**1 . Date: 22-07-2024Partnership - Boeing, Antonov to Collaborate on Defense ProjectsURL: https://boeing.mediaroom.com/news-releases-statements?item=131463**

FARNBOROUGH, United Kingdom, July 22, 2024 — Boeing [NYSE:BA] and Antonov Company today signed a Memorandum of Understanding to explore opportunities to collaborate on defense-related projects.

“We’re pleased to continue working with the Antonov Company to support Ukraine development and economic growth,” said Ted Colbert, president and CEO of Boeing Defense, Space & Security. “This agreement demonstrates our ongoing efforts to find more opportunities to work with Ukrainian industry, which was underscored by our signing of the Ukrainian Defense Industry Compact earlier this year.”

The areas of potential collaboration identified in the agreement consist of training, logistical support and overhaul services for tactical Unmanned Aerial Systems utilized by the Ukrainian Armed Forces, which includes the ScanEagle. In addition, the companies will also explore opportunities for Antonov to provide engineering support to Boeing.

“A strong, innovative, and efficient defense industry is key to sustainable economic development and national security, and we are extremely excited to collaborate with Boeing,” said Ievhen Gavrylov, CEO of Antonov Company. “This agreement brings a whole new level of opportunity to implement the latest and most effective solutions – in addition to the possibility of future projects with Boeing in the aerospace and defense industry.”

As a leading global aerospace company, Boeing develops, manufactures and services commercial airplanes, defense products and space systems for customers in more than 150 countries. As a top U.S. exporter, the company leverages the talents of a global supplier base to advance economic opportunity, sustainability and community impact. Boeing's diverse team is committed to innovating for the future, leading with sustainability, and cultivating a culture based on the company's core values of safety, quality and integrity. Join our team and find your purpose at boeing.com/careers.

**2 . Date: 12-10-2023Armed ISR / ISTAR - MALE - Pitch - General Atomics made improved offer to Ukraine for MQ-9 Reaper UAVs, company saysURL: https://breakingdefense.com/2023/10/general-atomics-made-improved-offer-to-ukraine-for-mq-9-reaper-uavs-company-says/**

AUSA 2023 — UAV manufacturer General Atomics Aeronautical Systems Inc. (GA-ASI) has made Ukraine a new offer for two MQ-9 Reaper aircraft to include spare parts, technical support and transfer of satellite data, “sweetening” an earlier proposal for Kyiv to acquire the systems for $1, a company spokesperson told Breaking Defense.

The improved offer would offset expenses associated with operating the aircraft, but approval of the deal rests with the DoD.

“The deal was always [first] that we would give them two Reaper systems, bring them to Ukraine to train, but we have now sweetened that to cover spare parts, reach back technical support, and we would even include some initial transfer of data, satellite data time that is very expensive and offset some of that expense,” said C. Mark Brinkley, chief marketing and communications strategist at GA-ASI.

Lobbying by the manufacturer to have the DoD approve the deal has so far proven unsuccessful, despite “numerous conversations” between the two parties, Brinkley said.

“From a GA perspective and I think the Ukrainian perspective, if they could get them they would take them — and with the F-16s being delivered [to Ukraine] I think the number of excuses or reasons why MQ-9s haven’t been fully approved for Ukraine are starting to erode,” said Jaime Walters, vice president of international strategic development at GA-ASI.

The decision by the Biden administration to allow European countries to start training Ukrainian pilots on F-16 fighter jets opened the way for the Netherlands to coordinate an international F-16 coalition training effort. The US will also begin training Ukrainian pilots on the fighters jet from Morris Air National Guard Base, Arizona, this month.

In response to questions, a Pentagon spokesperson said, “The Department of Defense works closely with our Ukrainian partners to ensure they have the weapons, systems and equipment required for their immediate needs and long-term defense. We have no further information or details to provide at this time.”

Drones have become a ubiquitous weapon on the Ukrainian battlefield. Smaller American systems including Phoenix Ghost, CyberLux K8, Jump 20, Puma and Scan Eagle have previously been approved by the Pentagon, alongside Switchblade and Altius loitering munitions. But resistance to supplying larger or more capable systems like the MQ-9 has been consistent by US decision makers in face of Ukraine calling for more equipment to develop air superiority.

Operationally, MALE UAV’s would be of significant value to Kyiv based on being able to offer long range strikes and additional intelligence, surveillance and reconnaissance. The only comparable system currently operated by Ukraine is the Turkish-made Bayraktar TB2.

Besides Ukraine matters, around 30 countries continue to show an interest in MQ-9B SkyGuardian UAVs, according to Walters. Belgium’s order for four aircraft will see first deliveries occur next year, he added, following the UK receiving a first of 16 earlier this month.

**3 . Date: 06-10-2023Armed ISR / ISTAR - MALE - General - With Turkish drones in the headlines, what happened to Ukraine’s Bayraktar TB2s?URL: https://breakingdefense.com/2023/10/with-turkish-drones-in-the-headlines-what-happened-to-ukraines-bayraktar-tb2s/**

BEIRUT — When Russia’s invasion of Ukraine began in February 2022, an unlikely technological folk hero emerged as a symbol of Ukrainian resistance: the Turkish-made Bayraktar TB2 unmanned aerial vehicle. The drone became intrinsically tied to the public’s perception of Ukraine’s underdog fight against Moscow, to the point that weeks into the fight a government-organized song about the system had become an international sensation.

But as the war crosses into its nineteenth month, the TB2 has largely faded from the conversation — or at least it had, until the US government announced on Oct. 5 that an American F-16 had shot down a Turkish drone over Syria, which Politico reported was a TB2.

It’s an awkward situation, with one NATO ally having shot down the aircraft of another. But it has brought Turkish drones, of which the TB2 produced by Turkish firm Baykar is the most high-profile, back into the spotlight, and raised the question of what the drone has been doing in Ukraine as it has faded from the spotlight.

Analysts tell Breaking Defense that there has been a shift in the TB2’s use as the direct result of Russia’s change in air defense tactics over the course of the war.

“TB2 was a successful drone at the early stages of the war when the Russian military’s air defense and EW [electronic warfare] was relatively disorganized. It was also a very helpful weapon for competing in the information space against the Russian invasion, with strike videos shared widely on social media,” Samuel Bendett, an AI and unmanned systems expert at US-based CNA research organization, told Breaking Defense.

But as Russia became more organized, particularly as it dug in on defensive positions after the initial surge of the invasion, its use of air defense and EW capabilities turned the TB2 from the pointy end of Ukraine’s spear into the kind of target that Moscow’s forces could safely challenge.

“By design, TB2 is a relatively large target that does not fly very fast, and can be vulnerable to sophisticated defenses,” Bendett said.

Can Kasapoglu, a senior fellow at the US-based Hudson Institute and Director of Defense Research at the Istanbul-based Edam think tank, told Breaking Defense that the TB2’s best days may be behind it. “Every weapon system is useful within a specific context and under certain military circumstances. The TB2 was the most effective when the Russian supply lines were over-stretched in a multi front, large-scale and stumbling invasion campaign,” Kasapoglu said.

Both analysts noted that as the war has shifted, the use of smaller drones has become more commonplace — and a host of cheap, off the shelf UAVs that can be deployed by forces on the ground are simply easier to use for basic ISR or targeting than the highly-technical TB2s.

And yet, both also agree that the usefulness of the TB2 isn’t done.

“TB2 has a sophisticated sensor package and can guide other assets like drones and missiles to targets while [staying] out of range of many Russian defensive systems. And no air or EW defenses is absolute — there will be gaps that can be exploited by different classes of aerial assets, including TB2,” Bendett said.

In the days before the US downing, Baykar declined to comment for this story.

While media coverage of the TB2 may have dropped, there are reasons to believe the drone has continued to operate inside Ukrainian territory, and may be filling in less public missions.

From his point of view, Bendett saw that it’s hard to estimate real TB2 effectiveness just by looking at public data and social media posts that are always selective with content. He noted that its highly likely that TB2s are flown in many missions that are simply not advertised, for security reasons.

Kasapoglu said that open source evidence suggests that they are used in kinetic strike roles, and the drone apparently played a key role in a strike earlier this month that took out a Russian patrol boat. “However, we do not have the entire battle picture, So there might probably be other TB2 sorties for intelligence gathering & target acquisition,” he told Breaking Defense.

The TB2 may also have become a victim of its own success. Given the global attention on the drones, the Ukrainian government may be concerned about the propaganda win that could come if the Russians were able to down one of the Turkish systems.

“Under heavy Russian electronic warfare threat and intensive air defenses, it seems the Ukrainian General Staff is keeping the TB2s as a strategic reserve force that should be employed in favorable settings,” Kasapoglu said.

The exact number of TB2 drones in Ukraine’s arsenal is unknown. Available media reports say Ukraine has received around 50 drones since the start of the war, although Kasapoglu cautioned that figure may be the total number of systems Ukraine has received over all, including ones that are no longer operable. (At the start of the war, Kyiv owned around 20 TB2s.)

And perhaps the biggest sign that the TB2 is going to remain in play in the region: the company’s ongoing plans to build a TB2 factory inside Ukraine.

“The plan to build a UAV factory in Ukraine is still underway, with plans to complete it by October 2024. Of course, operational security will be key for the finalization of the project. Although still in progress, the initiative already had a significant impact on Turkish—Ukrainian military-strategic relations,” Kasapoglu said.

He pointed that some examples in this regard include the inclusion of Baykar’s latest drone AKINCI in the co-production deal and the agreement to power the Turkish unmanned combat aircraft KIZILELMA with Ukrainian Ivchenko-Progress engines.

**4 . Date: 06-11-2023Armed ISR / ISTAR - Tactical - General - PlatformAussie BAE Systems new VTOL long-range drone STRIX passes design review, in static testingURL: https://breakingdefense.com/2023/11/aussie-bae-systems-new-vtol-long-range-drone-strix-passes-design-review-in-static-testing/**

INDOPAC 2023 — BAE System Australia’s ambitious long-range drone, STRIX, has passed the company’s critical design review, and though it is slightly behind schedule for first flight, the company expects to provide an operational system for the self-funded aircraft in 2026.

Passage through CDR resulted in “some key elements of the platform modified compared with the model exhibited at Avalon International Airshow and DSEI London,” the company said in an email response to written questions. It seems likely those changes account for planned first flight shifting from the end of 2023 to “the first half of 2024.” The company provided the information on the eve of the biggest naval show in the region, Indo Pacific 2023, being held here. Indo Pac will boast 832 participating exhibitors from 21 countries.

STRIX is a Vertical Takeoff and Landing (VTOL) aircraft that can be stuffed in a standard shipping container and can function as a weapons platform or an ISR platform. It’s designed to fly from land or a ship. It is co-developed by BAE and Perth-based Innovaero, which specializes in product design and manufacture in the Australian market.

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When it was unveiled at the Avalon Air Show in February, BAE Systems Australia CEO Ben Hudson stressed the system’s simplicity of deployment. Fitting the aircraft into a standard shipping container “was one of our key seven requirements when we kicked the program off,” he said. “It takes about a minute to fold the wings, and then you push it straight in a container and, without the weapons on board, it’s about 650 kilograms, and then you’re on the back of a truck and you’re off to the next location.”

The company said it is building a full-scale prototype and “propulsion testing has taken place on a static rig at our Henderson shipyard in Western Australia.” Also, testing is “underway” on the “propeller, motor and battery configuration as well as elements of the autonomy that will be on board the platform.”

The first flight trials are designed to prove the concept works and demonstrate VTOL capabilities with transition to conventional flight and landing. The aircraft is being designed for a “representative maximum take-off weight” of around 900 kilograms.

BAE Australia has tested “a digital twin of STRIX in our 6 Degree of Freedom physics-based simulation and proved several missions including maritime operations. Whilst this is only in a synthetic environment, it contains advanced testing parameters including real-world physics, atmospheric conditions, cross-winds and more. And, it is the same simulation that we have successfully used before to prove novel concepts in the air domain,” the company said in the email.

BAE Systems Australia clearly would like to sell the aircraft to the army and navy here but the firm is also actively cultivating the international market. Still, they are aiming to increase the “sovereign” content of the system as they develop it and have spread development across several Australian states.

“Our ePrototype platform is being developed in Western Australia, with the autonomy capability being predominantly designed in [the state of] Victoria and supported by Australian Industry,” the company email said. “As we build the ePrototype, we are incorporating expertise from across Australian industry, with the intention to increase Australian content as we move through production.”

Since the weapon has been designed completely in Australia, all the intellectual property is Australian and not subject to America’s ITAR regulations or Britain’s arms export controls.

The company said the system “has been put forward for a number of RFIs across the Indo Pacific region. STRIX is an evolving capability so discussions have included an expanded focus on areas such as littoral capabilities and various payload requirements. STRIX was displayed at DSEI in London with a number of nations requesting further information. We also recently attended AUSA and had important conversations with potential customers and industry partners.” As is usually the case when a company is the earlier stages of talking with the military of another government, they said BAE Australia said it was “unable to go into the specifics at this stage.”

Clearly hoping to increase the size of the target market, the company says STRIX is designed with “a payload-agnostic architecture” so customers can fit different weapons and sensors on it “with the ability to rapidly fit different payloads for a variety of mission sets.”

At their original unveiling at the Avalon Air Show, company officials mentioned a range of weapons, including the AGM-114 Hellfire, Brimstone, APKWS II 70mm laser-guided rockets, the AGM-179 JAGM-MR and a new Razer precision guided munition (LCPGM) being developed by BAE Systems Australia, that was also unveiled at the show.

Since STRIX is internally developed, Breaking Defense asked for some indication as to how much of company funds have been spent on the system. Unsurprisingly, the company said it does not comment on individual projects, but said “in 2022 BAE Systems spent AUD $3.75bn [$2.4 billion USD] on R&D, of which AUD $545m [$354 million USD] was self-funded investment.”

**5 . Date: 24-01-2024Armed ISR / ISTAR - MALE - Pitch - Separate from F-35, Emirate’s MQ-9B SeaGuardian deal moving ‘forward,’ exec saysURL: https://breakingdefense.com/2024/01/separate-from-f-35-emirates-mq-9b-seaguardian-deal-moving-forward-exec-says/**

UMEX 2024 — After a years-long delay, a deal to export 18 MQ-9B SeaGuardian unmanned aerial vehicles to the United Arab Emirates is back on track, the president of General Atomics Aeronautical Systems (GA-ASI) told Breaking Defense, now that he said progress has been made in separating the MQ-9 deal from the larger — and more controversial — F-35 procurement saga.

“That was a big part of the delay … some of which couldn’t get solved, and we were lucky enough to break away and move forward,” David Alexander, president of GA-ASI, said in an interview at the Unmanned Systems Exhibition, known as UMEX 2024, in Abu Dhabi. “So we’ve been quite successful with our government counterparts to separate [the MQ-9 and F-35 issues] and move forward.”

Alexander said that GA-ASI is now preparing the details concerning platform configurations and final estimates for the Emirati Air Force, and that the US government is on board. He said he expects a formal letter of request from the UAE to be resubmitted between three and six months from now.

A US State Department official declined to answer specific questions about the status of the MQ-9B deal, but told Breaking Defense that the “proposed sale of F-35 aircraft, MQ-9 Unmanned Aerial Vehicles, and munitions remains on the table.

“We have a continuing and robust dialogue with the UAE on these sales,” said the official, speaking on the condition of anonymity. “We remain committed to them, even as we continue consultations to ensure that we have a clear, mutual understanding with respect to Emirati obligations and actions before, during, and after delivery.”

RELATED: Potential F-35, Reaper deal with UAE not completely dead, senior US official says

A Pentagon spokesperson did not respond to Breaking Defense’s request for comment as of publication.

A renewed procurement would have a bureaucratic head start, as back in 2020 the US approved and notified Congress of the potential MQ-9 sale, putting the estimated price tag at just under $3 billion at the time.

Months later it was revealed the UAE had struck a $23.3 billion deal to procure 50 F-35 fighter jets along with the SeaGuardians. But the combination deal was halted over US concerns about the Emirates’ use of Chinese Huawei network technology and a perceived threat to the F-35.

Alexander told Breaking Defense that the Chinese networking tech doesn’t affect the MQ-9B since it is controlled by satellite links.

In November last year, Breaking Defense reported that General Atomics was planning to integrate Emirati EDGE Group missiles on the MQ-9B SkyGuardian platform.

“This will be the first indigenous weapons here in the region integrated on a US platform. I think that our government trusts the Emiratis enough to have allowed that export to happen,” Alexander said.

The United Kingdom and the UAE are the only two countries that have been approved from the US government to integrate their indigenous weapons on the MQ-9.

If the MQ-9 deal is finalized, Alexander said that General Atomics will build the platforms in the US, and the missile integration and testing is expected to take place in the UAE.

Ryan Bohl, a senior Middle East and North Africa analyst at the RANE Network, said the MQ-9 is “key” to the UAE’s “drone strategy.”

“The UAE has seen drone warfare evolve and develop across the region and realizes that a system like the MQ-9 would be a boost for that strategy,” he said.

As for other potential regional customers, Alexander said there is interest, but no deals yet. Specifically about the potential to export GA’s defense products to Saudi Arabia, he said, “That was pretty hard in the past but it’s getting easier, I think. So I would say within a year, maybe something could happen.”

**6 . Date: 27-02-2023Armed ISR / ISTAR - MALE - General - ‘Unmanned’ drones take too many humans to operate, says top Army aviatorURL: https://breakingdefense-com.cdn.ampproject.org/c/s/breakingdefense.com/2023/02/unmanned-drones-take-too-many-humans-to-operate-says-top-army-aviator/?amp=1**

WASHINGTON — Some of the US Army’s highest-tech units require a lot of old-fashioned human labor, a problem the service wants to fix.

“It’s kind of a paradox that our ‘unmanned’ formations are larger than our manned formations,’” said Maj. Gen. Michael McCurry, a veteran helicopter pilot who now heads the Army aviation “schoolhouse” at Fort Rucker, Ala. “We have Apache [attack helicopter] companies that are just over 30 people and we have Grey Eagle [drone] companies that are 135 people [or more]. How do we make better use of the 135 people in ‘unmanned’ formations?”

The issue isn’t just efficient use of human resources — although with Army recruiting 25 percent short of its target for 2022, and the combat-hardened veterans of Iraq and Afghanistan increasingly eligible for retirement, a personnel shortfall is a major problem for America’s largest service. But it’s also a tactical imperative, because big units make big targets — not just more people and more vehicles, but more radio emissions for the enemy to track, more fuel supplies that have to be moved forward by yet more vehicles, and more cargo aircraft to deploy. Notably, official Army doctrine for large-scale, high-tech warfare emphasizes fast-moving “multi-domain operations” by small, dispersed formations.

RELATED: Three questions following the Army’s FLRAA decision

So the service is striving to streamline its “unmanned” formations, McCurry and other Army aviation leaders explained last week at an Association of the US Army Hot Topic mini-conference on aviation. Both the large, long-ranged Grey Eagle (a variant of the famous Predator) and many smaller, shorter-ranged drones require runways to take off and land. They are remote-controlled by operators sitting at static ground stations, typically two humans per drone. And they require even more humans to maintain them and to analyze the hours of sensor data they collect.

Part of the answer is hardware: new, nimbler drones that can take off and land vertically, without a runway or extensive support equipment on the ground, like the new Future Tactical Unmanned Aerial System, McCurry said.

Part of the solution is software. FTUAS will also be use a new “scalable control interface” that lets soldiers operate the drone while they’re on the move, McCurry said. The Army is also exploring artificial intelligence to help smaller numbers of humans make sense of the “massive amount of data coming at you” from an ever-larger array of sensors.

But algorithms and unmanned aircraft can’t meet every mission, McCurry emphasized. A recent analysis by the federally funded thinktank MITRE of 123 tasks an air cavalry squadron has to perform, he said, found that “today we can’t do that autonomously — probably not in 2040 either.”

So it’s vital to work on human-machine teaming — organic brains and algorithms working together. That’s something the service has struggled with in the past, for example when it mixed manned helicopters and drones in recon units but didn’t always issue the necessary communications links or provide adequate time for training amidst constant rotations to Afghanistan and, earlier, Iraq.

“Did we give enough time to the commanders to train with that equipment?” said Maj. Gen. William Taylor, director of the aviation section on the Army’s Pentagon headquarters staff. “What we found was, quite honestly, no.”

AeroVironment’s JUMP 20 drone, selected for the Army FTUAS program (AeroVironment photo)

In fall 2021, however, with the start of the 2022 fiscal year, the Army switched from its counterinsurgency-era rotation schedule to a new cycle known as REARMM. This Regionally Aligned Readiness & Modernization Model sets aside more time for both upgrading a unit’s equipment and training its people on the new tech.

The synch-up between equipment and training is still far from perfect, Taylor acknowledged. “There is never a time where you can just stop and just modernize. Our requirement to continually train pilots, crew chiefs, flight engineers remains,” he said. “Because we have soldiers that have great initiative and have this great desire to learn, they overcome some of our failures at the staff level.”

But that catch-up takes a lot of extra hours and a lot of individual expertise, at a time when many experienced aviators and ground grew are retiring. “What we have seen is a loss of a lot of that experience through retirement,” McCurry said.

At the same time, the Army is asking its aviators to take on more tactically complicated tasks That includes not just operating in conjunction with unmanned aircraft, but also moving in larger formations of manned helicopters than the two- and four-ship sorties typical of counterinsurgency warfare, and against more sophisticated anti-aircraft threats — think Russia or China rather than al-Qaeda — which force pilots to fly low and fast.

While the focus on well-armed nation-states is a return to Cold War-era training in many ways, it’s a very different, much higher-tech world than generals like McCurry grew up in, he said ruefully. “I flew an unarmed OH-58 Charlie in Desert Storm, so there wasn’t a lot of high tech in that cockpit, especially when the aerial observer let the map fly out the door,” he said to laughter.

Today, he said, “we look at machine learning, the advance of artificial intelligence — how do we offload crews, how can I take that young warrant officer sitting in the front seat of the AH-64 with all of this data coming at him and help him? What tasks can we offload from that crewmember to make him a more efficient fighter on the battlefield?”