20 . Date: 18-01-2024Armed ISR / ISTAR - MALE - Partnership - ArmamentUAE, Turkey collaborate on bombs for dronesURL: https://www.c4isrnet.com/global/mideast-africa/2024/01/18/uae-turkey-collaborate-on-bombs-for-drones/**

MILAN — Abu Dhabi-based defense conglomerate Edge Group has finalized the integration of its Desert Sting guided bomb onto the Turkish Bayraktar TB2 drone, signaling a new wave of cooperation between Emirati and Turkish defense firms.

“We have reached a significant milestone in our partnership with Baykar, with the successful integration of our advanced Desert Sting 16 precision-guided munition onto the TB2 UAV,” Edge wrote in a Jan 17. post published on the X platform, formerly Twitter.

Footage was also published showing a test flight of the DS-16 being loaded on the Turkish drone.

In the video, the TB2 can be seen taking off from a Baykar facility, dropping one of the munitions while in flight and landing at nighttime. The footage suggests that the flight was conducted above the Gulf of Saros, off the coast of Turkey.

The development is part of a strategic agreement Edge and Baykar have signed, which seeks to further their collaboration in the security sector. The two companies also have plans to integrate other payloads on different Baykar vehicles in the future.

At the Dubai Airshow in November, Faisal Al Bannai, chairman of the board of directors at Edge, told Defense News that these ambitions could include the TB3, which is nearing serial production.

“We are [also] in discussions with Baykar to integrate our missiles on some of their drones and to possibly acquire the TB3 model eventually,” he said, referring to the naval variant of the TB2.

Previously known as an importer of military equipment, the UAE government has doubled down on efforts to reduce its dependence on foreign defense imports seeking to build-up national manufacturing capabilities.

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**21 . Date: 08-11-2023Acquisition - UAE’s Edge Group takes over Swiss unmanned helicopter maker AnaviaURL: https://www.c4isrnet.com/home/2023/11/08/uaes-edge-group-takes-over-swiss-unmanned-helicopter-maker-anavia/**

MILAN — The Emirati conglomerate Edge Group has acquired a majority stake in the Swiss unmanned helicopter company Anavia, weeks before Swiss authorities are expected consider legislation that would likely subject such takeovers to federal scrutiny on national security grounds.

Announced a week ahead of the Dubai Air Show, the acquisition is aimed at expanding Edge’s portfolio and supply chains of autonomous aerial vehicles. The Anavia deal will allow the Abu Dhabi-based group to “benefit from Anavia’s experience in the development of advanced unmanned helicopters,” the two companies declared on Nov. 6.

“Together with Edge, we are poised to redefine the possibilities in this field … to meet the evolving demands of both military and civilian sectors, and there is great potential here as we explore these synergies together,” Jon Andri Jörg, founder and co-CEO of Anavia, said in a statement.

Anavia is a Switzerland-based manufacturer specialized on large unmanned cargo helicopters with a weight of up to to 750 kilograms. Its flagship product, unveiled in 2021, is the HT-100 drone. According to the manufacturer, the aircraft is capable of transporting up to 65kg (143 lbs) of payload and flying for over four hours.

Company officials have hinted that they are already working to expand these capabilities.

“We have plans to develop the HT-100 further for even more payloads. That will be a faster development project we will talk about very soon,” an Edge spokesperson told Defense News. “Production will remain in Switzerland with some components built in the UAE.”

Left unmentioned in the takeover announcement was Switzerland’s ongoing pursuit of a new foreign investment screening regime. In 2021, after the adoption of a motion to better protect the national economy, the Swiss Federal Council was tasked to draft preliminary legislation to that effect.

Following a lengthy consultation process to review the proposed law, a majority of decision makers opposed its introduction, arguing that it would weaken Switzerland’s attractiveness as an investment hub.

The compromise reached was that the bill should be revised, with the scope limited to certain business sectors. Hence, the Swiss Federal Department of Economic Affairs, Education, and Research was tasked to produce an amended draft before the end of 2023.

The main proposal of the new legislation is expected to be that only foreign state-controlled investors taking over Swiss companies operating in critical sectors, such as defense equipment, will be subject to a screening.

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**22 . Date: 16-11-2023ISR / ISTAR - Small - Pitch - Greek drone maker nears first surveillance drone sale to AthensURL: https://www.c4isrnet.com/home/2023/11/16/greek-drone-maker-nears-first-surveillance-drone-sale-to-athens/**

Update: At the Athens defense fair DEFEA in May, North Macedonia and Croatia registered their interest in the Archytas system. And a company representative has contradicted another who spoke to Defense News about the timeline for the drone’s first flight.

DUBAI, United Arab Emirates — A year after unveiling Greece’s first surveillance drone, manufacturer Hellenic Aerospace Industry said an order from the country’s Defence Ministry is imminent, while the company’s combat model is still looking for takers.

Executives unveiled the Archytas, intended for reconnaissance and surveillance missions, at the International Exhibition of Thessaloniki last year. The company told Defense News at the time it expected the first preproduction Archytas model to be ready for a test flight in March 2024.

The pace has since quickened, as the Greek ministry appears eager to fast-track development, HAI officials told Defense News at the Dubai Airshow this week.

“We are now planning for it to take its first flight before year end or by early January 2024,” said Anastasia Alexopoulou, a senior sales executive. “Although there is no official requirement yet, we have definitely witnessed a sense of urgency from defense authorities to speed things up for Archytas.”

Company officials are “extremely confident” that the government will place an order following the flight test and cost estimate, she added.

Georgia Korontzi, a company representative, emailed Defense News after publication, stating that “the first flight of Archytas will take place in April 2024 and not in January.”

“To clarify, in January 2024 the modules of the drone will be completed and in April we will have the first flight,” Korontzi added.

The Archytas drone can remain airborne for up to four hours and is capable of carrying payloads exceeding 14 kilograms (31 pounds). HAI’s intention is to sell it at home first and then capture international customers. At the Athens defense fair DEFEA in May, North Macedonia and Croatia registered their interest in the system, according to Alexopoulou.

The same progress still eludes the company’s Grypas drone, designed for combat.

“We will not produce a prototype of the Grypas until a first customer is secured, and for now, although we are hopeful it will be the Greek armed forces, nothing official has been secured,” Alexopoulou said.

The first phase of the project is still slated to conclude within the next two years, resulting in a scaled version of the aircraft.

The ambition of ramping up its domestic drone industry has been of particular significance for Greece in recent years, as the country remains intertwined in a historic rivalry with its neighbor Turkey, itself a drone powerhouse.

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**23 . Date: 05-12-2023Requirement - Replicator offers use case for defense budget reform, panel saysURL: https://www.c4isrnet.com/home/2023/12/05/replicator-offers-use-case-for-defense-budget-reform-panel-says/**

SIMI VALLEY, Calif. — The Pentagon’s Replicator initiative, which aims to establish a repeatable process to quickly field and scale innovative technology, offers a good illustration for the value of budgeting reform, according to defense experts.

Deputy Defense Secretary Kathleen Hicks announced Replicator in late August as a mechanism to field large quantities of innovative systems to deter adversary aggression. The first iteration is focused on producing thousands of small autonomous systems and sensors on an 18 to 24 month timeline.

To meet this target, the Pentagon will solicit new capabilities but will also rely heavily on increasing quantities or speeding up production and fielding of systems the military services are already pursuing.

Speaking with reporters Dec. 2 on the sidelines of the Reagan National Defense Forum here, members of a select commission exploring options for improving the Pentagon’s Planning, Programming, Budgeting and Execution process, or PPBE, said Replicator would benefit from many of the recommendations the panel is considering.

Underneath the fast-paced procurements that will drive Replicator is a need for the kind of data, funding flexibility and agility that could come from sweeping budget reforms, according to Ellen Lord, member of the PPBE reform panel and a former undersecretary of defense for acquisition and sustainment.

For example, she said, in order to make decisions about where it wants to speed up fielding or increase production among existing programs, the Defense Innovation Unit — which is leading efforts to identify and vet candidates for Replicator — needs a clear picture of what all of those efforts are. That requires a common database used by all the services and Pentagon budget and planning agencies to input program details and drive decision making.

The department will also need flexibility to reprogram funding as well as other tools — all things the PPBE commission is exploring through its work.

“I think you could use that as a use case to say, ‘Gee, what would make this process simpler when we have an emerging need, we have emerging technologies?,’” Lord said.

The PPBE process is the Defense Department’s system for connecting its strategy with funding needs, which ultimately produces the budget request the White House delivers to Congress on an annual basis. The process has long been criticized as too cumbersome and slow, requiring planners to project program needs far in advance of receiving funding. That cycle has delayed major programs and impeded technology-heavy efforts from getting the most up-to-date capabilities.

In the fiscal 2022 defense policy bill, Congress established a bipartisan commission — made up of former defense officials, lawmakers and industry executives — to review the PPBE process and make recommendations for reforming it. The commission released an interim report in August and plans to deliver the final one in March.

The interim report included 13 recommendations that members think could be enacted immediately — things like improving communication with Congress, updating information systems and streamlining data sharing throughout the department.

The commission has been gathering feedback on another 10 recommendations from stakeholders, including Congress, DoD and the acquisition workforce. Those suggestions include giving the Pentagon more flexibility to reprogram funds, allowing the services to start work on new programs while operating under a continuing resolution and making congressional appropriations available for two years instead of one.

Lord said those conversations haven’t resulted in major changes, per se, but have added depth to the report and led to a few new recommendations.

Jamie Morin, once the director of the Pentagon’s cost assessment and program evaluation office, noted that while buy in is important to the commission, the department doesn’t have to implement any of its proposals.

“We’re writing a report,” he said. “The department may choose not to do any of it. Even if the department did choose to do some of it, Congress might choose not to. Congress might choose to mandate things the department doesn’t want. We are not trying to build a perfect Swiss watch of a system here and hand it over to them and say, ‘Take it or leave it.’”

Courtney Albon is C4ISRNET’s space and emerging technology reporter. She has covered the U.S. military since 2012, with a focus on the Air Force and Space Force. She has reported on some of the Defense Department’s most significant acquisition, budget and policy challenges.

**24 . Date: 03-05-2023Swarm - General - SoftwareAnduril unveils software to manage hordes of dronesURL: https://www.c4isrnet.com/industry/2023/05/03/anduril-unveils-software-to-manage-hordes-of-drones/**

WASHINGTON — Anduril Industries debuted software it said simplifies the management of potentially hundreds of drones and robots, freeing up military manpower and other resources to be applied elsewhere.

The software, known as Lattice for Mission Autonomy, is the result of at least four years of work and arrives at a time when the Department of Defense increasingly leans into the development and deployment of uncrewed systems, regardless the environment.

Anduril won a $1 billion contract from U.S. Special Operations Command last year to lead its counter-drone systems integration work. The company’s latest product serves as a central node for threat identification, electronic signature management, maneuvering and more.

Lattice for Mission Autonomy provides “the brains, the glue, to drive all these systems to be able to be effective” with fewer people dedicated to oversight, said Anduril CEO Brian Schimpf.

“We’ve thought about it holistically,” Schimpf said at May 1 briefing, during which reporters were given a glimpse at the software in action. “When we thought about this, it’s really at the level of, like, what do pilots do today? How do we plan and execute operations today? How do you start to encode that into software, and what are all the technical pieces necessary to make that happen?”

Defense officials have embraced uncrewed technologies, seeing them as a less risky, relatively cheap and never-tiring means of exploring treacherous regions.

Air Force officials foresee a future defined by manned-unmanned teaming, and are seeking 1,000 so-called collaborative combat aircraft to augment its pilots. The Navy, likewise, envisions a fleet teeming with uncrewed vessels capable of spying, sensing, jamming and boosting communications.

The advanced machinery will need to be tracked, tasked and coordinated across vast distances and ever-changing conditions, which is where Lattice for Mission Autonomy shines, according to Chris Brose, Anduril’s chief strategy officer. Whereas today there are “too many people” involved in “too many loops,” he said, the new software streamlines the practice.

“It is the ability of this software system to control assets in place and time, to actually process mission systems, orchestrate mission systems, and then synchronize and orchestrate the delivery of effects on, sort of, the right side of that kill chain,” Brose added.

Injecting Lattice for Mission Autonomy into current and future operations should be relatively easy, according to the company, as it was fleshed out with tech from other defense industry players in mind. Neither Brose nor Schimpf would disclose who exactly in government the company is working with.

While Anduril has its own uncrewed systems, including the Altius loitering munition and the Dive-LD autonomous underwater vehicle, there are plenty of other options already employed by militaries worldwide; Northrop Grumman makes the MQ-4C Triton, for example, and General Atomics makes the Gray Eagle.

“The government, correctly, is very concerned with having anything that’s too blackbox, too locked down and too tied to a single vendor,” Schimpf said. “I think, in practice, it’s actually very trivial to integrate this into new aircraft, new vehicles, new boats, whatever you need.”

Anduril at the end of 2022 said it secured a $1.48 billion funding boost, bumping it to nearly $8.5 billion. The increase, dubbed “Series E,” was credited with “nearly doubling the company’s previous valuation in June 2021,” Defense News reported.

Colin Demarest was a reporter at C4ISRNET, where he covered military networks, cyber and IT. Colin had previously covered the Department of Energy and its National Nuclear Security Administration — namely Cold War cleanup and nuclear weapons development — for a daily newspaper in South Carolina. Colin is also an award-winning photographer.

**25 . Date: 10-08-2023Partnership - Brazil and Saudi Arabia eye joint ventures, technology transfersURL: https://www.c4isrnet.com/industry/2023/08/10/brazil-and-saudi-arabia-eye-joint-ventures-technology-transfers/**

SAO PAULO — Brazilian and Saudi defense companies have signed a memorandum of understanding that could lead to joint ventures and technology-sharing agreements.

The Saudi businesses involved in the potential effort are Scopa Defense and Alqahtani Holding, and the Brazilian firms are weapon manufacturer Taurus, rocket and missile maker Avibras, aircraft battery producer Ocellott, and aviation specialist Avionics Services, according to the Brazilian industry association FIESP.

The signing took place last week during a bilateral investment forum attended by a Saudi delegation to Brazil led by Minister of Investment Khalid Al-Falih. The meeting, held in São Paulo by FIESP, also included the vice president of Brazil and the governor of São Paulo.

The Saudi minister mentioned Brazilian aircraft manufacturer Embraer in a speech during the event, but no agreement involving the company has been disclosed. The company did not respond to a request for comment.

Under an agreement with Taurus, a new weapons factory could be built in Saudi Arabia following a study on the matter, the company said in a news release. The Brazilian firm already has two local arms factories and one in the United States.

“The choice of Saudi Arabia is aligned with the company’s expansion plan in the Middle East. We understand that the region is interested in technology transfer for the manufacturing of light weapons,” Taurus said in a statement.

The companies have a 12-month period to evaluate the implementation of a new plant.

Scopa, which is a part of Ajlan and Bros Holding Group, made an agreement with Avibras to “manufacture and develop advanced defense equipment,” according to the former, which did not disclose further information about the products and potential contract values involved.

This deal could provide relief to Avibras, which has been under judicial recovery since March 2022 after it claimed to have a debt of 394.76 million reals (U.S. $80.48 million). Under this process, the court may aim to recover debts.

Two other agreements involved Alqahtani Holding, per company statements. One is a joint venture with Ocellott, founded in 2015 and specializing in aeronautical batteries, radiofrequency filters and electrical surge suppressors. It’s unclear what the arrangement involves.

The other is with Avionics Services. The Brazilian firm provides radars and equipment for aircraft, including to Embraer for the Legacy series as well as the Phenom 100 and 300 jets. The company is currently testing a drone. Details of this agreement were also not disclosed.

For Saudi Arabia, these agreements are part of a larger strategy, dubbed Saudi Vision 2030, which aims to reduce the kingdom’s dependence on the oil trade through global investments in other sectors.

Pedro Pligher is a Latin America correspondent for Defense News. He has reported on politics, economics and the Brazilian small arms industry.

**26 . Date: 10-10-2024Loitering Munition - Mini - General - ArmamentAnduril debuts Bolt, loitering munition on contract with Marine CorpsURL: https://www.c4isrnet.com/industry/2024/10/10/anduril-debuts-bolt-loitering-munition-on-contract-with-marine-corps/**

Anduril Industries has introduced Bolt, a new class of airborne drones that troops can use for surveillance or strikes.

The defense technology company, based in California, debuted two versions of the drone Thursday. The first is a baseline model able to perform intelligence, surveillance and reconnaissance operations, known in the military as ISR. The other is Bolt-M, a version of the drone that acts as a munition.

This second model of the drone is under contract with the Marine Corps on its Organic Precision Fires-Light program, trying to deliver loitering munitions small enough for troops to stash in a rucksack. Aerovironment and Teledyne FLIR are also competing for the program, worth up to $249 million.

Anduril would not share further details on the contract, including the number of units ordered or dollar amount. A Pentagon notice from April said the deal came with a floor of around $6.5 million and was for an indefinite delivery and quantity of systems.

“We’re looking at the next six months for the immediate deliveries that we have,” said Chris Brose, Anduril’s head of strategy. Brose said further sales will depend on direction from the Marine Corps, which is testing several systems now and will decide on a purchasing plan this fiscal year, but that he hopes Bolt can also compete for Army contracts.

The Organic Precision Fires contract is one example of the U.S. military trying to bring online the kind of small drones changing how wars are fought around the world. In particular, the war in Ukraine has been a sandbox for soldiers testing and deploying such drones in high numbers — either to scout artillery targets or directly attack them with small warheads. American drone firms, including Anduril, have sent their systems to Ukraine and kept in close contact with its military to apply lessons from the war.

Like many of the firm’s offerings, Bolt has some level of autonomy. The drone uses Anduril’s Lattice software, and in a release the firm said troops can operate the drone with a touchscreen — picking targets, how far the drone should stay away from them and then what angle it should use to attack. The ability to perform such simple tasks on its own allows troops the freedom to multitask rather than piloting the drones the whole time.

Rather than opt for a fixed wing model, Anduril built the drone as a quadcopter, able to take off and land vertically. Troops can unpack and fly Bolt in less than five minutes, the firm said. According to the announcement, it can stay airborne for 40 minutes and has a range of about 12.5 miles.

The drone can carry a payload of up to three pounds, and can shift between warheads intended to strike personnel and equipment, designed in partnership with Kraken Kinetics, based in North Carolina.

“When we say target, we’re talking targets in all domains. Obviously the mind immediately goes to striking targets on land, but we also see counter-maritime applications” and counter-air targets as well, Brose said.

Noah Robertson is the Pentagon reporter at Defense News. He previously covered national security for the Christian Science Monitor. He holds a bachelor’s degree in English and government from the College of William & Mary in his hometown of Williamsburg, Virginia.

**27 . Date: 18-02-2025Requirement - Ukrainian defense planners envision a drones-only front lineURL: https://www.c4isrnet.com/industry/2025/02/18/ukrainian-defense-planners-envision-a-drones-only-front-line/**

ABU DHABI, United Arab Emirates — Ukraine has set out the goal of establishing a 15 kilometer unmanned “kill zone” along the front lines, which would see the most advanced Ukrainian drone units deploy a mix of surveillance and strike drones against Russian troops, according to government and defense-industry officials.

The project, dubbed the Drone Line, was announced by the Ukrainian Ministry of Defense on Feb 9. According to statements made by Ukrainian Defense Minister Rustem Umerov, it has two core objectives: building a continuous drone reconnaissance capability along the line of defense, and boosting support for and coordination with infantry units to create a kind buffer strip where no troops can move undetected.

Kyiv’s call for an unmanned buffer zone came before U.S. proclamations saying Ukraine and Europe would largely be bystanders in negotiations between Washington and Moscow aimed at ending the war. High-ranking delegations were set to meet in Ryadh, Saudi Arabia, on Tuesday, though an actual ceasefire could take months to hammer out.

Mykyta Rozhkov, chief managing officer at the Ukrainian robotics engineering company Frontline, explains that the envisioned zone’s technical specifications are in line with Kyiv’s capability plans for unmanned systems.

“It reflects current technological capabilities and strategic considerations — this range allows for effective recon and engagement of enemy forces before they can pose a direct threat to Ukrainian positions,” Rozhkov told Defense News ahead of the IDEX defense expo here.

Given the rate at which local manufacturers are able to field drones, there is potential to expand the range to up to 40 kilometers, he added.

Several Ukrainian companies are currently able to produce as many as 2,500 heavy drones per month and 4,000 small drones per day, according to a statement published on social media by Valerii Iakovenko, the founder of DroneUA, a group encompassing a range of Ukrainian companies specializing in drone technology.

Representatives of the DroneUA ground robotics division were present at IDEX, where a key focus of the Ukrainian pavilion was showcasing the full spectrum of unmanned capabilities.

Among them is the Chaklun family of drones, for example, manufactured by the Ukrainian company RC Direction and shown for the first time in the Middle East market. The fixed-wing aircraft have been in use by the Ukrainian Armed Forces for several months.

“The Chaklun-K and Interceptor drones are functioning air defense systems designed to counter enemy reconnaissance and strike drone types – their main advantage is they can stay in the air for more than two hours in monitoring mode, which is much longer than conventional FPVs,” Ivan Sybyriakov, senior manager of the Unmanned Systems Center at SPETS Techno Export told Defense News.

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**28 . Date: 25-05-2023ISR / ISTAR - Small - Market - Army eliminates AeroVironment from future tactical UAS competitionURL: https://www.c4isrnet.com/land/2023/05/24/army-eliminates-aerovironment-from-future-tactical-uas-competition/**

WASHINGTON — AeroVironment, an early provider of Future Tactical Uncrewed Aircraft Systems to the U.S. Army, has been eliminated from the service’s competition for the next increment of the system.

The Army has long been working to select a Future Tactical Uncrewed Aircraft System, meant to replace its Shadow UAS fleet. In 2022, after a roughly four-year competition, the service awarded AeroVironment an $8 million contract to provide its Jump 20 system as an interim FTUAS capability for a single brigade. AeroVironment purchased Jump 20′s developer Arcturus in 2021. An undisclosed number of Jump 20s have been provided through U.S. security assistance to Ukraine.

In a statement, AeroVironment said the decision “does not have a material impact on the company’s near-term outlook.”

“While we are extremely disappointed with the U.S. Army’s decision, we respect it. We are now fully assessing the U.S. Army’s evaluation process to determine our next steps,” said Wahid Nawabi, AeroVironment’s chief executive, said in the statement.

The Army wants its FTUAS to be a vertical take-off and landing aircraft, so it can be runway independent. Additionally, the service wants the system to offer improved maneuverability and the capability to be controlled on the move. Other planned attributes include a reduced transportation and logistics footprint and a quieter system than is offered today to avoid enemy detection.

The service in fall 2021 opened competition for a permanent system and, earlier this year, the Army selected five companies, including AeroVironment, to build prototypes. Now, the Army is awarding contracts to move into the design phase to Griffon Aerospace, Northrop Grumman, Sierra Nevada and Textron Systems — all of the competitors except AeroVironment.

The Army did not disclose the value of each contract awarded in a May 24 statement.

Since late February, the Army has evaluated the five submissions’ performance, cost, schedule, risk and modular open systems approaches, according to the service’s statement.

The effort going forward will include a series of design reviews. Then, competitors will be chosen to demonstrate capabilities in actual flight and will go through third-party verification of modular open system architectures.

If competitors pass through those gauntlets, each team will provide air vehicles, mission systems packages, payloads and ground controllers among other tools and manuals in order to go through qualification testing and operational assessments, the Army stated earlier in the competition.

The system is scheduled to enter full-rate production in the second quarter of FY26.

Jen Judson is an award-winning journalist covering land warfare for Defense News. She has also worked for Politico and Inside Defense. She holds a Master of Science degree in journalism from Boston University and a Bachelor of Arts degree from Kenyon College.

**29 . Date: 12-07-2023Armed ISR / ISTAR - MALE - Safety - Pilot error blamed for July 2022 crash of Air Force Reaper in RomaniaURL: https://www.c4isrnet.com/news/your-air-force/2023/07/11/pilot-error-blamed-for-july-2022-crash-of-air-force-reaper-in-romania/**

Pilot error was the principal cause of a drone crash in Eastern Europe last summer, Air Force investigators concluded.

A U.S. Air Force MQ-9A Reaper drone cannoned into a remote patch of land on the outskirts of the 71st Air Base in Campia Turzii, Romania, July 14, 2022, according to local media reports. A five-month investigation released Thursday by Air Combat Command blamed the accident on the “channelized attention” and poor adherence to “basic airmanship” of the Launch Recovery Element controlling the unmanned aircraft system.

ACC officials say the aircraft, assigned to the 432nd Wing at Creech Air Force Base, Nevada, began experiencing “malfunctions with control systems” shortly after taking off for a training mission at an “undisclosed location” in Europe.

The LRE mishap pilot and sensor operator, tasked with guiding the troubled drone back to base, elected to perform an “emergency engine-out landing” — cutting power to the engine in hopes of safely gliding the aircraft back to the airstrip. The team, misguided by the Reaper’s misfiring warning systems, misdiagnosed the drone’s issue as “stuck [engine] torque.”

The LRE shut down the engine, but the haywire indicators suggested it was still operational. Unaware they’d successfully powered down the aircraft, the crew attempted to abort the landing and circle back around for another attempt, according to the report. The unresponsive Reaper pummeled into the ground.

The only injury caused by the crash was budgetary: The destroyed drone cost $14.6 million. Flight safety analysts have documented 68 MQ-9 Reaper accidents since the model first took to the skies in 2001. A Russian jet collided with a Reaper over the Black Sea in March.

The Air Force began flying MQ-9 missions from Romania in February 2021. Directed by the 25th Attack Group and overseen by the 432nd, the operations are designed to support Romania and NATO allies’ defense capabilities and security objectives in Eastern Europe.

Jaime Moore-Carrillo is an editorial fellow for Military Times and Defense News. A Boston native, Jaime graduated with degrees in international affairs, history, and Arabic from Georgetown University, where he served as a senior editor for the school's student-run paper, The Hoya.

**30 . Date: 18-09-2023Safety - Military drone crashes during test flight in Iran, injuring 2URL: https://www.c4isrnet.com/news/your-military/2023/09/18/military-drone-crashes-during-test-flight-in-iran-injuring-2/**

TEHRAN, Iran — A military drone crashed during a test flight in northern Iran on Monday, wounding two people and damaging buildings, state media reported.

Debris fell in different parts of the northern city of Gorgon, according to the official IRNA news agency.

The semiofficial Tasnim news agency released a video showing white smoke rising from different areas and the sound of anti-aircraft batteries.

Defense Ministry spokesman Reza Talaeinik told state TV that the test flight in a remote area went off track due to a “technical failure.” He did not specify the type of drone, but images of the wreckage circulating on social media suggested it was the type that carries bombs.

Iran is a major producer of both civilian and military drones, and has supplied attack drones to Russia for its war on Ukraine.

**31 . Date: 09-11-2023Armed ISR / ISTAR - MALE - Safety - US drone shot down by Yemen’s Houthi rebelsURL: https://www.c4isrnet.com/news/your-military/2023/11/08/us-drone-shot-down-by-yemens-houthi-rebels/**

WASHINGTON — A U.S. drone was shot down by Yemen’s Houthi rebels on Wednesday, according to the Iran-backed group’s military arm and a senior U.S. military official.

The Houthis said it was an MQ-9 Reaper drone that was in Yemeni air space and was shot down by air defenses. The senior U.S. official said the military is still analyzing the episode, including whether the drone was in international airspace or over Yemen. A second U.S. official said the MQ-9 Reaper was over international waters when it was shot down. The two officials spoke on condition of anonymity to discuss details not yet made public.

The Houthis have fired at least four batches of drones and missiles toward southern Israel since Oct. 7. The group controls the capital and much of northern and western Yemen where the majority of the county’s population lives.

Associated Press writer Lolita Baldor contributed to this report.

**32 . Date: 29-05-2024Armed ISR / ISTAR - MALE - Safety - Another MQ-9 Reaper drone goes down in YemenURL: https://www.c4isrnet.com/news/your-military/2024/05/29/another-mq-9-reaper-drone-goes-down-in-yemen/**

DUBAI, United Arab Emirates — Another U.S. MQ-9 Reaper drone went down in Yemen, images online purported to show Wednesday, as Yemen’s Houthi rebels continued attacks on shipping around the Red Sea over the Israel-Hamas war.

It wasn’t immediately clear what brought down the drone, but the U.S. military’s Central Command acknowledged seeing “reports” of the aircraft being downed in a desert region of Yemen’s central Marib province. It marked potentially the third such downing this month alone.

Images published online and analyzed by The Associated Press showed the MQ-9 on its belly in the barren desert, its tail assembly disconnected from the rest of its body. At least one hatch on the drone appeared to have been opened after it landed there, though the drone remained broadly intact without any clear blast damage. One image included Wednesday’s date. Noticeably, the drone did not appear to carry any markings on it.

Authorities in Marib, which remains held by allies of Yemen’s exiled government, did not immediately acknowledge the drone. Nor did the Houthis, who previously have shot down MQ-9 drones during the war.

A U.S. defense official, speaking on condition of anonymity to discuss intelligence matters, told the AP that “the U.S. Air Force has not lost any aircraft operating within U.S. Central Command’s area of responsibility.”

The official declined to elaborate.

Other American paramilitary forces have flown the drone in Yemen.

Located 75 miles east of Sanaa, Marib sits on the edge of the Arabian Peninsula’s Empty Quarter Desert at the foot of the Sarawat Mountains running along the Red Sea. The province has seen U.S. drones previously brought down there, in part because the region remains crucial for the outcome of Yemen’s yearslong war.

Since Yemen’s civil war started in 2014, when the Houthis seized most of the country’s north and its capital of Sanaa, the U.S. military has lost at least five drones to the rebels. This month alone, there’s been two others suspected shootdowns of Reapers that the American military hasn’t confirmed.

Reapers cost around $30 million apiece. They can fly at altitudes up to 50,000 feet (about 15,000 meters) and have an endurance of up to 24 hours before needing to land.

The Houthis in recent months have stepped up attacks on shipping in the Red Sea and the Gulf of Aden, demanding that Israel end the war in Gaza, which has killed more than 36,000 Palestinians there. The war began after Hamas-led militants attacked Israel on Oct. 7, killing about 1,200 people and taking some 250 hostage.

The Houthis have launched more than 50 attacks on shipping, seized one vessel and sunk another since November, according to the U.S. Maritime Administration.

Shipping through the Red Sea and Gulf of Aden has declined because of the threat.

On Wednesday, Houthi military spokesman Brig. Gen. Yahya Saree acknowledged the rebels attacked the bulk carrier Laax on Tuesday. Saree also claimed a number of other attacks on vessels that have not reported assaults without offering any evidence to support his claim. Saree in the past has exaggerated Houthi attacks.

**33 . Date: 17-11-2023General - SoftwareUnmanned systems are only as capable as their networksURL: https://www.c4isrnet.com/opinion/2023/11/17/unmanned-systems-are-only-as-capable-as-their-networks/**

The benefits of unmanned systems are numerous and undisputed. They reduce the reliance on human assets for carrying out tactical logistics as well as intelligence, surveillance and reconnaissance missions. The key benefit here is mission preparedness, leveraging the capabilities of cutting-edge technology to deliver the right information and supplies at the right time.

A major achievement of unmanned systems is also their ability to gather real-time data. Eliminating time delays in data sharing means having full sight of adversary movement and tactics — a crucial advantage in modern warfare. Real-time video imagery, electronic and signals intelligence provided by unmanned systems can give a clear sense of the enemy’s posture and status.

In whole, the information available through the use of unmanned systems is invaluable for determining an enemy’s strengths and weaknesses, and making decisions on tactical employment. But the current discussion on the use of drones and robotic unmanned systems tends to overlook the pressing challenges of their connectivity.

Can unmanned systems be operated securely so that data can be relayed in real-time without opponent interception or interference? The industry has only begun to scratch the surface when it comes to these questions.

In the same way that the data provided by unmanned systems can only be as useful as the data dissemination process is effective, the technology will be next to useless if the communication network that connects it is not robust or flexible enough to cope with tactical requirements.

Drones in tactical scenarios nowadays are often connected using Wi-Fi technology, not 5G. In fact, and contrary to popular belief, 3GPP 5G technology (that is 5G commercial cellular networks) is unsuited to tactical scenarios because it requires subscriptions to a network operator and supporting infrastructure such as cell towers.

Alternatively, there are private 5G network architectures which are better suited to military operations because they use a dedicated (private) slice of the spectrum, enable a direct connection and low latency. However, the use of spectrum is tightly regulated and only rarely does the end user control the frequencies.

But all these challenges fade compared to the main one – the inherent detectability of all devices connected to any of these networks, be it Wi-Fi, 3GPP commercial, military sub-6 GHz or private 5G cellular networks.

Many companies providing cellular 5G claim they provide encrypted systems but the fact is unmanned devices connected to these networks are easily detected because they generally use spectrum and transmit power levels that can be discovered from hundreds of kilometers away.

It is a given that low probability of detection (LPD) and the associated element of surprise are often crucial for success and survival in military scenarios.

IEEE mmWave-based networks provide LPD and low probability of interception (LPI), they are jam-resistant, and deliver high speed and low latency. This is why they are proving to be a robust solution for delivering connectivity for military unmanned autonomous systems.

MmWave technology exploits license-exempt, non-commercial spectrum frequency bands, such as the V-Band at 57-71 GHz, that is a 14 GHz swath of continuous radio spectrum.

V-band as the unlicensed mmWave radio frequency band has the unique capability of being LPD by its very physical nature. V-band wavelengths cause radio signals to resonate almost perfectly with oxygen molecules in the air – a phenomenon called oxygen absorption. The oxygen creates an incredible spike in attenuation that appears like a brick wall at a distance and creates a curtain of invisibility between a tactical team and its adversary. Within portions of the V-band, connectivity truly has an LPD quality.

Low latency is another essential attribute of a military network. MmWave networks deliver at least an order of magnitude lower latency compared to cellular 5G networks partially due to the point-to-point nature of the networks rather than the centralized network architecture typical for cellular 5G.

A trial of 5G mmWave systems saw this technology interfaced with the networking systems of land vehicles. This use case was then tested in a variety of simulated battlefield scenarios. The beamformed technology was proven to provide 360˚ communications coverage via mesh networking to effectively deliver undisrupted gigabit communications links between vehicles.

An IEEE 5G mmWave-based network is also resistant to a single point failure and self-healing; if the main PCP router is compromised, another node steps up, takes over and the connections remain in place. This is especially relevant to situations where swarms of devices are employed, ensuring that assets are protected and the secure transmission of data is safeguarded.

MmWave technology, as any technology really, is not without its limitations. As noted by IEEE, mmWaves cannot penetrate walls easily and their path loss is high which reduces the transmission distances.

The implications for military scenarios are significant in that IEEE 5G mmWave-based networks are particularly suitable for tactical scenarios in a high threat environment. For example, at a mobile command post or on the battlefield, tactical networks are subject to harsh environmental conditions, electronic warfare targeting and jamming. In such an environment, military forces need a stealthy tactical network with LPD and LPI.

However, for rear echelons, large military bases and in some forward bases, it makes perfect sense to leverage 5G 3GPP commercial network technology with appropriate security enhancements. It is also sensible to harden the 3GPP commercial technology to extend reach into the air and space domains.

In short, as the world is monitoring the two most recent conflicts in Gaza and in Ukraine where unmanned systems are playing an ever-important role, little attention is being devoted to the lifeline of these systems – their connectivity. The performance and capabilities of unmanned systems are defined by the networks connecting them and military forces will only be able to realize their full potential with the help of high performing LPD tactical networks.

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**34 . Date: 02-04-2024Small - Requirement - To reinvent itself, the US Air Force must go big on small dronesURL: https://www.c4isrnet.com/opinion/2024/04/02/to-reinvent-itself-the-us-air-force-must-go-big-on-small-drones/**

“The changing character of war is coming upon us,” said Gen. David W. Allvin, the Chief of Staff of the US Air Force, warning, “The theater of war is going to require us to fight different. This will be part of the reinvention of our Air Force and airpower into the future.”

That reinvention should include thinking smaller and embracing small drones. Other services employ airpower in support of land and sea operations, but it is only the Air Force that is charged with gaining air control as its primary focus. If the service is to accomplish this mission, it will need to operate in the air littoral — the airspace from the Earth’s surface to about 15,000 feet, below the level where high-end fighters and bombers typically operate. Airpower has always had innate strengths — unmatched in its maneuverability, speed, and range. But it has also always faced limitations: air forces, unlike armies, cannot live in their primary domain, and the aircraft they fly are expensive, limiting the size of the fleet even for the wealthiest of nations. As a result, the occupation of the airspace could occur for a time, but it was ultimately ephemeral. Once friendly aircraft left the airspace, any surviving adversary aircraft could return to access and exploit it.

Today, continuing technological advancement and falling costs have opened new possibilities for occupying the air domain. Air forces can now operate large numbers of small, relatively cheap drones in the air littoral. A single system cannot persist indefinitely in this airspace, but large numbers of them can achieve persistence indirectly, by continually rotating in and out of the air littoral. To date, however, the Air Force has focused mainly on countering the small drone threat to its air bases, both at home and overseas. But this approach misses the broader point: the air littoral is becoming increasingly central to air warfare, and if the Air Force fails to prepare for this future, other services may fill the gap, but they lack what General Henry H. “Hap” Arnold called “airmindedness” — the specialist expertise and distinct perspective of airmen — to employ it to maximum effect.

Take the contest to control the air littoral in East Asia: China recognizes that air superiority is essential to a successful amphibious invasion. Saturating the air littoral over landing beaches and nearby waters with continuous waves of small sensing, decoy, and weaponized drones would deny China control of the air littoral and create numerous hard-to-solve and time-consuming dilemmas for the People’s Liberation Army. Drones cycled fast enough into the airspace could overwhelm China’s targeting process and in turn inflict significant losses on its invasion forces. Chinese commanders would have to decide how much “clearance” is needed in the air, and for how long, and risk depleting their anti-air missiles in the process. It would also put them on the losing end of the cost curve, as destroying enough of these cheap drones will only grow harder and costlier still as rotational persistence continues to increase in the air littoral.

As Gen. Allvin warns, the U.S. Air Force is not currently structured or equipped to make the air littoral a combat domain, but it should move quickly to close this gap. Both the Ukrainian and Russian military have established specialized drone units, with the Ukrainians even recently unveiling plans to create a separate drone service. Yet the entire Joint Force — including the United States Air Force — is still operating without small-drone units. The US Air Force ought to fill this gap and can bring an air-minded perspective to operating in the air littoral.

To start, the U.S. Air Force should create and incorporate low-end, close-in air occupation elements and capability in its restructuring for great power competition. In designing the Air Force for both deterrence and, if deterrence fails, defense against revisionist powers, the service should simultaneously embrace the concept of air denial, despite the historic cult of the offensive, and the small-drone revolution.

With no significant history of either at-scale, small-drone operations or air-denial tactics, the next critical step will be to cultivate innovation and creative new ideas and tactics. This will likely not come from today’s legacy pilot force — instead, the Air Force needs a fresh dose of airminded thinking from “digitally native” airmen, who are intuitively much more capable than senior pilots of understanding the non-linear, and one-to-many interactions of humans and machines. Development of that airmindedness, then, is the critical foundation, and one which should be laid from the ground up. From basic training onward, airmen should be as familiar with small drones as Marines are with their rifles.

Gen. Allvin is fond of quoting Maj. Gen. Hugh J. Knerr, one of the pioneers of American airpower: “Do not get trapped in paradigms of the past,” Allvin recently reminded his service. “Whatever it is, we need to understand this is a unique capability, unique opportunity for us to understand how to best employ, deploy, and integrate this into the invention of the Air Force,” he added. The US Air Force should take that spirit of invention to the air littoral.

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This commentary does not necessarily reflect the views of the U.S. Defense Department, the U.S. Air Force, the U.S. Marine Corps, or Marine Corps University.

**35 . Date: 19-12-2023Requirement - Replicator: An inside look at the Pentagon’s ambitious drone programURL: https://www.c4isrnet.com/pentagon/2023/12/19/replicator-an-inside-look-at-the-pentagons-ambitious-drone-program/**

WASHINGTON — Clint Hinote didn’t expect to change his mind.

He was back at the Pentagon in August, for the first time since retiring this year. Deputy Defense Secretary Kathleen Hicks had asked to meet with him. She wanted to talk Pentagon innovation, one of Hinote’s favorite topics as a former general and head of Air Force Futures.

The conversation turned to the “valley of death” — the gap between the Pentagon liking a new idea and actually buying it. Usually, defense officials focus on how to narrow that chasm; Hicks said crossing it should be hard.

“The quality of the idea has to be tested,” Hinote remembers her saying. A spokesperson for Hicks confirmed this.

Hinote was convinced: The Pentagon shouldn’t make excuses to move slowly, but only the best ideas should win.

A week later, Hicks debuted the Replicator initiative, a pledge to field thousands of drones in two years to help counter China.

Officials in industry, Congress and the Pentagon have told Defense News it’s a great idea. But most don’t know whether it will work, or merely be an act of Pentagon innovation theater. Replicator is meant to help good ideas across the valley of death. But can it survive bureaucratic and cultural barriers of its own?

“It’s not like the [Defense Department] has been short of ambitious announcements and new initiatives over the past several years,” said Chris Brose, chief strategy officer at the drone-maker Anduril. “The question is: Is this one going to turn into a meaningful procurement program?”

When announcing the effort, Hicks called it “a big bet.” In fact, the goal is to make a series of wagers — that the Pentagon can quickly buy thousands of these systems; that America’s drone makers can build them; that drones are the right weapons to counter China; and that after two years the Pentagon can do the whole thing all over again for something else.

But for Replicator to succeed, the Pentagon needs partners to bet on it.

Dozens of interviews with defense industry executives, venture capitalists, congressional members and aides, analysts, former defense officials, and Pentagon leaders returned one theme: They are largely approaching the effort with cautious optimism — and more caution than optimism.

Replicator is 20 months away from its deadline to field systems. So far, it hasn’t led companies to increase production, venture capitalists to make new investments nor members of Congress to help fund it. Many in these groups want Replicator to work. Some even say it must, or else the U.S. may fail to stop an invasion of Taiwan, which China considers a rogue province and has threatened to take back by force.

But potential investors want to know Replicator is more than a good idea.

“That’s where we are right now: great concept, but the specifics matter,” said Rep. Rob Wittman, R-Va., a member of the House Armed Services Committee.

On a late August morning, Hicks stepped on stage at a defense technology conference in Washington. She was the opening speaker, and her staff had promised reporters a “major announcement” the night before.

The news came in the final third of her speech, framed in three points. First, compared to the United States, China has more people and can build more weapons. Second, if America wants to deter or repel an invasion, it needs new weapons of its own. And third, commercial-style drones — as shown in Ukraine — can close those gaps.

Then she made two promises: a place to go and a way to get there. Replicator would field thousands of drones to meet this need in 18-24 months. The effort would also build a process the Pentagon could repeat for other systems.

“We’re open for business,” she said.

Replicator was news to nearly everyone else. Beforehand, Hick’s office coordinated the announcement with a small group of defense and military officials, including members of the combatant commands. Her office hadn’t shared it widely, even within the Pentagon, until shortly before the conference.

Multiple aides in Congress said they and their members didn’t have advance notice. Some said they heard about it from press coverage. After Hicks spoke, Pentagon acquisition and sustainment officials in the crowd huddled in the hallway to improvise talking points, a former DoD official told Defense News.

Out of more than 20 defense industry executives and investors interviewed for this article, none said they knew Replicator was coming.

“It was … like getting a really, really strong sucker punch,” said one defense technology-focused venture capitalist.

At the Defense News Conference a week later, Hicks elaborated: Replicator wasn’t based on new intelligence, and it would include drones from all domains while mostly relying on the authorities of senior Pentagon leaders. The initiative wouldn’t be a program of record, she added, and would involve the redirection of funds to pay for the multimillion-dollar effort.

There were few further answers.

A month and a half later, the House held a lightly attended hearing with three analysts. Rep. Mike Gallagher’s opening remarks set the tone.

“The American people are still left without any details on Replicator,” the Wisconsin Republican said.

In mid-November, a member of Congress emailed a defense industry executive, asking for an opinion on Replicator.

It took less than an hour for him to respond.

“How does a company apply to be a part of it? How much funding is allocated for it? What type of technology are they looking for?” the executive responded in the email, shared with Defense News. “Right now it’s baseless PR spin.”

This is at the harsher end of the sentiment toward Replicator. But tone aside, others in industry and Congress interviewed by Defense News shared similar frustrations.

Lawmakers want to know how the technology could help deter a war around Taiwan. Industry wants to know what the Pentagon wants so they can place orders. Investors want to know which companies need cash to scale production.

Pentagon officials involved in the effort have declined to explain basic parts of its process, from the systems it could field to the funding it could use. Many sources insisted their comments be anonymous, which Defense News permitted in some cases so they could discuss sensitive topics.

Hicks, through a spokesman, declined to comment.

Part of the thinking behind Replicator is that with the attention of senior leaders the department can pick an ambitious target, like thousands of drones fielded in two years, and actually reach it. The Pentagon is a vast labyrinth of process and rules, and bureaucracies don’t often disrupt themselves — unless leadership forces it to happen, which is Hicks’ point.

“She’s serious because she’s putting her own name on that,” said a senior defense official heavily involved in the effort.

Multiple times, while speaking with Defense News, sources compared Replicator to the mine-resistant, ambush-protected vehicle. During the wars in Iraq and Afghanistan, as service members died from improvised explosive devices, then-Defense Secretary Bob Gates made building the blast-proof vehicles his top priority. They were fielded quickly and in large numbers.

“The Defense Department is amazing at responding to tragedy,” the senior defense official said. “We’re kind of built for that.”

But it’s difficult to respond that quickly without a crisis, officials agreed. Senior leaders have tried it before: Former Deputy Defense Secretary Bob Work’s Third Offset initiative, also meant to find a technical advantage over China, shaped the 2018 National Defense Strategy and innovation across the department, but it didn’t significantly change what the Pentagon bought.

“We have a lot of activity, but we haven’t seen the ignition, where you’re changing over from concept development to capability development,” Work told Defense News.

The actual structure of Replicator relies on two core teams. One comes in the form of the Defense Innovation Working Group, chaired by Defense Innovation Unit chief Doug Beck. This team looks for systems that would help Indo-Pacific Command, and then vets the technologies to see if they can be made in large quantities and perform as promised.

This team’s top picks are then submitted to the Deputy’s Innovation Steering Group, which involves military and department-wide officials, including Hicks. This is where systems become a part of Replicator.

The upshot is a system that’s meant to move parallel to Pentagon procurement, but faster. Replicator isn’t meant to replace the whole acquisition cycle; it’s meant to be the high-risk holding in an otherwise steady portfolio. And Hicks has said attritable autonomy programs will eventually make up half a percent of the Pentagon budget, or about $4 billion.

Officials involved in Replicator often liken it to a change in culture. Many of those managing it day to day come from the defense sector or venture capital, not the traditional world of acquisition and sustainment. With a small chunk of the Pentagon’s budget, so the thinking goes, the department can learn to accept more risk when the moment demands it.

“That is not something that comes easily because we want to be so measured and test everything to death,” Aditi Kumar, a top DIU official working on Replicator, told Defense News.

One of Replicator’s largest challenges is funding. Hicks has said the money for the initiative is already in programs across the services, although much of that money is reserved for research, development, testing and evaluation rather than procurement.

The Pentagon is still working on a reprogramming request to help fund Replicator. The senior defense official declined to give an estimate of its time or size.

Such a request will require authority from Congress, which has yet to pass a full-year DoD budget. Without one, the defense official acknowledged funding will be difficult.

Reprogramming also risks upsetting the services, which could lose control of some programs in the process. Hinote, the retired general, said he saw this resistance throughout his time at the Pentagon.

“The bureaucracy will kill Replicator if there is not the continuous push from the top down,” he said.

Another hurdle involves the Pentagon’s ability to work with nontraditional companies at a new pace and scale.

The commercial drone market is dominated by China, in manufacturing and components. American drone makers can’t rely on the very country Replicator is designed to counter for their supply chains, so their manufacturing efforts will take longer.

While many companies told Defense News they are increasing their production lines, none said the Replicator announcement was the catalyst. First, many said, the Pentagon needs to provide actual contracts or at least a better sense of what it wants to buy.

“If you wait until you have that contract from DoD in hand, you’re probably not going to meet that 18- to 24-month timeline,” said Rob Lehman, chief commercial officer at the maritime drone-maker Saronic.

The defense sector is a rapidly evolving habitat in which companies that were disruptors can quickly become the disrupted. It has its own species of primes and smaller contractors. Larger businesses want to grab more of the market share, while smaller ones want a way in.

Replicator tries to solve this problem by selecting companies in batches, every few weeks or months, which allows the department to pick winners while also noting there’s room for more.

But industry executives said they need to know the process for choosing those batches and how often they will come. Some venture capitalists told Defense News they were cautioning their companies away from Replicator until the government provides more details.

Still, some of these critiques are hypocritical, said Sam Gray, head of the Silicon Valley Defense Group, a networking organization. For years, the Pentagon has heard it’s not adopting new technology fast enough. Now it’s trying to move faster and accept more uncertainty, and the response has been a demand for more details.

“It can be fast, cheap or good,” said Gray, who formerly worked in the Navy’s innovation office. “Pick two.”

The way most people interviewed by Defense News see it, though, is that all three are necessary. If China wants the ability to — although not the orders to — invade Taiwan by 2027, as U.S. intelligence suggests, programs like Replicator could help stop a war.

“It’s very, very important,” said Work, the former deputy secretary.

This represents another challenge: finding systems that actually help deter a war over Taiwan.

DIU said it would post a solicitation for the effort in December, but it had not done so by press time. Hicks told reporters the first tranche for Replicator would be selected that month, though the systems may be classified. The per-unit cost, she said, will range from the tens of thousands to the hundreds of thousands of dollars. Each system should be designed to last three to five years.

In mid-December, Hicks traveled to Silicon Valley, where she met with about 10 defense companies to discuss Replicator. Later, she visited two others — Kodiak Robotics and Skydio — where she rode in an autonomous Ford F-150 and watched a demonstration with small drones.

Mark Valentine, president of Skydio’s global government business, said Hicks focused on the company’s ability to produce its drones at high volumes.

The services spent the first few months after the announcement nominating systems of their own that could be useful to the program. Doug Bush, head of Army acquisition, told Defense News the service put forward unmanned aerial systems on the larger side. Air Force Secretary Frank Kendall has said publicly that Replicator may benefit from smaller aerial drones.

Multiple defense industry executives and investors told Defense News that small drones will be a part of Replicator’s initial purchases. No one working on the program would confirm specific systems, but the senior defense official said “that will likely be an area that we focus on.”

It’s hard to picture how small drones could help defend Taiwan, where U.S. forces would need to travel hundreds of miles to even reach the island nation, analysts and former defense officials said in interviews.

Indo-Pacific Command leader Adm. John Aquilino has said his goal is to have systems that can “blind, see and kill any adversary that decides to take us on.” Unless small drones are stored on Taiwan itself — something analysts previously suggested — it would be difficult to deploy them.

In part for that reason, multiple industry sources said DIU Enterprise Test Vehicle — a drone meant to cover at least 500 nautical miles, and for which the tech hub released a solicitation in September — would be part of Replicator.

How to actually use these kinds of drones is something Schuyler Moore has tried to answer for years at U.S. Central Command, where she works as the chief technology officer.

Before, she was the chief strategy officer for Task Force 59, one of three innovation cells within the command focused on the kinds of drones now targeted by Replicator. That task force grew from a handful of maritime drones to a fleet of more than 20, and now touts some 25,000 testing hours.

“It is one thing to test an unmanned surface vessel in reasonably calm waters,” she said. “It is entirely another to have an unmanned surface vessel operate for months at a time in the hot, salty, sandy, windy conditions of the Middle East.”

Moore said Central Command has volunteered to be a “sandbox” for Replicator, where operators can adjust the systems.

Among other issues, the Pentagon will need to learn how to deploy these vehicles, to operate them alongside other systems, and to make them work together with a shared command-and-control network — no easy feat when they’re made by multiple companies.

Overcoming these will in part decide whether Replicator is successful. It’s the difference between a “thing” and a “capability,” said Michèle Flournoy, who served as undersecretary of defense for policy during the Obama administration.

Since the Israel-Hamas war began in early October, Iranian proxies and regional militia groups have targeted U.S. forces in Iraq and Syria. In addition, two carrier strike groups and a host of American air defense batteries are helping Israel clear the sky — against ballistic missiles, artillery and drones.

This conflict has validated America’s air defense, a senior military official told reporters in early December, speaking on the condition of anonymity due to the sensitivity of the topic. But the “exchange ratio” — the cost of what the U.S. shoots down compared to the cost of the interceptor — changes when drones are involved.

“Missile on UAV — that works pretty well, too,” the official said. “That’s a very different calculus, though, because that’s expensive.”

The crisis is making officials consider what unmanned and counter-drone systems they’ll need, and how quickly they’ll need them.

The idea behind Replicator — that the Pentagon should buy more, expendable systems rather than few, exquisite ones — has circulated for years. But Hicks launched the initiative following a series of trips where she watched exercises that included cutting-edge technology.

Especially influential was a trip over the summer to watch Operation Northern Edge in Hawaii, according to multiple defense and industry officials.

A month after that exercise, Hinote was visiting Hicks in her office, where Replicator started.

“If you’re going to disrupt from top down as a leader, it’s going to cost you something,” Hinote said. “It’s going to cost you time. It’s going to cost you political capital.”

Replicator is meant to be a repeatable process. If it’s successful, future Pentagon officials — perhaps even after Hicks’ time in the department ends — could use it as well.

But at a breakfast with reporters in mid-November, Hicks said there’s no separating the two: Innovation only goes as far as the people leading it.

“Leadership will always matter,” she said.

Courtney Albon and Megan Eckstein contributed to this report.

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**36 . Date: 11-03-2024Requirement - Pentagon says $1 billion planned for first two years of ReplicatorURL: https://www.c4isrnet.com/pentagon/2024/03/11/pentagon-says-1-billion-planned-for-first-two-years-of-replicator/**

For the first time, Pentagon officials on Monday estimated the cost of Replicator, a program to field thousands of drones before August 2025 to counter China.

While briefing reporters on the Pentagon’s new budget request, Deputy Secretary of Defense Kathleen Hicks said her signature initiative would cost a planned $1 billion, divided evenly between fiscal years 2024 and 2025.

Hicks debuted Replicator in August. The goal is to field thousands of drones while at the same time honing a process to do it all over again for other tech in the future. In her briefing, Hick emphasized that second aim, noting the first round of the program is intended to help the military services innovate faster and in larger numbers.

Whatever programs follow early Replicator work will likely require additional funding, she said.

“It is my fervent view that [the] follow-on to that is a significant investment potential that is not about Replicator,” she said. “That is about what the services are going to be able to do on autonomy once we’re able to lower those barriers through that initial investment.”

Just after Hicks finished speaking, Pentagon Comptroller Mike McCord detailed how the department might get the $1 billion.

There are two options. First, Congress could include the first $500 million in its long-delayed FY24 Pentagon budget. Working toward this goal, McCord said, Hicks has been speaking with the defense committees on Capitol Hill.

The backup plan, McCord said, is a reprogramming request — in which the Pentagon asks the defense committees for permission to shift money around in its budget.

In FY25, the $500 million for Replicator is already in the budget. McCord, though, did not say where that money is, other than to say it’s classified.

In a briefing Friday, Rear Adm. Ben Reynolds, the Navy’s budget deputy, told reporters multiple times the service’s request includes funding for Replicator projects.

Days after the briefing, a spokesman from the service issued a correction. Reynolds, it said, “conflated” money intended for other projects with money for Replicator.

“We are not currently discussing specific numbers associated with Replicator,” the correction read.

The Army in a separate briefing with reporters wouldn’t comment on its share of the program. And an Air Force spokesperson confirmed the service wouldn’t be spending any money on it in the coming fiscal year.

Meanwhile, the Pentagon’s overall budget slides say “Replicator does not have a specific funding line,” though “the FY 2025 Budget includes resources to boost the number of Replicator investments.”

This followed a page focused on other Pentagon innovation programs — each listing a specific dollar figure.

The Pentagon’s stated reason for its ambiguity around the program is that it doesn’t want China to know what it’s up to. Some in Congress and the defense industry have criticized that ambiguity, saying it’s not yet clear whether Replicator is more than a good idea with ambitious goals.

McCord said that posture will likely stay the same for now.

“We’re leaning on the side of not disclosing the details until we are confident that that’s what the deputy secretary wants to do,” he said.

Courtney Albon is C4ISRNET’s space and emerging technology reporter. She has covered the U.S. military since 2012, with a focus on the Air Force and Space Force. She has reported on some of the Defense Department’s most significant acquisition, budget and policy challenges.

Noah Robertson is the Pentagon reporter at Defense News. He previously covered national security for the Christian Science Monitor. He holds a bachelor’s degree in English and government from the College of William & Mary in his hometown of Williamsburg, Virginia.

**37 . Date: 21-03-2024Market - Replicator gets $200 million in newly released defense spending billURL: https://www.c4isrnet.com/pentagon/2024/03/21/replicator-gets-200-million-in-newly-released-defense-spending-bill/**

Replicator, the Pentagon’s effort to buy and field thousands of drones by next August, is closer than ever to its first round of funding.

Congress just released the final text of its long-delayed fiscal year 2024 Pentagon spending bill. In it, the Replicator program would get $200 million.

The number is less than half of the $500 million Deputy Secretary of Defense Kathleen Hicks predicted earlier this month for her trademark program, which is focused on countering China. But it would square with the amount requested in a reprogramming package sent to Congress in early February. That request, in which the Pentagon asks lawmakers to allow it to move money around for new priorities, was reportedly $300 million.

This would be a two-track funding approach, somewhat in line with Hicks’ comments at an event hosted by the Ronald Reagan Institute this Wednesday. Hicks framed appropriations and reprogramming as two paths, but only “alternative” ones and not intended to work together.

“We need one of those two pathways to move forward,” she said, noting further funding for Replicator — $500 million — is already written into the Pentagon’s FY25 budget request.

At the same event, Army acquisition chief Doug Bush said that the first systems bought in Replicator mainly come from his service. Multiple outlets reported earlier this year that the AeroVironment Switchblade 600 is among those.

Some in Congress are still frustrated at the lack of transparency from the Pentagon on the initiative. One Senate aide, speaking to Defense News on the condition of anonymity, said that Pentagon officials briefed on Replicator earlier this month, mentioning specific systems for the first time.

“That’ll have to get better over the next six to eight months,” the aide said. “We need to get more into the details.”

The new bill addresses this shortage. It would require Hicks to brief lawmakers within 60 days of its passage. That briefing would need information on how much funding Replicator will require through the rest of the decade, how its systems will be sustained and how the Pentagon plans to use them.

In addition, the bill mandates a report within 90 days that would show how the Pentagon is leaning on commercial-style technology, examples of Replicator-type systems from each service and instances when such systems have become programs of record. This report will be unclassified but contain a classified portion.

The budget introduced this week arrives halfway through the fiscal year. If passed, the Pentagon will have just six months to spend it, potentially risking some money not being obligated after the crash effort.

“It’s a show me culture,” Hicks said of Pentagon innovation. “Show me you’ll put your reputation on the line to make change happen, and then maybe it’ll make change happen.”

This story has been updated with further details from the legislation and comments from a Congressional aide.

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**38 . Date: 09-07-2024Contract - Pentagon begins awarding contracts for next round of ReplicatorURL: https://www.c4isrnet.com/pentagon/2024/08/08/pentagon-awards-contracts-for-second-round-of-replicator-systems/**

The Pentagon has chosen systems for the second tranche of Replicator — an initiative to quickly field thousands of drones to counter China in a future conflict.

Doug Beck, director of the Defense Innovation Unit, told reporters Thursday the program has awarded contracts for some, but not all, of the systems it will buy in the second phase of the program.

Speaking at the National Defense Industrial Association’s emerging technologies conference, Beck declined to confirm how many platforms the Defense Department selected but noted that since the program’s inception, DOD has awarded contracts for 30 different hardware and software efforts with more than 50 major subcontracts to “a range of different companies.”

Deputy Defense Secretary Kathleen Hicks unveiled the department’s plans for Replicator nearly one year ago. Since then, the Pentagon has selected its first tranche of capabilities, crafted acquisition strategies and concepts of operation, trained units to use the initial systems and secured nearly $1 billion for the effort in fiscal years 2024 and 2025.

“Although we have lots more work to do, we are on track to meet Replicator’s original goal of multiple thousands in multiple domains in 18 to 24 months — that is, by end of August 2025,” she said.

DIU is taking the lead on helping vet the hardware the Pentagon will buy through Replicator and is working closely with the Chief Digital and Artificial Intelligence Office, or CDAO, to identify the digital backbone that will enable those systems to work together.

CDAO is setting up an AI hub for Replicator and its Alpha-1 capability set — which the office rolled out earlier this year and is being used by the Navy and Marine Corps — will provide tools to help DIU validate that systems are performing as expected.

Asked what companies have been selected to support the digital elements of Replicator, Beck said the department isn’t ready to discuss that piece in detail.

“We are well down the races, and we have hundreds of companies that are involved in pitching against that,” he said.

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**39 . Date: 20-11-2024Contract - Pentagon picks programmers to connect its Replicator drone swarmsURL: https://www.c4isrnet.com/pentagon/2024/11/20/pentagon-picks-programmers-to-connect-its-replicator-drone-swarms/**

The Pentagon has chosen seven companies to build software to connect the swarms of small, low-cost drones it’s buying through the Replicator program.

The Defense Innovation Unit on Wednesday announced awards for two key Replicator software efforts: Opportunistic, Resilient and Innovative Expeditionary Network Topology, or ORIENT, and Autonomous Collaborative Teaming, known as ACT. DIU issued solicitations in July and received proposals from 251 companies.

The organization is partnered with U.S. Indo-Pacific Command, the military services and the Pentagon’s Chief Digital and AI Officer on both projects.

“DIU is working actively with partners across the Department to bring the very best capabilities from the U.S. tech sector to bear in support of our most critical warfighter needs,” the organization’s director Doug Beck said in a statement. “This latest step in the Replicator initiative is a critical example of that teamwork in action.”

ACT software will help coordinate the thousands of uncrewed systems the Defense Department is buying through Replicator, which will include aircraft, boats and ground vehicles. Anduril Industries, Swarm Aero and L3Harris received prototype contracts.

ORIENT is focused on building a more robust command-and-control backbone for Replicator systems. DIU chose Aalyria, Viasat, Higher Ground and IOT/AI to develop prototypes for the effort.

The announcement comes a week after the Pentagon revealed several Replicator equipment awards, including one-way attack drones and systems it will purchase through the Army’s company-level uncrewed aerial system program and the Air Force’s Enterprise Test Vehicle effort.

Deputy Defense Secretary Kathleen Hicks unveiled Replicator more than a year ago as a means to create a process for quickly fielding and scaling in-demand technology throughout the department. Led by DIU, the first phase of the program promises to field thousands of low-cost, expendable drones by August 2025 in a push to deter China. Before last week, DOD had confirmed just one system’s inclusion in the program —AeroVironment’s Switchblade 600.

While some Replicator systems may operate individually or within swarms of similar systems, the Pentagon wants them to be able to connect and collaborate across domains. According to DIU, the software it’s buying through ORIENT and ACT is what will enable that level of teaming.

“Together, these critical software enablers will enable so-called ‘heterogeneous collaboration’ between different Replicator systems fielded in the next year and lay the foundation for the Department’s broader push towards collaborative autonomy,” DIU said.

Replicator 2, the program’s second phase, is focused on technology to counter the types of drones the Pentagon is buying through Replicator’s first increment. Once again, the department aims to field “meaningfully improved” counter-UAS capabilities within two years of receiving funding from Congress.

Lawmakers have approved $500 million for the first round of Replicator systems in fiscal 2024 and DOD requested another $500 million in its FY25 budget. The department plans to include a funding proposal for Replicator 2 in its FY26 budget proposal.

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**40 . Date: 14-01-2025Requirement - The Pentagon’s ‘Replicator’ drone bonanza faces an uncertain futureURL: https://www.c4isrnet.com/pentagon/2025/01/14/the-pentagons-replicator-drone-bonanza-faces-an-uncertain-future/**

In a speech last August, Kathleen Hicks listed the two most common questions about Replicator, her two-year pledge to buy thousands of drones and help the U.S. military compete with China.

“When we launched Replicator, a common refrain I heard was: ‘Can it work?’ These days I’m more likely to hear: ‘Will it stick?’” said Hicks, the deputy secretary of defense.

That second question soon won’t be hers to answer.

Since she first unveiled Replicator a year and a half ago, it’s nearly become a trademark. Hicks has sat in all of the Pentagon’s major meetings on it. She’s read every story published about the program, prepared in files from her staff. And she’s called its success a referendum on her leadership.

Senior Pentagon officials interviewed for this story said the program is on schedule largely through her effort. Now, as Hicks leaves office, the question is whether it can survive without her.

Republicans and Democrats have applauded the idea behind Replicator. To compete with China, they argue, the Pentagon needs cutting-edge weapons much faster. Hence, aides in Congress and executives at drone firms said they expect it to endure — albeit with changes.

And after 16 months, many officials working on the program outside the Pentagon say the biggest change it needs is size. Hicks made the bet to start Replicator, no small feat in a risk-averse bureaucracy, they acknowledged. But without more funding and more weapons on order, it won’t reach its true promise: a military nimble enough for the future of war.

“I would like to think that years from now, we would look back and say, ‘Yes, this began with the Biden administration,” said Chris Brose, an executive at the drone and software firm Anduril. “However, the real scale that this got to was delivered by his successors.”

By early 2023, the problem was clear.

The year before, Russia had started a war with Ukraine dominated by trench warfare, artillery and increasingly drones. Both sides were building them in huge numbers to target, spy and attack at once, known in the military as “swarms.”

But these weren’t American drones. Instead, Ukraine’s soldiers were mostly buying and then tweaking their weapons from DJI, a Chinese company controlling 90% of the consumer market. U.S. firms weren’t only behind on building the weapons; their equipment wasn’t even needed.

“We know we have a problem on the production side: that DJI has just taken off with the international market. We needed to build out — we still do need to build out — that American industry,” Hicks said in an interview.

The deputy is close to the ultimate Pentagon insider. She took her first job in the building at the age of 23. And her habits reflect its culture of productivity. Hicks regularly schedules her day in 15-minute slots, she reads books on better managing her time and she returns hundreds of pages of reading to her staff each week marked with detailed notes.

So as the problem emerged, Hicks thought about how the Pentagon, internally, could solve it. American companies were indeed making high-tech drones. But the supply was small — in large part because the Pentagon was a picky customer. The period between signing a contract and actually getting equipment to troops often lasts more than 10 years.

The issue wasn’t just for Ukraine.

Hicks had entered office saying her top challenge was China, a country so large it could outpace America’s ability to build almost anything.

“It was the magnitude of all of the things,” said Mike Horowitz, a former top Pentagon policy official involved in Replicator, who listed out China’s ability to build a range of weapons: ships, submarines, drones, missiles. “They’re doing all of them simultaneously.”

Over the course of 2023, Hicks had been visiting Indo-Pacific Command, which oversees U.S. forces across the region, to watch troops experiment and exercise with new technology. She saw the need for more weapons that could punch above their weight. And she decided that if the Pentagon wasn’t buying enough of these already, she would make it.

In August that year, she took to the stage at a conference in downtown Washington and pledged two things. The Pentagon would field thousands of affordable drones within two years. And it would learn how to buy such weapons faster along the way.

Hicks called the two-part program Replicator, named after a tool from Star Trek that can form matter from thin air.

At first, other people in the Pentagon and Congress — largely unaware that the program was coming — had different names for it. Some called it confusing. Others worried it was a flash in the pan. Overall, the consensus at first was that Replicator was a good idea but that people couldn’t tell whether it was more than that.

“We had a candid conversation” before the announcement, said a senior defense official involved in the effort with Hicks, granted anonymity to talk freely. “I said we’re probably gonna get our asses kicked for eight to nine months in the press. Are you ready?”

Part of the skepticism came from how little Hicks’ team shared about the program after launching it. Because she didn’t want the idea choked by bureaucratic thorns, the deputy announced it without a full plan to discuss it publicly. Even more, her staff wasn’t entirely sure how it would work.

“My Italian family uses WD-40 for literally everything. — it’s like you have a cut [use] WD-40. So when we zoomed out, there were all these great innovation gears [inside the Pentagon] but some of them were a little squeaky,” the official said.

Replicator was meant to make these all click into place.

Atop the effort was the Defense Innovation Unit, tasked with bringing high-tech weapons into the military. Along with Hicks’ staff, it surveyed the different parts of the Pentagon from the Army to the Air Force, asking what drones would matter most for a fight with China and what they could buy the fastest.

At the same time, the team was working with military leaders in the Pacific and Congress, which later agreed to free up half a billion dollars for the effort (the same number made it into the next defense budget, which Congress has yet to pass).

In the year since, the Pentagon has announced several systems selected for the program: mostly underwater vehicles, small flying drones and loitering munitions meant to explode on impact. This last group will make up the bulk of the program, a congressional aide said. Of the 2,500 to 3,000 systems the Pentagon plans to deliver, over half will be the Switchblade 600, a kamikaze drone.

Hicks argued these results helped change the narrative.

“Replicator really depended on having that reputational advantage internally to make it happen. Now the Hill and the press — that reputational advantage probably needed to prove out another year. I think we’ve done that by just putting our heads down,” she said.

In a meeting last fall, another Pentagon official working on the program remembers getting goosebumps. Military leaders in the room were planning a Replicator “dress rehearsal” for early 2025 — a drill meant to prove how the weapons could all work together.

“There was this moment where we all realized how real this is,” said the official. It had gone from an idea to a table of the nation’s top officers.

Since Hicks announced the program, it’s earned real staying power. Officials across Washington cite it as an example of how to jolt America’s slow bureaucracy. And military leaders in the Pacific have been happy to have someone advocating for their priorities.

Last fall, the Pentagon announced a second version of the program, this time focused on protecting American bases from incoming drones — a problem on display across the Middle East since Israel’s war began in Gaza.

But the drill this year is also a sign of the issues Replicator has yet to address. For one, the military is still deciding where to station the drones, which so far have been relatively short-range and would struggle to enter a fight. The answer is likely to put them on ships, said Adm. Sam Papapro, the head of Indo-Pacific Command, at an event last November.

Military leaders are trying to make sure the drones can resist jamming — a huge problem in Ukraine — and how to make the weapons operate in synchrony. They’re also trying to decide how to sustain the weapons, since these drones are meant to be “attritable,” the Pentagon’s version of a plastic fork and knife compared to silverware.

“We’re now going from just buying the system to actually using it in an operationally relevant environment and assessing changes we need to make,” said Bryan Clark, a former Navy officer and analyst at the Hudson Institute, where he follows the program closely.

These tests won’t address the largest critique often leveled at Replicator: that it didn’t wasn’t big enough. China has huge stores of weapons, beyond what Horowitz listed earlier, and they’re growing. Thousands of relatively small drones won’t tip the military scales.

“The PRC has got 2,100 fighters, they’ve got three aircraft carriers, they have a battle force of 200 destroyers. Well, Roger, we’ve got a couple of drones,” Paparo said in November, using the common abbreviation for the People’s Republic of China.

Hicks staffers bristle at this critique. Replicator, they argue, was never meant to be the Pentagon’s only insurance program for a war with China. It was meant to teach the Pentagon a new way of doing business. Even more, it wasn’t like there were billions of extra dollars lying around for the program. Starting Replicator at its current scale was hard enough given how much the Pentagon bureaucracy can resist change.

“What Replicator did was juice the system and show that this is a solvable problem,” Horowitz said.

Indeed, Hicks and other top Pentagon officials say this effort is only one part in a much larger engine designed to get the military more advanced weapons.

In an interview last month, the head of Pentagon research and engineering explained the point by pulling out a complicated flow chart, illustrating how the Defense Department brings a new weapon on board.

“There’s the entire ecosystem. This is how we fit together. It isn’t [that] only one piece of the puzzle is important and the rest is irrelevant,” said Heidi Shyu, tracing the Replicator section of the chart with her finger.

Even critics accepted this argument: They couldn’t blame Replicator for not being something it was never meant to be. But Brose, the executive at Anduril, also said that the program’s scope should factor into its legacy. If the U.S. needed a true crash program to help defend Taiwan, or other parts of the Pacific, then Replicator may have missed the moment, even if it’s on track to meet its goals.

Still, that doesn’t mean they don’t want it to stick around. The Pentagon, at least, expects it to.

“Initiatives change names all the time,” the first official said.

Courtney Albon contributed to this story.

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**41 . Date: 23-01-2023Loitering Munition - Mini - Contract - Documents reveal secret customer of Hero-30 kamikaze dronesURL: https://www.c4isrnet.com/unmanned/2023/01/23/documents-reveal-secret-customer-of-hero-30-kamikaze-drones/**

MILAN— The Italian special forces is the undisclosed European NATO member set to receive Hero-30 loitering munitions this year as an “urgent mission requirement,” according to recently published contract documents.

In September, German company Rheinmetall and its Israeli-based partner UVision announced in a news release they received their first order from a European NATO special forces formation for the supply of Hero-30 loitering combat and training munitions, training courses, and integrated logistics equipment and support.

At the time, several Italian analysts noted that Rome had introduced in its 2021-2023 defense-planning document the funding of a program aimed at acquiring these types of weapons, deemed a mission urgent requirement for its special forces units.

In December 2022, the Tenders Electronic Daily, an online version of the Supplement to the Official Journal of the European Union dedicated to detailing public procurement efforts on the continent, ended months of rumors by publishing the contract award notice to Rheinmetall’s subsidiary RWM Italia for the production of these types of munitions.

While the precise number of weapons on order remains classified, the value of the contract is €3.88 million (U.S. $4.21 million). Deliveries are expected this year.

The notice lists the winner of the contract as RWM Italia S.p.A based in Ghedi, northern Italy. In 2021, UVision signed a strategic agreement with the Italian entity for the licensed production and development of Hero-type loitering munitions. The partnership has RWM Italia acting as prime contractor for the European market, supplying and manufacturing some ammunition components, assembling systems, and managing logistical support.

Antonio Tessarotto, a sales and marketing manager at RWM Italia, declined to identify the customer and contract details. This is common in Italy, where the majority of defense manufacturers are contractually bound to secrecy, especially when it comes to the special forces; orders are often classified.

However, this approach has also led to criticism over transparency by Italian defense manufacturers and the government.

Tessarotto did confirm to Defense News that RWM Italia “currently deals exclusively with the European market, [where] countries outside of this market are not covered by the agreement with UVision.” He added that, throughout the region, there is a strong interest in better understanding this weapon, which is highly accurate and minimizes collateral damage.

Loitering munitions, also known as kamikaze drones, are unmanned aerial systems that crash into their targets and often explode upon impact. The Hero series includes a wide range of loitering munitions, from the smallest system, the Hero-30 — a manpack-portable short-range weapon — to the largest, the Hero-1250 — a heavier, highly lethal drone used for long-range missions.

The Israel Defesne Forces have operated the systems for years now, but its most recent customer is Argentina, the first Latin American country to purchase the Hero-120 and Hero-30 munitions. The contract was signed by Argentina’s Defense Ministry and Israel’s Directorate of International Defense Cooperation.

Dagan Lev Ari, the sales and marketing director at Uvision in Israel, declined to comment on the manufacturing location of Argentina’s orders. As did Jim Truxel, CEO of UVision USA, an American subsidiary established in 2019. However, Truxel did note that “nothing has crossed my desk regarding any efforts [of UVision USA] with Argentina.”

The American unit “was established to bring our products and services closer to North American customers. If any non-U.S. customer would want to purchase Hero systems through proper U.S. government programs,” Truxel said, “we would then be able to supply them through these programs. Other UVision subsidiaries manage their surrounding geographical locations.”

For the Israeli company, collaboration with Italy provides direct access to the European market and a means by which to promote its weapons to the region’s armed forces.

As the company has grown — it founded AVision Systems in India in 2021 — so has the interest in loitering munitions. Both Ukraine and Russia have used the weapon type against the other in the ongoing war.

But UVision has competition in Europe; drone specialist AeroVironment has sold the Switchblade 300 and 600 systems to European customers. The American company ramped up orders last year, with France requesting to procure the systems and Lithuania acquiring both.

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**42 . Date: 01-02-2023Requirement - Ukraine plans to spend $540 million on drones this yearURL: https://www.c4isrnet.com/unmanned/2023/02/01/ukraine-plans-to-spend-540-million-on-drones-this-year/**

WARSAW, Poland — Ukraine plans to spend about 20 billion hryvnia (U.S. $540 million) on new drones this year, according to the country’s defense minister.

The UAVs are meant to support the Ukrainian military as it continues to combat Russia’s invasion.

“In 2023, we are increasing the purchases of UAVs for the Ukrainian Armed Forces,” Oleksii Reznikov said in a Facebook post. “This is just the beginning. After all, this is not only about the needs of aerial reconnaissance.”

The official said that, owing to the forthcoming acquisitions, the Ukrainian military will strengthen its combat drone capacities. Ukraine will use other new UAVs for surveillance, to support to artillery units and in other missions, Reznikov added.

To date, Ukraine has ordered drones for its armed forces from 16 local manufacturers, the minister said. Kyiv also continues to buy foreign-made UAVs, with a recent contract for 105 Vector reconnaissance drones signed with German manufacturer Quantum-Systems.

“The Ministry of Defense of Ukraine has placed a second batch order of Vector systems, following an earlier order of 33 UAS of the same model in August 2022,” the company said in a statement. “Vector has been extensively used and intensively tested on the Ukrainian battlefield, where it has proven to be an asset for military intelligence, surveillance, and reconnaissance operations. Its robust and rugged design makes it well-suited for operation in harsh environments and extreme weather conditions.”

The German business also announced the opening of a training and support facility in Ukraine, which is to provide services to drone operators and serve as the local hub for spare parts and repair services.

The value of the latest contract, which is funded by the German government, was not disclosed.

Jaroslaw Adamowski is the Poland correspondent for Defense News.

**43 . Date: 23-03-2023Armed ISR / ISTAR - HALE - General - PlatformTurkish firm unveils Anka-3 combat drone ahead of maiden flightURL: https://www.c4isrnet.com/unmanned/2023/03/23/turkish-firm-unveils-anka-3-combat-drone-ahead-of-maiden-flight/**

MERSIN, Turkey — Turkish Aerospace Industries this month unveiled a new combat drone expected to take its maiden flight in the coming months.

Turkish media first ran drawings of the Anka-3 in December, but the company on March 18 released a photo of the combat UAV. The company also said it ran the first taxi tests of the indigenous fighter jet TF-X as well as the Hurjet trainer and light attack aircraft.

At the Border Security Summit held March 21-22 in Ankara, TAI chief executive Temel Kotil said the Anka-3 has begun ground tests ahead of plans for its maiden flight.

“The new unmanned aerial vehicle (UCAV) will be outfitted with the same aviation infrastructure and ground control station as the ANKA drones,” TAI said in a statement. “The first prototype’s structural assembly was completed in January 2023, and ground tests are currently underway. The ANKA-3′s engine will be powered up in April 2023, and the taxi service will begin. The inaugural flight is scheduled for the same month.”

Kotil also discussed technical specifications of the drone during his presentation at the event. According to the CEO, the Anka-3 will have a maximum takeoff weight of 6,500 kilograms (14,330 pounds) and a payload capacity of 1,200 kilograms (2,646 pounds). Its maximum altitude is 40,000 feet, and can last 10 hours at 30,000 feet, he added, which its cruise speed is 250 knots (288 mph) with a top speed of 425 knots (489 mph).

This means the Anka-3 outperforms the company’s other UAVs — the Aksungur and older Anka variants — in terms of speed and payload capacity.

The Anka-3 photo suggests the combat UAV is equipped with two orange-colored drones, which appear to be Simsek target drones converted to serve as loitering munitions — otherwise known as kamikaze drones. The company did not reveal information about the Anka-3′s weapons portfolio and sensors, but it’s expected to feature internal and external weapons stations.

TAI is developing the aircraft primarily for intelligence, surveillance and reconnaissance missions; deep-strike operations; and the destruction or suppression of enemy air defenses.

The company declined to provide the unit cost of the Anka-3.

Tayfun Ozberk is a Turkey correspondent for Defense News.

**44 . Date: 28-03-2023Research - Tactical - General - SoftwareAirbus demos in-flight autonomous guidance of target drone with tankerURL: https://www.c4isrnet.com/unmanned/2023/03/28/airbus-demos-in-flight-autonomous-guidance-of-target-drone-with-tanker/**

MILAN — Airbus Defence and Space, in cooperation with the company’s subsidiary UpNext, said it successfully demonstrated autonomous guidance and control of a Do-DT25 target drone using an A310 aircraft during test flights in Spain.

On March 21, UpNext performed its first flight-test campaign toward the development of autonomous and uncrewed air-to-air refueling technologies as part of its Auto’Mate project.

The A310 Multi-Role Tanker Transport test bed took off at the company’s site in Getafe while four DT25 multipurpose target drones, acting as receiver aircraft, were launched back to back from the Arenosillo Test Centre in Huelva.

Once over the waters of the Gulf of Cadiz, the control of the unmanned aircraft passed over from a ground station to the tanker, which autonomously guided it to an in-flight refueling position.

“The first flight test lasted about six hours, where a total of four launched receivers were sequentially controlled and commanded via artificial intelligence and cooperative control without human interaction,” Borja García de Sola, external communications manager at Airbus Defence and Space, told reporters. “The different receivers were then controlled until they were at a minimum recorded distance of 150 feet from the A310.”

A second test flight under the same concept, with four DT25 drones and an A310 tanker, also took place on March 23. Together, the systems flew about 12 hours using eight unmanned aircraft.

Both types of aircraft were integrated with Auto’Mate demonstrator technologies including cameras, light detection and ranging — otherwise known as LiDAR — and high-precision GPS to monitor the position, speed and altitudes between them; intra-flight communication systems; and cooperative control algorithms to provide coordination and consensus.

During the briefing, company officials revealed that a second campaign will take place at the end of 2023, with trial flights carried out at the same location.

While in the first push, the company controlled the receivers in two different configurations and autonomously guided them to different positions with diverse navigation sources, the second will focus on more in-depth testing of AI for navigation and autonomous flight.

In addition, the latter will include two simulated drones flying in the proximity of the tanker aircraft to demonstrate multi-receiver autonomous operations and collision-avoidance algorithms, García de Sola explained.

These experiments are paving the way toward achieving what the company refers to as autonomous assets air-to-air refueling, defined as the ability to independently transfer and receive fuel midair. That so-called A4R system allows for the refueling of several aircraft simultaneously and at a faster rate, reduces the size of tanker crew, and enables extended-range missions for the drones.

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**45 . Date: 18-05-2023Armed ISR / ISTAR - HALE - General - Satellite image shows WZ-8 supersonic drone at Chinese baseURL: https://www.c4isrnet.com/unmanned/2023/05/18/satellite-image-shows-wz-8-supersonic-drone-at-chinese-base/**

MELBOURNE, Australia — A satellite image obtained by Defense News shows what appears to be a WZ-8 supersonic reconnaissance drone parked outside one of two newly built hangars at China’s Lu’an Airbase.

China is continuing to revamp a bomber base that was identified in recently leaked U.S documents as hosting a new supersonic reconnaissance drone.

The satellite image, provided to Defense News by Planet Labs, shows Lu’an Airbase in China’s Anhui province. The previously unoccupied base is undergoing an upgrade, with construction beginning sometime between April 2018 and early 2019. Improvements include the resurfacing of the 3,200-meter (3,500-yard) runway, the widening of taxiways, and the construction of 20 bomber-sized aircraft shelters and two hangars to replace open aircraft parking bays.

China also built munitions checkout facilities on base, according to Decker Eveleth, a student at the Middlebury Institute of International Studies at Monterey who reviewed the satellite photo given to Defense News. Eveleth explained that such checkout facilities are used to inspect munitions before they’re loaded onto aircraft for use.

These buildings are usually found at bases for bombers and ground-launched missiles, Eveleth added, and tend to be “long, tall buildings with doors at both ends,” with missiles usually fixed to a rail for inspection at various stations for examining various components.

Lu’an Airbase is home to the 29th Air Regiment of the People’s Liberation Army Air Force’s 10th Bomber Division, according to Andreas Rupprecht, who has authored several books on Chinese military aviation and the industry.

He told Defense News that the unit currently flies the Xi’an H-6K and H-6M bombers. The latter is the primary launch platform of the WZ-8, carrying the supersonic drone on an hardpoint on its fuselage underside and releasing it from a high altitude.

The WZ-8 was also seen on a satellite photo taken in December 2022, while another from early April 2023 showed continued progress in widening the aircraft taxiways leading to the base’s underground aircraft facilities south of the runway.

Using Google Earth’s measuring tool, Defense News assesses that the new taxiways are approximately 25 meters (82 feet) wide, compared to 14 meters (46 feet) previously. However, the underground facilities, which run underneath nearby hills, have yet to be widened.

The presence of WZ-8s at the base was noted in a document ostensibly from the U.S. National Geospatial-Intelligence Agency and leaked online through the social media platform Discord. A member of the Massachusetts Air National Guard is accused of leaking the highly classified information.

Defense News has been unable to verify the veracity of the document. Aric Toler, a researcher with investigative journalism group Bellingcat who has written extensively on the Discord leaks, told Defense News he had not seen the document before.

The published document showed two WZ-8s at the base, which it called “Liuan,” and claimed the imagery was taken during a reconnaissance satellite pass on Aug. 9, 2022.

One of the drones was outside the same hangar as that seen on the satellite photo provided to Defense News, while the other was being towed along the runway.

The document also outlined possible mission flight profiles of the WZ-8, suggesting that it could perform reconnaissance missions over South Korea and Taiwan with a daylight sensor suite including a synthetic aperture radar and electro-optical sensor while flying at Mach 3 at an altitude of 100,000 feet.

It also suggests the drones could recover at China’s coastal airfields following the completion of their missions, landing at bases such as Dashuibo in Wendeng on the Shandong Peninsula or Huian, which is west of Taiwan.

Mike Yeo is the Asia correspondent for Defense News.

**46 . Date: 14-06-2023Armed ISR / ISTAR - MALE - Contract - Kuwait to buy Turkish-made TB2 drones in $367 million dealURL: https://www.c4isrnet.com/unmanned/2023/06/14/kuwait-to-buy-turkish-made-tb2-drones-in-367-million-deal/**

DUBAI, United Arab Emirates — Kuwait has reached an agreement worth $367 million with Turkish drone-maker Baykar to purchase its increasingly sought-after TB2 combat drones, the Kuwaiti Army said.

The Bayraktar TB2 can carry lightweight, laser-guided bombs and fly for up to 27 hours at a time, which, according to the company, was “a record” it had set while testing the drone in Kuwait in 2019.

Tuesday’s announcement would set Kuwait to become the 28th country to procure the TB2 drones.

Demand for the drones has surged due to their successful deployment in conflict zones such as Libya, Syria and Ukraine.

Kuwaiti Air Force operations chief brigadier, Gen. Fahad Al-Dosari, said in a video posted on Twitter that the drone fleet can support the naval and coast guard forces, as well as monitor maritime and land borders. He said the drones can also “carry out reconnaissance and targeted missions” in addition to supporting search and rescue efforts.

Baykar and the Kuwaiti government did not say how many drones were purchased or when they would be delivered. Both could not be immediately reached for comment.

The drones — priced under $2 million each according to estimates — are produced by the defense company Baykar, which belongs to the family of Selcuk Bayraktar, the son-in-law of Turkish President Recep Tayyip Erdoğan. Bayraktar is the company’s chief technical officer.

The TB2 has been credited with helping tip the balance of conflicts in Libya, as well as to Turkey’s ally Azerbaijan in fighting with Armenian-backed forces in the disputed Nagorno-Karabakh region in 2020.

It has also enabled Ukraine to mount a stiff defense of its cities, carrying out attacks against Russian forces with an effectiveness that surprised many Western military experts and triggered a rush among nations to procure the unmanned craft.

A private Lithuanian crowdfunding campaign, inspired by the drone’s effectiveness in battle, rallied ordinary citizens and raised nearly €6 million (U.S. $6.5 million) to purchase a TB2 for Ukraine.

The drone contract between Baykar and Kuwait, struck through direct negotiations between the Turkish and Kuwaiti governments, also includes weapons provisioning, electronic warfare and mobile ground control facilities compatible with NATO standards, according to Kuwaiti state media.

Kuwait, considered a major non-NATO ally, and the U.S. have had a close military partnership since America launched the 1991 Gulf War to expel Iraqi troops after Iraqi dictator Saddam Hussein invaded the country. The country hosts the U.S. Army Central’s forward headquarters and some 13,500 American troops.

**47 . Date: 17-06-2023ISR / ISTAR - Tactical - General - Portuguese firm to provide drones to Ukraine through British-led fundURL: https://www.c4isrnet.com/unmanned/2023/06/16/portuguese-firm-to-provide-drones-to-ukraine-through-british-led-fund/**

EDITOR’S NOTE: This story has been updated to more fully describe AR3 operators worldwide.

MILAN — Portuguese drone manufacturer Tekever has told Defense News it will provide some of its long-endurance systems to Kyiv to support land and maritime operations, a move bankrolled by the United Kingdom’s International Fund for Ukraine.

Earlier this month, the British Defence Ministry shared a video on social media showcasing military equipment being provided by the IFU account to Ukrainian troops. Launched last summer, the first IFU deliveries — funded by Denmark, Iceland, Lithuania, Norway, Sweden, the Netherlands and the U.K. — will begin to arrive in July.

Open-source intelligence analysts were quick to identify what appears to be Malloy T150 quadcopters manufactured by the British company Malloy Aeronautics, the DeltaQuad Pro VTOL drone produced by Dutch firm DeltaQuad, and the Astero ISR system from Denmark’s Nordic Wing. Two other unspecified drone models can be seen in the footage, with one shown taking off vertically and launched via catapult.

The British Defence Ministry declined to comment on specific platforms in the video.

Defense News can, however, confirm that one of the two unidentified drones is the Tekever AR3 Vertical Takeoff and Landing system, manufactured by the Lisbon-based firm Tekever.

“Yes, our Tekever AR3 system is depicted in the video produced by the UK MoD,” a company representative told Defense News. “It includes images of the drone being deployed with support of a catapult — which we can use for extended endurance operations up to 16 hours — and in an optional VTOL configuration. Each operator can easily choose which variant it wants to use for a specific mission.”

Tekever’s CEO and founder, Ricardo Mendes, added that the company is “very proud to support Ukraine and thankful to the UK MoD and IFU for allowing us to contribute to one of the most important causes of our lifetime.”

The AR3 is a small, long-endurance drone designed to provide wide-area surveillance for both land and maritime missions. It has a maximum payload capacity of 4 kilograms (9 pounds), can fly at a cruise speed of 75-90 kph (47-56 mph) and can also be recovered via parachute.

Some of the military operators of the AR3 include Portugal, the UK, and Nigeria. Hence, its label in the footage, NAF 167 (an acronym used for the Nigerian Air Force), raised the question as to where the drones were purchased from.

“I can confirm that Nigeria purchased a number of the Tekever AR3 platforms from Tekever Ltd. of Portugal. However, all the drones acquired are currently operating in Nigeria — none have been donated in any way or form to Ukraine or any other country,” Maj. MS Muhammad, deputy defense adviser to the Nigeria High Commission in the U.K., told Defense News.

He added that the drone shown in the video with the NAF 167 label, which does indeed stand for Nigerian Air Force, “must have been provided by the manufacturer, or the clip used in the said tweet might have come from the company’s promotional videos, as the model with that particular number is presently in use in Nigeria.”

It is important to note that the individual platforms showcased in the video are not necessarily the final ones that Ukraine will receive, but rather were provided by industry partners to display some capabilities provided as part of the first $212 million defense package announced in February.

The second IFU procurement, referred to as Urgent Bidding Round 2, launched on April 11. The first capability package resulting from that second round was announced earlier this week and will include a $188 million air defense package. Capabilities requested include sensors to detect and track cruise missiles, low-flying drones and/or ballistic missiles, air burst rounds for cannon-based air defense systems, and sensor-guided air defense cannons to defeat low-flying drones and cruise missiles.

Johan Hjelmstrand, a press officer for Sweden’s defense minister, noted much of the IFU account is unspent, and that some companies either do not go public with related contracts or that not all contracts are yet signed, but that “more packages are on the way.”

In terms of how the fund operates, Martynas Bendikas, a strategic adviser with the Lithuanian Defence Ministry’s public affairs team, explained that defense ministries contribute only with financial resources. Following this, an international public tender is organized for specific military equipment, and all seven countries’ companies can participate.

“However, so far, Lithuanian drones are being sent to Ukraine in other formats,” she said.

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**48 . Date: 23-06-2023Armed ISR / ISTAR - MALE - Contract - Greece picks Safran’s Patroller drones as French industry deepens tiesURL: https://www.c4isrnet.com/unmanned/2023/06/23/greece-picks-safrans-patroller-drones-as-french-industry-deepens-ties/**

PARIS — The Hellenic Army is adding several Safran-made tactical drones to its arsenal, amid growing industrial ties between France and Greece.

The French company announced June 20 that Greece selected its Patroller medium-altitude, long-endurance tactical drone to upgrade the Army’s unmanned fleet. The service will procure four new Patrollers, designed to carry out surveillance missions, to complement its existing Sperwer aircraft.

The Sperwer was originally produced by French company Sagem, before the firm merged with Snecma in 2005 to form Safran Group. The UAV is currently used by the French and Greek armies as well as the Swedish and Dutch air forces and the U.S. Air National Guard.

The Patroller became the first tactical drone to be officially certified to NATO’s airworthiness standard STANAG 4671, for fixed-wing drones weighing more than 150 kilograms (331 pounds), according to a company news release.

The NATO Support and Procurement Agency coordinated the negotiations with Safran on behalf of the Hellenic Army.

Defense News has contacted Safran and the Army for additional information on the contract.

The selection of Safran’s Patroller serves as an example of ever-deepening ties between France’s defense industry and Greece. However, it also puts into perspective Athens’ balancing act between recent efforts to support its local drone industry and a remaining dependency on foreign suppliers for such systems.

Asked whether opting for a foreign-made drone over a domestic one contradicted efforts to build a stronger national industry, Nikos Koklas, director of research and development at Hellenic Aerospace Industry, described the question as “valid,” but noted it’s not for industry to answer.

“The Hellenic Army assesses its needs accordingly. Archytas [Greece’s latest locally build surveillance drone] will become operational next year; perhaps the Army requested an immediate solution to its operational needs,” Koklas said.

In May, French shipbuilder Naval Group opened its new subsidiary Naval Group Hellas in Athens to support work on the Hellenic Navy’s FDI frigate program, among other maritime projects. The firm also plans to coordinate and further research and development projects in cooperation with Greek partners.

That same month, the European consortium MBDA — partly owned by French defense company Airbus — also inaugurated a new office in Athens to support its contracts with the country’s military. The Hellenic Navy and Air Force are longtime users of the company’s Exocet missile system, and the firm is supplying weapons packages for the Air Force’s Rafale aircraft as well as the Navy’s FDI frigates.

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**49 . Date: 31-07-2023Market - China moves to curb drone exports, citing Ukraine warURL: https://www.c4isrnet.com/unmanned/2023/07/31/china-moves-to-curb-drone-exports-citing-ukraine-war/**

China imposed restrictions Monday on exports of long-range civilian drones, citing Russia’s war in Ukraine and concern that drones might be converted to military use.

Chinese leader Xi Jinping’s government is friendly with Moscow but says it is neutral in the 17-month-old war. It has been stung by reports that both sides might be using Chinese-made drones for reconnaissance and possibly attacks.

Export controls will take effect Tuesday to prevent use of drones for “non-peaceful purposes,” the Ministry of Commerce said in a statement. It said some drone exports still will be allowed.

China is a leading developer and exporter of drones. DJI Technology Co., one of the global industry’s top competitors, announced in April 2022 it was pulling out of Russia and Ukraine to prevent its drones from being used in combat.

“The risk of some high specification and high-performance civilian unmanned aerial vehicles being converted to military use is constantly increasing,” the Ministry of Commerce said.

Restrictions will apply to drones that can fly beyond the natural sight distance of operators or stay aloft more than 30 minutes, have attachments that can throw objects and weigh more than 7 kilograms (15½ pounds), according to the ministry.

“Since the crisis in Ukraine, some Chinese civilian drone companies have voluntarily suspended their operations in conflict areas,” the Ministry of Commerce said. It accused the United States and Western media of spreading “false information” about Chinese drone exports.

The government on Friday defended its dealings with Russia as “normal economic and trade cooperation” after a U.S. intelligence report said Beijing possibly provided equipment used in Ukraine that might have military applications.

The report cited Russian customs data that showed Chinese state-owned military contractors supplied drones, navigation equipment, fighter jet parts and other goods.

The Biden administration has warned Beijing of unspecified consequences if it supports the Kremlin’s war effort. Last week’s report didn’t say whether any of the trade cited might trigger U.S. retaliation.

Xi and Russian President Vladimir Putin declared before the February 2022 invasion that their governments had a “no-limits” friendship. Beijing has blocked efforts to censure Moscow in the United Nations and has repeated Russian justifications for the attack.

China has “always opposed the use of civilian drones for military purposes,” the Ministry of Commerce said. “The moderate expansion of drone control by China this time is an important measure to demonstrate the responsibility of a responsible major country.”

The Ukrainian government appealed to DJI in March 2022 to stop selling drones it said the Russian ministry was using to target missile attacks. DJI rejected claims it leaked data on Ukraine’s military positions to Russia.

**50 . Date: 06-09-2023Armed ISR / ISTAR - HALE - Requirement - US Air Force general eyes more uses for drone wingmenURL: https://www.c4isrnet.com/unmanned/2023/09/06/us-air-force-general-eyes-more-uses-for-drone-wingmen/**

This story has been updated to correct the date the White House nominated Lt. Gen. Jim Slife to be vice chief of staff of the Air Force.

WASHINGTON — The U.S. Air Force should consider additional uses for its planned fleet of drone wingmen beyond just flying them alongside fighter jets, a top officer said Wednesday.

Lt. Gen. Jim Slife, the service’s deputy chief of staff for operations, made his pitch Wednesday at the Defense News Conference in Arlington, Virginia, suggesting the proposed collaborative combat aircraft could fly alongside the Air Force’s next-generation aerial refueling system. The service hopes to field the planned NGAS tanker by the mid-2030s, said Slife, who the White House on Tuesday nominated to be the Air Force’s next vice chief of staff.

In addition, Slife said, the Air Force could consider what role a CCA might play with the B-21 Raider stealth bomber now being built by Northrop Grumman. Air Force Secretary Frank Kendall last year floated the idea of the B-21 Raider having its own cadre of CCAs, but later dropped that plan after the service concluded it would be prohibitively expensive.

“We shouldn’t foreclose any of those things,” Slife said. “We should keep our options open for how we employ them.”

The Air Force wants to field a variety of collaborative combat aircraft later this decade able to carry out multiple missions, including strike, intelligence, surveillance, reconnaissance and electronic warfare. Air Force officials have also said CCAs could range in cost and complexity, with some expensive and exquisite, while others less costly that the service could afford to lose in combat.

As the Air Force develops CCAs with multiple vendors, it is considering how to fold them into its current squadron structures. Those decisions will also shape how the Air Force uses CCAs in a future conflict, Slife said, warning against locking the technology into organizations that could ultimately hamper potential uses.

“How we organize them will ultimately affect how we think about their utility and what can be done with them at the end of the day,” Slife said. “Might [CCAs] be able to do resupply in a contested area? It probably will. But if you make CCAs organic to our current fighter squadrons, you’re probably not going to be thinking about how we use them for resupply. If you make them organic to a C-17 squadron, we’re probably not going to think about how they can be used for [combat missions].”

“How we think about the organization of CCAs and whether we want to specialize them for certain types of missions depending on their attributes or not — I think it’s really the place that’s ripe for experimentation,” Slife added. “Those will be some of the interesting questions in the years ahead.”

The best ideas for using CCAs probably won’t come from generals, Slife said, but rather captains in the field once they receive the drones.

“As we get an initial tranche of capabilities and we’re able to put in the hands of some crews that are closely associated with the tactical missions, I think they will come up [with] ways to employ them that we haven’t even conceived of,” Slife said.

Slife explained the Air Force will likely use nontraditional acquisition authorities to help it work with multiple vendors on CCAs more quickly, and iterate new versions as the program progresses.

Gen. Mark Kelly, head of Air Combat Command, said during the panel that units in the field could adapt the less expensive versions of CCAs using open-systems architecture to tailor them to missions needed on a particular day.

But the more elaborate CCAs may not have such adaptability, Kelly said.

“We very likely will be into arenas where we have to choose: This day this CCA is going to be a jamming platform, and this day this CCA is going to be a strike platform,” Kelly said. “If you get to a different price point and you get to a different scenario, much like an F-35 — we don’t tell an F-35, ‘Today you’re going to jam this particular waveform, tomorrow you’re going to sense, and the third day you’re going to shoot.’ ”

The Navy and Marine Corps fly their own F-35 fighter jets, and the Navy is also working on its own CCA program. Kelly said that as the Air Force develops CCAs, it will need to ensure it builds them with waveforms that are able to communicate with fighters and other drones flown by sister services and allies.

He said Air Force officials usually talk to counterparts in other services at least weekly about their requirements for CCAs, such as range, payload and sensing capabilities, and their associated costs, in order to ensure interoperability.

Stephen Losey is the air warfare reporter for Defense News. He previously covered leadership and personnel issues at Air Force Times, and the Pentagon, special operations and air warfare at Military.com. He has traveled to the Middle East to cover U.S. Air Force operations.

**51 . Date: 26-10-2023ISR / ISTAR - Mini - Contract - Slovenian firm quietly provides surveillance drones to UkraineURL: https://www.c4isrnet.com/unmanned/2023/10/26/slovenian-firm-quietly-provided-surveillance-drones-to-ukraine/**

Correction: A previous version misstated Marko Peljhan’s position with C-Astral and financial figures for the firm. That individual is a co-founder, and the company’s revenue from sales rose from €1.5 million to €4.07 million in 2022.

BRNO, Czech Republic — Slovenian drone maker C-Astral recently provided reconnaissance systems to Ukrainian troops, the company told Defense News this week.

Slovenia does not shy away from voicing its support for Ukraine. But when it comes to military aid, the country has generally decided to keep most details classified.

Among the largest known military donations Slovenia contributed from its own stocks to Ukraine was the delivery of dozens of BVP M80A infantry fighting vehicles last year. But more recently, the Slovenian-made unmanned aerial system Belin — otherwise known as Bramor C4EYE — also made their way to the embattled country.

“It [the drone] is in fact being used by the Ukrainians and has been for some time,” Jernej Moderc, a Bramor drone pilot at C-Astral, told Defense News at the GSOF Symposium held Oct. 24-26 in Brno. “We do have some communication channels with the troops using them to get feedback and make improvements accordingly.”

Moderc could not disclose when and how many of the drones reached Ukraine, but did say it was fairly recent and involved several systems.

It’s unclear whether the systems were sent directly and solely by the company, or if the Slovenian Defence Ministry provided the technology from its own inventory, as the country operates the drone type.

The ministry declined to comment for this story. And in a follow-up statement to Defense News, C-Astral said it did not directly provide drones to Ukraine but rather donated them through a Slovenian government initiative.

The Belin drone is entirely manufactured and assembled in Slovenia by C-Astral. It is an unarmed aircraft primarily intended for intelligence, reconnaissance and surveillance missions as well as to follow convoys.

Launched from a catapult, the system has a maximum endurance of three hours and can operate out to a distance of 40 kilometers (25 miles) via a line-of-sight communications link.

The company said electronic warfare has proved the main challenge for its drones in Ukraine, with another C-Astral drone operator and trainer noting the need to bolster the resilience of the aircraft navigation systems against spoofing or to overcome a loss of signal.

“Even if you have replacements available, a drone’s global navigation satellite system is often susceptible to being jammed above enemy territory or its communications link with a pilot may be cut out,” the individual told Defense News, speaking on the condition of anonymity due to the sensitivity of the subject. “We’re also seeing instances of friendly electronic warfare, where Ukraine’s electronic warfare systems will jam their own drones, hindering effective command and control.”

Since its debut in 2007, C-Astral’s defense business has expand. The company’s co-founder, Marko Peljhan, told the Slovenian media outlet Bloomberg Adria in July that the firm saw a 262% increase in its 2022 revenue. Revenue from sales rose from €1.5 million to €4.07 million (U.S. $1.6 million to U.S. $4.31 million) that year, Peljhan had explained. He partly attributed these figures to a surge in demand for drones since Russia invaded Ukraine in February 2022.

In August, Slovenia and Montenegro signed an agreement to jointly procure the Belin drone. The contract, worth an estimated €3 million, will see the first units delivered to Montenegro next year, according to company representatives.

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**52 . Date: 21-11-2023Requirement - Replicator candidates to be chosen by early December, Pentagon saysURL: https://www.c4isrnet.com/unmanned/2023/11/21/replicator-candidates-to-be-chosen-by-early-december-pentagon-says/**

WASHINGTON — The Pentagon will select its first candidates for Replicator, an initiative to field thousands of drones in the next 24 months, within the next several weeks.

Deputy Secretary of Defense Kathleen Hicks, who is leading the initiative alongside the vice chairman of the Joint Chiefs of Staff, said Tuesday that Replicator will proceed in tranches, with groups of systems bought at different intervals. Speaking with reporters at a breakfast, she said the planned selection in early December will represent the first tranche of systems, which could include all domains and range in unit cost from tens to hundreds of thousands of dollars, depending on payload.

But a selection does not mean a public announcement, said the deputy secretary.

“We’re being very careful ... about the way in which we talk about Replicator,” Hicks said, noting Congress will be kept informed.

Her comment may be an understatement. Since announcing Replicator almost three months ago, Hicks has rarely spoken about it publicly. The limited information has left executives in the defense tech industry optimistic, but only cautiously so.

Executives interviewed by Defense News have said they don’t know enough about Replicator yet to increase production lines or raise new money to supply it. Some said a lack of new funding may keep the initiative from reaching its stated goals.

But Hicks said funding is not a concern.

“The money is in the programs,” she said. “There are attritable autonomy programs in the services or the [combatant commands].”

Replicator is not considered a new program, Hicks said, but it will accelerate existing ones. For comparison, she pointed to the Competitive Advantage Pathfinders, or CAP, and Rapid Defense Experimentation Reserve, efforts that boost acquisitions through new money and trimmed red tape.

Over the last few months, the Pentagon has scouted programs that would be useful for Indo-Pacific Command and could scale with such an intervention, Hicks said. Those identified will be the focus of Replicator, at least this fiscal year. In fiscal 2025, programs that still need maturing but that could still scale and aid INDOPACOM could also be included in the initiative.

Other programs already moving quickly enough will be left alone, Hicks said.

In all, the Defense Department’s focus will remain overwhelmingly committed to legacy platforms. Hicks estimated spending on attritable, autonomous platforms will represent about 0.5% of the Pentagon’s budget, with Replicator only a subset of that.

The hope, Hicks said, is that less can be more. Attritable drones, some adapted to meet battlefield needs, have shown enormous promise in Ukraine. A small investment in similar asymmetric systems for the Indo-Pacific, she said, could prove valuable.

“Our goal here is an operational goal ... and that operational goal is to create dilemmas for China,” Hicks said.

Noah Robertson is the Pentagon reporter at Defense News. He previously covered national security for the Christian Science Monitor. He holds a bachelor’s degree in English and government from the College of William & Mary in his hometown of Williamsburg, Virginia.

**53 . Date: 01-02-2024Armed ISR / ISTAR - MALE - Pitch - Biden administration moves forward on India drone saleURL: https://www.c4isrnet.com/unmanned/2024/02/01/biden-administration-moves-forward-on-india-drone-sale/**

Editor’s note: Vivek Raghuvanshi, a journalist and freelancer to Defense News for more than three decades, was jailed in mid-May by India’s Central Bureau of Investigation on charges of espionage. The Indian government has released minimal information on his arrest. Sightline Media Group, which owns Defense News, has not seen any evidence to substantiate these charges and repudiates attacks on press freedom.

The U.S. State Department on Thursday approved a nearly $4 billion drone sale to India, a deal that emerged during Prime Minister Narendra Modi’s visit to Washington last year.

Congress has received the notification for India’s pending purchase of 31 MQ-9B SkyGuardian aircraft made by General Atomics Aeronautical Systems. The notification triggers a 30-day congressional review period on Capitol Hill.

“The U.S.-India defense partnership has seen significant growth over the past decade,” State Department spokesman Matthew Miller said a press briefing on Wednesday, noting the sale “offers significant potential to further advance strategic technology cooperation with India and military cooperation in the region.”

The Biden administration has sought to court India as part of its efforts to counter China in the Indo-Pacific region while prying it away from Russia, New Delhi’s leading arms supplier. India also seeks to develop its own indigenous defense-industrial base. A December Congressional Research Service report noted that India is the world’s largest arms importer by value.

In addition to the drone sale, Modi’s visit to Washington in June resulted in a spate of other agreements, such as a deal between General Electric and Hindustan Aeronautics Ltd. to jointly produce fighter jet engines.

Micron Technology, an American semiconductor firm, also pledged to spend upward of $2.75 billion on construction of an assembly and test facility in India. In addition, the U.S. and India kick-started negotiations for a reciprocal defense procurement arrangement to coordinate the exchange and development of military technology.

In May 2022, the two countries launched the U.S.-India initiative on Critical and Emerging Technology to enhance cooperation in artificial intelligence, quantum computing and semiconductors.

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**54 . Date: 02-01-2024Acquisition - BAE Systems buys drone-maker Malloy AeronauticsURL: https://www.c4isrnet.com/unmanned/2024/02/02/bae-systems-buys-drone-maker-malloy-aeronautics/**

LONDON — The British company BAE Systems has acquired a local producer of heavy-lift drones as part of a wider effort to break into the unmanned systems market, the company announced Friday.

“Our acquisition of Malloy Aeronautics is part of our ongoing strategy to develop and invest in breakthrough technologies which augment our existing capabilities ,” Simon Barnes, group managing director of BAE’s air sector business, said in the news release.

The purchase, for which no price was given, follows a two-year partnership between the companies to develop the all-electric quadcopter T-650, with a maximum payload of 300 kilograms (661 pounds) and a top range of 30 kilometers (19 miles). The British government previously supplied the Ukrainian military with smaller versions of the quadcopter for logistics.

Other customers include the U.K. and U.S. militaries. Malloy’s American partner Survice Engineering is under contract to supply the U.S. Marine Corps with the Malloy-made TRV-150C drone for tactical resupply.

The T-650 is in the development phase and mainly targeted at providing unmanned logistics capabilities. But last year, the system showed it has the potential to become a weapons platform when a slightly smaller variant — a technology demonstrator known as the T-600 — carried and released an inert 200-kilogram Sting Ray torpedo during a NATO exercise.

It also has the potential to serve as a flying ambulance. Last year, BAE showed a concept casualty evacuation pod for the T-650 at the DSEI defense show in London.

BAE said its Malloy operation will remain in Berkshire, near London, and become an arm of its FalconWorks air sector research and development operation. Malloy employs about 80 people.

As part of BAE’s strategy to break into the unmanned sector, the company in 2021 acquired Prismatic, a British developer of solar-powered, high-altitude, long-endurance drones. And last year, BAE announced it was considering a partnership with U.K. defense contractor QinetiQ to collaborate on aerial drones and mission management systems. Those talks are still underway, according to a BAE official.

Andrew Chuter is the United Kingdom correspondent for Defense News.

**55 . Date: 12-02-2024Armed ISR / ISTAR - MALE - General - Azerbaijan opens facilities for new Akinci droneURL: https://www.c4isrnet.com/unmanned/2024/02/12/azerbaijan-opens-facilities-for-new-akinci-drone/**

ISTANBUL — Azerbaijan has opened a training facility and hanger for a new Akinci drone, confirming the country bought the Turkish-made combat system.

The Feb. 9 ceremony also involved a flight of the Akinci, according to the Azeri government. The chief technology officer of Akinci manufacturer Baykar, Selcuk Bayraktar, posted images of the event on X, formerly known as Twitter.

Attendees included Bayraktar, Azeri President Ilham Aliyev and his son Heydar Aliyev, as well as other high-ranking officers.

The training facility is for UAV operators, while the hanger will serve as a maintenance headquarters.

Azerbaijan had quietly purchased the Akinci. In March 2022, Baykar CEO Haluk Bayraktar said during a news conference that three nations were interested in buying drone type. According to the company, the first group of Azeri pilots for the Akinci completed training in October 2022.

In April 2023, Baykar and Azerbaijan signed a memorandum of understanding for the construction of Baykar drones in the country. Azerbaijan previously used TB2 combat drones in its war against Armenia over the Nagorno-Karabakh region.

The Akinci is a high-altitude, long-endurance drone with a maximum takeoff weight of 6,000 kilograms (12,228 pounds), compared to the TB2′s 700 kilograms (1,543 pounds). The Akinci’s 1,500-kilogram payload is 10 times more than that of the TB2.

The Akinci can also fly higher than the TB2 at around 30,000-40,000 feet max. The Akinci also uses a wide range of ammunition and missiles, including MAM –L, MAM-C, Cirit, L-UMTAS, Bozok, SOM-A, and the Mark 81/82/83 bomb series.

Cem Devrim Yaylali is a Turkey correspondent for Defense News. He is a keen photographer of military ships and has a passion for writing about naval and defense issues. He was born in Paris, France, and resides in Istanbul, Turkey. He is married with one son.

**56 . Date: 14-03-2025Cargo - Requirement - Defense Innovation Unit picks four firms to test one-way dronesURL: https://www.c4isrnet.com/unmanned/2025/03/14/defense-innovation-unit-picks-four-firms-to-test-one-way-drones/**

The Defense Innovation Unit announced on March 14 it’s awarding contracts to four companies to prototype long-range, single-use drones that can launch quickly, carry a range of payloads and operate in low-bandwidth conditions.

The vendors include two U.S. based companies, Dragoon and AeroVironment, and two Ukrainian firms, unnamed due to safety concerns. The Ukrainian firms are each partnered with a U.S. software company, one with Swan and the other with Auterion. All four firms will test demonstrate their capabilities in April and May, and DIU will make its selections soon after.

The program, called Artemis, was initiated last year by Congress following demand from operators in U.S. European Command and Indo-Pacific Command for low-cost, expendable drones as well as counter-drone capabilities. As part of a supplemental spending package for Ukraine, lawmakers allotted the U.S Defense Department around $35 million and directed it to identify and test low-cost uncrewed systems that can navigate and communicate through jamming and spoofing attempts.

The intent was to move fast and prove that these systems could be ready to field much faster than a traditional, yearslong defense acquisition program. The Pentagon’s acquisition and sustainment office delegated the expendable-drone requirement to DIU last August, according to Trent Emeneker, the organization’s lead for the effort.

In just three months, DIU solicited proposals, selected 16 promising concepts and staged an initial demonstration last December. Nine of the proposed systems were flight-ready and, from those, officials chose four to advance to the prototyping phase.

Emeneker told Defense News that DIU picked proposals that took different tacks at addressing the need. While there was a requirement for a flight range of at least 50km, two of the drones have a range of about 100km and the other two can fly more than 1,000km. In its solicitation, DIU said the vehicles should be hard to detect and track, have several pathways for two-way communications and be equipped with mission planning software. It also called for modular systems that can integrate new hardware or software in a matter of hours.

The smaller systems DIU is considering cost under $20,000 each, Emeneker said, while the price for the larger drones is closer to $70,000, depending on the cost of things like cameras and other subsystems as well as the number of systems DOD ends up buying.

The goal, according to DIU, is “mass deployment,” though it’s not clear how many drones the department will buy. As part of its evaluation, DIU will consider each vendor’s production capacity and how quickly it can deliver in large quantities. Emeneker noted that one of the Ukrainian firms is already producing nearly 200 systems each month to support operations against Russian invading forces.

Unlike most other projects DIU takes on, Artemis didn’t originate with an acquisition office, but was a congressional interest item, so the organization doesn’t have a natural transition partner to buy and field the drones it selects.

Emeneker said DIU has pitched the project to a number of program offices that are working on programs with similar requirements, but it’s been a challenge to get the services to buy in — and disrupt their current work — before the prototypes have flown.

“We have to prove we can do it, and if we can’t do it, then I don’t blame people for not signing up,” he said. “But when we prove we can do it — I’m confident we will — we have to get that message out of, ‘Hey, this solution works today. It’s at the right price point, it is ready, it’s combat proven.’”

Courtney Albon is C4ISRNET’s space and emerging technology reporter. She has covered the U.S. military since 2012, with a focus on the Air Force and Space Force. She has reported on some of the Defense Department’s most significant acquisition, budget and policy challenges.

**57 . Date: 14-03-2024Loitering Munition - Small - General - Anduril attack drone deemed ‘accurate and effective’ in Dugway trialsURL: https://www.c4isrnet.com/unmanned/uas/2024/03/14/anduril-attack-drone-deemed-accurate-and-effective-in-dugway-trials/**

An Anduril Industries drone capable of carrying a warhead weighing 33 pounds scored direct hits on several targets during military testing in Utah, the company said.

Footage from the trials at the Dugway Proving Grounds showed an Altius-700M shooting out of a ground-based launcher, cutting through the air and then crashing into a mock SA-17 surface-to-air missile system, generating a large fireball and shaking the camera.

The September event — details of which were previously undisclosed — marked the first time Anduril engineers tested a live warhead on the Altius-700M, which can fly for more than an hour at a range of 100 miles. The company said all test objectives were completed and that the “system was accurate and effective against the chosen target set.”

Militaries and militant groups the world over are deploying drones and other robotic technologies to collect intelligence, augment targeting and wreak havoc from greater distance; their deadly application has now been on display for years in Eastern Europe and months in the Red Sea and Gulf of Aden.

The Army, in particular, has expressed growing interest in unmanned armaments, including loitering munitions and launched effects. The latter can be catapulted from larger aircraft already in the air or flung from the ground to detect, disrupt, deceive or destroy enemy assets. The Altius-700M is designed with larger, armored targets in mind.

Relatively cheap launched effects are thought to extend the eyes, ears and arms of a force, allowing it study and attack places otherwise considered too costly or dangerous.

An Anduril spokesperson declined to say who exactly is interested in buying the Altius-700M.

The Army in December said it successfully launched a different Altius variant from a UH-60 Black Hawk helicopter. That testing at Fort Campbell, Kentucky, “yielded positive data” that will shape the endeavor moving forward, according to its announcement. The service in 2020 awarded 10 small contracts totaling nearly $30 million to mature technologies associated with launched effects. Among the winners were RTX, Rockwell Collins and Area-I.

Anduril acquired Georgia-based Area-I in 2021. Its customers included the Army, Air Force, Navy and Special Operations Command, Defense News reported.

The company has delivered hundreds of Altius drones to the U.S. government over the years. Smaller versions of Altius have also been committed to Ukraine as part of aid packages announced by the Pentagon.

Colin Demarest was a reporter at C4ISRNET, where he covered military networks, cyber and IT. Colin had previously covered the Department of Energy and its National Nuclear Security Administration — namely Cold War cleanup and nuclear weapons development — for a daily newspaper in South Carolina. Colin is also an award-winning photographer.