(Image courtesy of Wikimedia Commons)

U.S. Marines watch as Marine Corps F4U Corsairs provide effective close air support 6 December 1950 in the vicinity of the Chosin Reservoir, Korea. One aircraft can be seen flying through the smoke billowing from a successful napalm bomb strike on a Communist Chinese position.

Precedent and Rationale for an Army Fixed-Wing Ground Attack Aircraft

Maj. John Q. Bolton, U.S. Army

Effective close air support (CAS) depends on close cooperation between ground and air units, predicated on mutual understanding and proximity as well as aviator training and aircraft characteristics. Despite recurring predictions of air power's unilateral dominance by many theorists beginning after World War I, air-ground teams remain the most effective employment of military power. Technology, specifically precision weapons and stealth, may have altered the conduct of air campaigns, but it has "not brought about the revolution often proclaimed by many air power advocates."[1]

Army doctrine reflects this in ADRP 3-0 *Unified Land Operations*.[2] Importantly, FM 3-90.6 *Brigade Combat Team* (BCT), which describes employment of the Army's primary warfighting units, describes CAS as an Army requirement: "[BCTs] accomplish their missions by integrating the actions of maneuver battalions, field artillery, aviation, engineer, air and missile defense, close air support, and naval gunfire."[3]

(Image courtesy of Wikipedia Commons)

A U.S. Marine Corps F4U-4B Corsair fighter-bomber receives a final check of its armament of bombs and 5-inch rockets prior to being catapulted from the USS *Sicily* (CVE-118) for a strike on enemy forces in Korea in the autumn of 1950.

The Case for Organic Army Close Air Support

While its organic helicopters are critical to operations, the Army needs CAS, meaning fixed-wing (FW) aircraft, to perform its primary role. Therefore, in the face of concerted efforts by the Air Force to scale back CAS to accommodate other budget priorities—because CAS is vital to combined arms maneuver—the Army should hedge its requirements in this area by developing its own organic CAS assets to augment the Air Force (USAF) CAS.

While the Army views CAS as vital to its own combined arms operations, the USAF views it as a high-risk, low-payoff mission. This risk "often makes a dubious trade-off for the damage inflicted, all of which makes interdiction, in Air Force eyes, appear more profitable than close support.."[4] USAF CAS ambivalence turns on concerns regarding "the efficacy of using precious aircraft sorties on dispersed targets close to, or intermingled with, friendly troops where the risk of fratricide is great."[5] This view has permeated the USAF since the 1930s, when the Air Corps Tactical School developed and fostered an institutional focus on bombing and interdiction—both of which necessitated an independent air force.

This institutional focus was reinforced after World War II when the Air Force became a separate branch and solidified by the 1966 Johnson-McConnell Agreement, which gave the Army control over tactical helicopters while the Air Force retained all FW attack aircraft.[6] As a result, the Army currently relies almost exclusively on the USAF for FW CAS.

However, utilizing nonorganic means for critical functions violates the unity of command, and results in CAS performed by aircraft primarily designed for other missions. This is by no means a recent phenomenon. Since the advent of the jet, the Air Force has been committed to the concept of multirole aircraft (MRA). Focused on technology as an end, rather than a means, USAF programs have consistently prophesied that new technologies will ameliorate any capability gaps. However, MRAs exemplify the pejorative characteristics of American military equipment design by demonstrating a high cost-to-capability ratio and overall low performance of key missions. They tend to be larger than necessary, overly complex, and costly. In short, when you try to do everything well, you end up doing many things poorly. The result is wasted time, effort, and money attempting to achieve "do it all" miracles.

(Photo by Senior Airman Brett Clashman, U.S. Air Force)

An A-10 Thunderbolt II from the U.S. Air Force Weapons School fires an AGM-65 Maverick missile during a close air support training mission 23 September 2011 over the Nevada Test and Training Range, Nellis Air Force Base, Nevada. Budget cuts have threatened cancellation of the A-10 program.

Additionally, multirole, high-tech aircraft invariably cost more than the aircraft they replace. Despite projections of low-cost and savings due to technological advances, MRA/Joint aircraft nearly always cost more, do less, and result in fewer aircraft procured than originally forecasted.[7] The result is often "expensive and delicate high-tech white elephants" that perform better only in test-like circumstances, both unlike and unrepresentative of combat environments.[8]

The F-35 represents the contemporary iteration of this process. Critics charge the F-35 is overly expensive and cannot supplant A-10 CAS. Supporters contend that the F-35 is not a replacement for the A-10, but can perform many missions including interdiction against high-end integrated air defense systems and air-to-air combat, all equally well. What these supporters fail to understand is that the combination of these related missions degrades performance in all, regardless of how much impressive technology designers cram into the aircraft. MRA may brief well, but designing for multiple, nearly exclusive roles from the start inevitably results in poorly performing aircraft. Furthermore, crews trained for multiple missions will inevitably do some better than others. Given USAF historical and institutional preferences, along with its broader missions, CAS provided to the Army will suffer both qualitatively and quantitatively.

This situation will continue to worsen as the combined pressures of budget cuts, escalating aircraft costs, and the need to replace older aircraft coincide. Aircraft like the F-16 and F-15 are rapidly approaching their service life, forcing the service to bring the F-35 online, regardless of its issues.[9] These facts place the Army in a poor position: requiring CAS but lacking the organic capability while depending on another service to perform the mission with aircraft designed for other purposes.

Aircraft cost must be measured against its capability and quantity produced. Particularly significant is the marginal cost of each aircraft over its predecessor. With only two exceptions, since the 1950s (A-10 and F-16) marginal costs exceeded 200 percent. This is an unpleasant fact for MRA. Ironically, these cost increases resulted in a smaller quantity of aircraft delivered and relatively poor performance when compared to single-mission aircraft. Conversely, examples abound of aircraft designed for a specific mission that ended-up performing many missions well. Consider the P-51 Mustang, which dominated the skies of Europe during World War II as a fighter, fighter-bomber, and reconnaissance aircraft, only to emerge from storage during the Korean War—when USAF jets performed CAS poorly—as the F-51.[10]

Obstacles to Army CAS

Current Army doctrine and organizational thinking preclude Army aviation from utilizing FW attack aircraft. Additionally, the Army is, at least on paper, restricted from owning FW attack aircraft. However, this has not precluded Army-operated FW armed unmanned aerial systems (UAS) of nearly every type. These platforms are launched and operated by Army units into USAF controlled airspace without issue. Additionally, Army helicopters routinely work with USAF ground and air controllers without issue, often

An aircraft such as the Beechcraft AT-6 light attack aircraft could provide the U.S. Army with a cost effective, highly capable platform to augment its close air support needs. The aircraft can carry a wide array of U.S. and NATO munitions.

(Photo by John Voo, Flickr)

above the coordinating altitude. So would an Army FW attack aircraft doing the same tasks be any different?

At the tactical level, the Army requires an aircraft able to bridge the capability gap between its helicopters and USAF jets. FW aircraft offer great advantages over helicopters in terms of speed, loiter time, and cost. So, given the historic USAF aversion to CAS and contemporary budget constraints, exacerbated by an impending loss of USAF capabilities with the retirement of the A-10, the Army requires a new approach if it is to enjoy uninterrupted CAS to ground forces in the future. Simply, if CAS is an essential element of combined arms maneuver—which it is according to Army Doctrine—the Army should have organic FW attack aircraft in order to provide the full spectrum of aviation support.

Additionally, fielding such aircraft would free the USAF to focus on its broader and institutionally preferred missions such as Air Superiority/Interdiction/Global Strike. An Army FW attack aircraft would enhance Army capabilities against low-end threats, leaving the Air Force to focus on high-threat environments. This is the high-risk, low-probability scenario that dictates the design of USAF aircraft. Consequently, only the A-10 (retiring) and AC-130 (limited) are designed explicitly for CAS. Other USAF aircraft are neither designed for nor cost-effect in the CAS role.

An Army FW CAS aircraft would have no such limitations. Ironically, the USAF high-tech scenario, while a threat, does not represent the overwhelming majority of American conflicts; in other words, an Army aircraft would be an 80 percent solution 95 percent of the time. Air Force MRA are a 100 percent solution 5 percent of the time.

Third Army and XIX Tactical Air Command

While the reduction of CAS capability in the USAF—due to the aforementioned decrease in the number of aircraft and the high cost of new aircraft not specifically developed for CAS—is undesirable, it is not without precedent. After acknowledging the effectiveness of tactical air forces during World War II, the USAF proceeded to disregard support to ground forces in favor of strategic (nuclear) attack missions. One consequence was that both Army and Marine ground commanders were dissatisfied with USAF CAS; in Korea, the X Corps commander, Lt. Gen. Ned Almond vociferously criticized USAF CAS in Korea, compared to what he considered excellent support from Marine CAS.[11] Coordination and performance issues were eventually rectified when the USAF pushed controllers forward and deployed non-jet aircraft for CAS.[12] However,

the situation replicated itself early in Vietnam, which eventually saw the emergence of platforms such as the AC-47 gunship, OV-10 Bronco, and, most significantly, the epochal arrival of the helicopter. In Korea, Vietnam, and, to a lesser extent, Iraq and Afghanistan, the Air Force was forced to adopt procedures and aircraft it did not particularly care for such as the A-10, AC-130, and OV-10. By 1991, the emergence of Army Aviation mitigated much of the Army-Air Force conflict, although Army Aviation remained limited to helicopters; this created a significant capability gap.

History offers an example of effective Army-Air Force cooperation from Northern Europe during World War II. Based on mutual understanding and close proximity, Gen. George Patton's Third Army and Brig. Gen. Otto Weyland's XIX Tactical Air Command (TAC), espoused close cooperation and forged a capable team. Though some Air Force (then Army Air Corps) officers used doctrine to demand coequal status with ground forces, to Weyland it was merely a starting point for developing solutions appropriate to each situation.[13] Weyland embraced his role as "a tactical airpower expert."[14] Weyland had spent most of his career in tactical operations and consequently understood "ground forces forwards and backwards."[15]

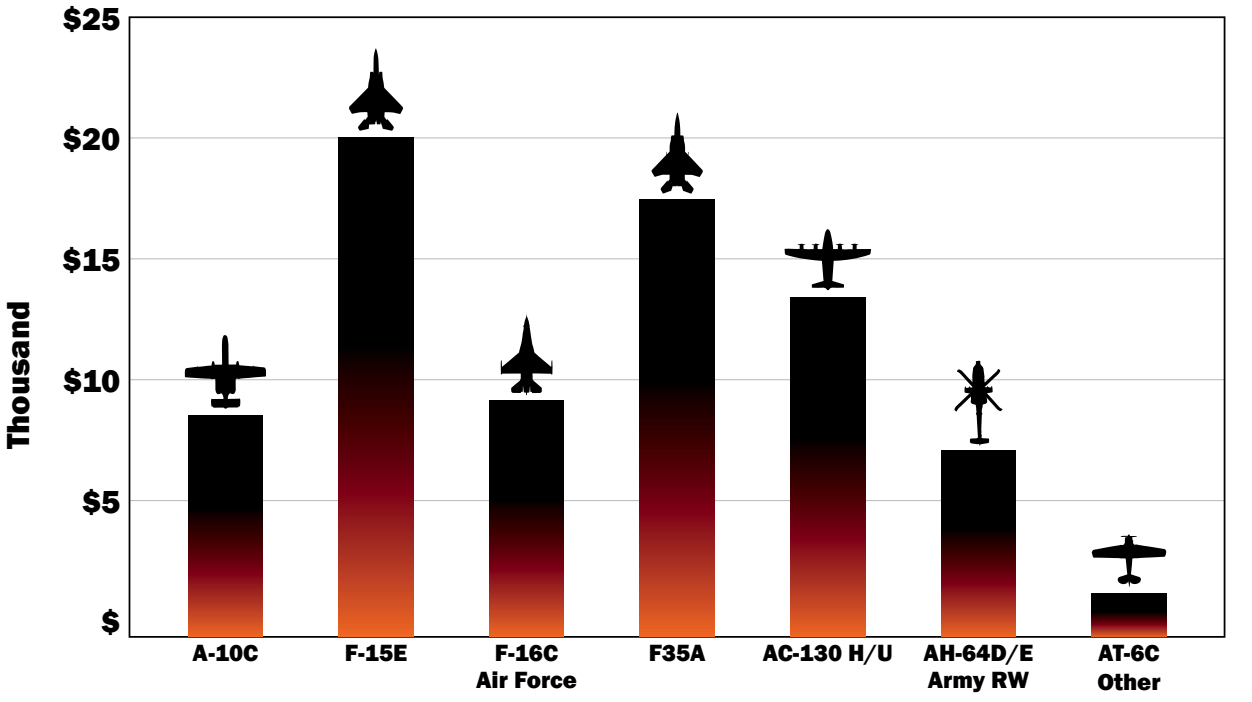
(Image courtesy of the U.S. Air Force)

Gen. George S. Patton and Brig. Gen. Otto P. Weyland, 1944, in Nancy, France, where the Third Army headquarters and XIX Tactical Air Command advance headquarters were stationed.

To support Patton, "Weyland threw away the air power book, decentralizing operations, delegating command, [and] dispersing assets as the situation dictated."[16] As the Third Army advanced, Weyland moved his headquarters frequently to keep up. At one point in late August 1944, XIX TAC had four separate elements spread across northern France in order to coordinate its subordinate units operating from a dozen different airfields.[17] That month, XIX TAC moved seven times, totaling nearly 250 miles.[18] The frequent movements demonstrated that Weyland understood his headquarters needed proximity to the ground commander in order to facilitate close cooperation and mutual understanding between ground and air units.

Because of the close cooperation between the Third Army and XIX TAC, procedures for requesting and controlling air support were streamlined and integrated into operations.[19] Weyland detached pilots to accompany each armored column commander to "advise him concerning the capabilities of air and how to bring aircraft on to their targets."[20] Because of this emphasis on personal communication and close proximity to maneuver staffs, air and ground units effectively coordinated their actions. As the American air-ground cooperation rapidly improved, one Wehrmacht division commander bitterly characterized the employment of U.S. tactical aircraft and artillery as "excellent."[21] Because of the relentless pursuit of the fighter-bombers, many Germans soldiers developed what they called, "the German look," head turned skyward looking for the next fighter-bomber coming in to attack.[22]

The close proximity of XIX TAC and Third Army headquarters also allowed for bottom-up refinement of operational plans as well as habitual relationships between air and ground units below command levels, often down to the regimental (brigade) level. Furthermore, like the current Army Combat Aviation Brigade (CAB), and unlike modern USAF doctrine, TAC operations were "planned, discussed, and arranged together."[23]



(Source: see note 28)

Figure 1. Hourly Operating Cost of Various Attack Aircraft

A Comparison to Army Aviation

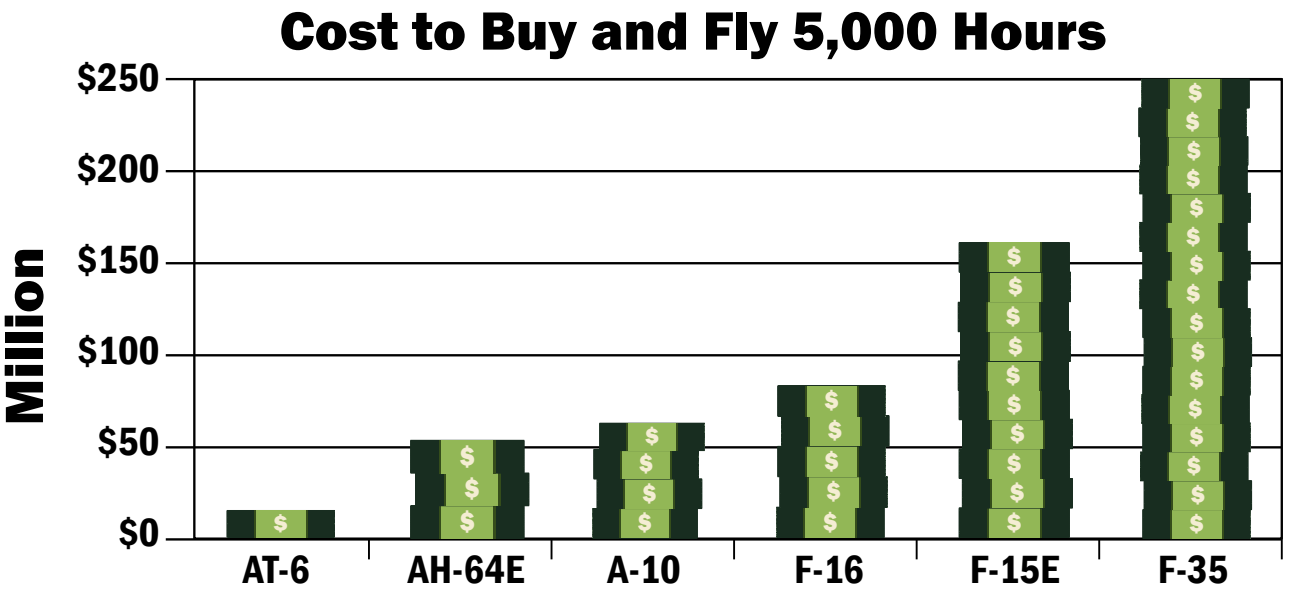
The effectiveness demonstrated by the Third Army and XIX TAC set the precedent for the modern Army CAB, which provides a similar level of support and integration with ground units. Because of the organic chain of command, close proximity, and mutual understanding enabled by the current Army division-CAB task organization, Army aviators are able to tailor and employ air power to best suit the ground force's needs.

Comparing the doctrinal missions and organization of the TACs and CABs illustrates the similarities. Though the CAB and TAC organizations are different in scale and scope, their relationship to ground forces, and cooperation are very similar.[24] In fact, the CAB performs missions other than attack and reconnaissance, such as air movement, air assault, as well as MEDEVAC.

Regarding air support, the CAB uses similar procedures as those used by the TAC. Its close proximity and regular working relationship with ground units promote unity of command and a common understanding of the operating environment as the CAB is simply closer to the point of need. Since Army helicopters do not require improved sites or long runways, they can locate forward with ground units. However, the USAF, with very limited exceptions, has not placed aircraft forward at austere sites since Korea. While USAF aircraft can mitigate distance somewhat through speed, nothing is as effective at creating situational awareness as proximity to events. Since Army aircraft operate forward, they inherently have this trait, along with traditional air power characteristics such as flexibility, responsiveness, and firepower. As a result, the Army Aviation's organization and operational frameworks could easily accommodate a FW attack aircraft.

Assuming Air Superiority While Limiting Costs

In addition to the USAF's institutional aversion to CAS and the escalating cost of aircraft, another factor will undoubtedly limit USAF CAS: lack of interservice cooperation. Since the USAF has consistently demonstrated that it believes CAS is "a lower-priority mission or less effective use of air power than interdiction or strategic bombardment," the Army makes little effort to conduct CAS training with USAF squadrons while the USAF focuses its pilots on other missions first, assuming it can perform CAS when the need arises.[25] The retirement of the A-10, the rollout of the F-35, and impending budget cuts will exacerbate this situation.



(Source: see note 28)

Figure 2. Total Ownership Costs per Aircraft (2014 Dollars)

Though joint operations over the last ten years have alleviated some of this gap—USAF liaison squadrons are not co-located with Army divisions—it will always exist between different services.

Army reliance on USAF CAS contradicts numerous principles of war, most specifically unity of command; the commander performing a mission should control all the tools directly required for success. At the tactical level, this implies control. If the Army is to be "decisive" in land operations, it should not artificially restrict its means. Since Army doctrine recognizes the need for FW CAS, in addition to Army aviation, it follows that the Army should own and control the assets for the mission. The Army needs an aircraft designed for the CAS mission its doctrine describes as critical.

An Army CAS Solution

Modern turboprop aircraft offer a solution to fill capability gap described above by providing the ideal mix of cost and capabilities. Turboprops like the Beechcraft AT-6 are fast enough to move quickly across a theater, but operate at slower speeds conducive to target acquisition for long periods once at the objective. They also have the avionics and modern sensors found on advanced aircraft and employ common precision weapons like the AGM-114 Hellfire Missile and GBU-series GPS guided bombs.[26] Moreover, turboprops can loiter for upwards of five hours, land on short runways or dirt strips, and provide precision fires. Compared to USAF jets and Army helicopters, turboprops are inexpensive; an entire twenty-four aircraft squadron of AT-6s, for example, would cost less than a single F-35A or slightly more than two F-15Es.

In a single, three-hour mission typical of those seen in Iraq and Afghanistan, an Army turboprop saves nearly $18,000 over an Army AH-64E, and nearly $88,000 over the F-35A. Light attack turbo props can perform the "bomb truck" mission the U.S. Army needs.[27] Figures 1 (page 83) and 2 demonstrate the cost savings provided by these type of aircrafts.[28]

Conditions under which CAS Operate

Even in situations with a significant enemy air defense or aircraft threat, which is the USAF's primary tactical responsibility, Air Force CAS doctrine assumes air superiority as a prerequisite condition for conducting operations.[29] Likewise, the obvious vulnerability of Army CAS aircraft from enemy aircraft not neutralized must also assume air superiority as a precondition for successful support of troops on the ground. Such an assumption allows for an aircraft

designed specifically for CAS, rationally sacrificing other characteristics such as air-to-air survivability. One factor that grows out of such conditions is that, while technology is important, effective CAS is less about the "box," meaning the aircraft and its technology, than it is about the "man in the box."[30]

Additionally, the characteristics of the aircraft are important. These characteristics, from a ground commander perspective, are consistent throughout history, from World War II and Vietnam to Iraq and Afghanistan. The desired characteristics for an aircraft supporting ground troops with CAS are endurance, responsiveness, precision, situational awareness, survivability, and effective air-to-ground communications.

(Image courtesy of U.S. Marine Corps)

A Marine air-observer team guides a Marine Corps Corsair aircraft in for a strike on an enemy-held hill during the Korean War (circa 1950). The "black Corsairs" were highly praised by soldiers and marines alike for their precision strikes on targets and their extremely close support of forward units.

Army CAS Provides Sustained Continuity During Contact

Since air superiority is an undisputed prerequisite for operations and the USAF prefers interdiction to CAS, it follows that the number of available USAF CAS sorties will decrease as the USAF fleet gets smaller. This may well lead to a situation where MRAs are overtaxed, switching back and forth between very different types of missions, preventing them from focusing on specific missions as well as the close relationship CAS requires. This may lead to an increased fratricide risk to ground forces during CAS missions, as exemplified by a recent incident in Afghanistan.

On 9 June 2014, a USAF B-1B bomber dropped two 500 lb. GPS-guided bombs on an Army Special Forces team working with Afghan security forces, killing five.[31] Numerous errors by the aircrew and ground element contributed to deaths on the ground, all of which are historically endemic to CAS: The controller was unfamiliar with the operating environment; the aircrew could not visually acquire either the friendly or the enemy positions from 12,000 feet above; and the air-ground team did not understand the capabilities and limitations of the targeting and signaling equipment. Because the aircrew believed they could identify friendly strobe lights, the air-ground team "collectively failed to effectively execute the fundamentals, which resulted in poor situation awareness and improper target identification."[32] Sadly, when it comes to CAS, this type of tragic incident is too common.

Recommendations

The Army requires an aircraft under its direct control designed for CAS. As an X Corps report

noted in 1950, "It is axiomatic that any weapon of war is best suited for the purpose for which it has been produced."[33] Technology cannot solve these dilemmas; it can only provide enhancing tools. However, there is a point of diminishing returns: "Comparing fighter-bombers of both periods, it turns out that a Stuka was quite as capable of knocking out a World War II tank as an A-10 Warthog is of doing the same to a present-day one. Similarly, P-47s in 1944–1945 did not take many more sorties to bring down a bridge or hit a locomotive than an F-16 did six-and-a-half decades later."[34] However, the cost of an F-16 today is orders of magnitude higher than was for those aircrafts that effectively performed the missions previously.[35]

Consequently, CAS is a need the Army must develop organically, as the services cannot overcome "the barriers that prevent troops from receiving the realistic, standardized training" required.[36] Present, MRAs provide only some capabilities needed by ground forces. It is true that jets can be responsive, can carry significant ordnance, and are survivable against both high- and low-order threats. On the other hand, the displacement of air units from ground units and the speed of jets necessitate relatively restrictive employment procedures as opposed to the flexible, less formal methods used by Army Aviation.[37]

The Army should fill the gap between its helicopters and USAF CAS with its own FW attack aircraft. A turboprop aircraft within the CAB seems the best location for such an aircraft. Fielding this type of aircraft would augment USAF CAS, providing a responsive, capable attack platform to the Army for a relatively low cost. This transition could allow the Army CAB to support joint efforts, should the Army pass excess sorties to the joint force commander in the same way as Marine Corps aviation.[38]

In the absence of significant USAF allocations during active operations, Army commanders will turn to what organic aviation assets they have at their disposal, which at present are primarily Army aviation helicopters. However, Army commanders need the capability and flexibility that FW aircraft provide such as speed, loiter time, and altitude-based survivability. Additionally, the institutional Army will appreciate the low procurement and operational cost of such an aircraft. Combining the advantages of a FW turboprop with the proven capability of Army helicopters is the ideal solution. ■

Biography

Maj. John Q. Bolton is a student at the Defense Language Institute-Monterey (Chinese) as an Olmsted Scholar. His previous assignment was as a student at the Command and General Staff College (CGSC) at Fort Leavenworth, where he received the George C. Marshall Award. He holds a BS in mechanical engineering from the United States Military Academy, an MBA from American Military University, and a MMAS from the CGSC. An Army aviator (AH-64D/E), his assignments include multiple deployments during Operations Iraqi Freedom and Enduring Freedom.

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