Evolving AirLand Battle for 21st Century Warfare

A Monograph

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14. ABSTRACT
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Abstract

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This monograph explores the analogy between the current strategic environment and that of the post-Vietnam War period. It examines the development of AirLand Battle Doctrine to glean lessons on how to better prepare the United States military for future 21st century conflict. It calls for increased cooperation among services, as the Air Force and the Army did during the post-Vietnam War era. It analyzes current doctrine, the current and future strategic environment, and introduces the Army's new future concept, Multi-Domain Battle. This paper proposes a new Air Force warfighting organization called the Multi-Domain Wing. The Multi-Domain Wing combines and evolves the composite wing of the Air Force's past with the current Air Expeditionary Force concept, keeping the advantages of both but the disadvantages of neither. Multi-Domain Wings will be able to power project into anti-access environments and operate within areas held at risk by enemy area denial capabilities. When operational C2 is degraded, Multi-Domain Wings will operate semi-autonomously using unified command, distributed control, and decentralized execution under commander's intent to maintain initiative and tempo. Furthermore, this monograph offers several considerations to increase the lethality of the joint force through improved air and ground integration. It calls for increased Army capabilities in areas normally devoted to other services. It calls for greater synergy between Air and Ground forces by leveraging Army fires and maneuver to enable airpower and not just the reverse. Lastly, this monograph introduces four innovative Air Force documents, the Air Force Strategy "America's Air Force: A Call to the Future", the Air Force SMP, the AFFOC, and the latest CSAF intent. These documents serve as a strong starting point to shape the Air Force into a force capable of fighting and winning wars of the 21st century and should serve as a vehicle to evolve lagging Air Force doctrine.

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Acronyms

A2	Anti-Access
AD	Area Denial
ADP	Army Doctrine Publication
AEF	Air Expeditionary Force
AFB	Air Force Base
AFDD	Air Force Doctrine Document
AFM	Air Force Manual
AFFOC	Air Force Future Operating Concept
AI	Air Interdiction
ALO	Air Liaison Officer
AO	Area of Operations
ASETF	Air and Space Expeditionary Task Force
ASOC	Air Support Operations Center
ATACMS	Army Tactical Missile System
ATO	Air Tasking Order
BAI	Battlefield Air Interdiction
BCT	Brigade Combat Team
C2	Command and Control
CAS	Close Air Support
CENTAF	Central Air Forces
COIN	Counterinsurgency
COMAFFOR	Commander Air Forces
CONUS	Continental United States
DCA	Defensive Counterair
DOD	Department of Defense
FSCL	Fire Support Coordination Line

FM	Field Manual
IADS	Integrated Air Defense System
IS	Islamic State
ISR	Intelligence, Surveillance, Reconnaissance
IW	Irregular Warfare
JFACC	Joint Force Air Component Commander
JOE	Joint Operating Environment
JSTARS	Joint Surveillance Target Attack Radar System
MDB	Multi-Domain Battle
MOOTW	Military Operations other than War
NMS	National Military Strategy
OCA	Offensive Counterair
PR	Personnel Recovery
SAC	Strategic Air Command
SAM	Surface to Air Missile
SAMS	School of Advanced Military Studies
SEAD	Suppression of Enemy Air Defenses
SMP	Strategic Master Plan
TAC	Tactical Air Command
TACP	Tactical Air Control Party
TRADOC	Training and Doctrine Command
VEO	Violent Extremist Organizations

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Introduction

Since 11 September 2001, the United States has exclusively focused its military on defeating a radical disparate global insurgent threat with no end in sight. This threat consists of several groups, each with differing means and methods, but almost universally share the same aspiration of seeing the West fall and fundamental Islam rise. The latest manifestation in this long war is the Islamic State (IS) in Iraq, Syria, and Northern Africa. Due to this almost singular focus, but understandably necessary, on irregular warfare, the United States armed forces' ability to wage regular or traditional maneuver warfare has atrophied considerably. The military finds itself in an analogous situation to that of the post-Vietnam era. This monograph explores the analogy between today and that of the post-Vietnam War period to glean lessons on how to prepare our military for future 21st century conflict. Specifically, this paper proposes a new Air Force warfighting organization called the Multi-Domain Wing, offers considerations for increasing air and ground integration, and proposes a foundation for an evolved Air Force doctrine for 21st century warfare. It offers options for senior leaders within the services to defeat a near-peer adversary with anti-access and area denial capabilities in a highly-contested environment. It will address how to project power and gain access to a theater of operations as well as survive and operate within a denied environment, particularly when ground forces are already engaged. It will take the lessons the Air Force and the Army learned following the Vietnam War and apply them to future warfare.

Post-Vietnam War Analogy

In the aftermath of the Vietnam War, military planners, as Douglas Skinner put it, "were tasked with the monumental job of resurrecting an effective fighting force from the ashes of physical depletion and psychological defeat at a time when the Soviets had made huge gains in

their conventional and nuclear forces."[1] Although not suffering from a psychological defeat, much of United States' military resources over the past sixteen years and counting were devoted to winning the current fight, while Russia has reemerged as an aggressor and China's military influence continues to expand in the Pacific. While fighting a long war in Vietnam, the United States military lost sight of the major threat it faced in defending Europe against the Soviet Union, leaving the services also in doctrinal drought.[2] Similar to today, during the post-Vietnam era military planners faced an endless horizon of impending budget cuts and an "air of pessimism" presided.[3] Today, not only is our fight against radical Islam daunting, but perhaps more so is a potential confrontation with Russia, China, or their proxies.

Our military, like during the post-Vietnam era, drew down significantly. The Air Force is on track to be the smallest since its founding, having cut aircraft inventory since 1990 from 9,000 to 5400 while the average age increased from seventeen to twenty-seven years.[4] A better descriptor of combat power reduction, in 1990 just prior to Operation Desert Storm, the Air Force had 134 combat-coded fighter squadrons compared to today's 55.[5] Likewise the Army has experienced significant cuts to personnel. Headlined in the *Army Times*, "Army shrinks to the smallest level since before World War II."[6] Moreover, the Army now fields only 32 Brigade

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[1] Douglas Skinner, *Airland Battle Doctrine* (Arlington: Office of Naval Research, 1988), 3.

[2] Ibid., 3.

[3] Ibid., 3.

[4] The Hon. Deborah Lee James, Secretary of the Air Force, and General Mark A. Welsh III, Chief of Staff, United States Air Force, "Fiscal Year 2015 Air Force Posture Statement," testimony before the Committee on Armed Services, US House of Representatives, March 14, 2014, 3.

[5] The Hon. Deborah Lee James, Secretary of the Air Force, and General Mark A. Welsh III, Chief of Staff, United States Air Force, "Fiscal Year 2016 Air Force Posture Statement," testimony before the Committee on Armed Services, US House of Representatives, February 16, 2016, 3.

[6] Jim Tice, "Army shrinks to the smallest level since before World War II," *Army Times,* May 7, 2016, accessed January 12, 2017, https://www.armytimes.com/story/military/careers/army/2016/05/07/army-shrinks-smallest-level-since-before-world-war-ii/83875962/.

Combat Teams (BCT) compared to 57 maneuver Brigades in 1990.[7] Finally, the United States Navy has the fewest ships since 1916.[8] Prior to Desert Storm, the Navy employed 570 total ships compared to 275 today.[9]

Furthermore, while our military re-organized for counterinsurgency (COIN), our adversaries and potential adversaries continued to modernize their militaries. A rising China and a resurgent and belligerent Russia continue to increase spending on their militaries and are further developing advanced asymmetric capabilities, especially anti-access (A2) and area denial (AD) technologies. Both China and Russia, likewise, show no hesitation in widely proliferating such systems. Iran and North Korea, recipients of such systems, remain committed to becoming nuclear powers and countering United States' national interests. Our largely continental United States (CONUS)-based force faces a global threat and the rise of state powers further challenges our national security. Anti-access threats complicate our ability to power project our CONUS-based force and area denial threats make it difficult to operate once they arrive into their area of responsibility. Our clear competitive advantage as the sole super power coming out of the cold war is quickly eroding.

Our services lack the proficiency to engage in conventional maneuver warfare. Our ground units, analogous to the post-Vietnam War era, are adept at fighting at the tactical level, with battalion and below formations primarily, executing COIN supported by an Air Force operating in a permissive air domain. Although the global conflict against radical Islam is far from over, we must reinvigorate our intellectual thought to chart a better path forward. We cannot afford to put all our efforts into winning the current fight and ignore the threats of tomorrow.

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[7] Heritage Foundation, *2016 Index of US Military Strength: US Army*, accessed January 12, 2017, http://index.heritage.org/military/2016/assessments/us-military-power/us-army/.

[8] *Naval History and Heritage Command, US Ship Force Levels*, accessed January 12, 2017, https://www.history.navy.mil/research/histories/ship-histories/us-ship-force-levels.html.

[9] Ibid.

Colin Gray correctly claimed, "The future does not belong to small wars of an irregular kind; alas, it belongs to both regular and irregular warfare."[10] The challenges of tomorrow are here today and our forces are neither trained nor equipped as they should be to secure our national strategic interests. As morose as it may sound, the consequences of failing to defeat a near-peer in a conflict of arms are much more severe than that of a successful terrorist attack on our soil or that of any other nation. Per Colin S. Gray, "Compared to interstate conflict, terrorism—even terrorism armed with weapons of mass destruction—is a minor menace."[11] Furthermore, in state power conflict, we will fight with the forces we have on hand. This combined with a lethargic acquisition process and an increasingly constrained budget make it imperative we develop the right force for the right time. Since the future is difficult to predict the charter ahead is, to quote Colin Gray again, "to anticipate the future as best as we are able in ways that reduce, hopefully minimize, the risk of committing errors in prediction that are likely to have catastrophic consequences."[12] In other words we don't have to get it exactly right, just good enough.

Post-Vietnam, military planners searched for the answers to a similar dilemma we face today. The solution they devised, now categorized as The Second Offset, began with AirLand Battle Doctrine and the force structure and capabilities the services developed to support it. Today's planners, likewise, search for a Third Offset to retain a competitive edge against potential adversaries. We must do this while acknowledging we will remain in a long war against radical Islam. We must revive the operational level of war, which has seemingly become less and less used in our current fight. As Richard M. Swain stated in his article "Filling the Void", "If the central frustration of the collective memory of Vietnam was recollection of a conflict in which all

[10] Colin Gray, "21st Century Security Environment and the Future of War," *Parameters*, Winter (2008-2009), 23.

[11] Ibid., 24.

[12] Colin Gray, *Another Bloody Century: Future Warfare* (London: Weidenfeld & Nicolson, 2005), 42.

the battles were won and the war was lost, the collective answer seemed to be found with the adoption of the concept of operational art."[13]

AirLand Battle

Evolution of AirLand Battle

The Army, recognizing the need to reform after the Vietnam conflict, established the Army's Training and Doctrine Command (TRADOC) in 1973. General Creighton Abrams, the Army Chief of Staff at the time, assigned General William E. DePuy to lead the new command. Depuy's priority was to first fill the doctrinal void following the war in Vietnam. New doctrine would guide and reshape the Army to one ready to fight a war at any time and not rely on mobilization of conscripts, as was the case in Vietnam. Depuy was greatly inspired by the 1973 Yom Kippur war. He recognized air delivered precision guided weapons, mounted and portable anti-tank weapons, and advanced surface-to-air missiles (SAMs) changed the character of war.[14] His views were first captured in Field Manual (FM) 100-5 Operations, published in 1976, and the first use of the term Air-Land Battle emerged. On the first page of the document it states, "This manual sets forth the basic concepts of United States Army doctrine…Most important this manual presents the principles for accomplishing the Army's primary mission—*winning the land battle.*"[15] Its proposed audience was "commanders and trainers" of all levels.[16]

The document was rightly met with some resistance as it did have shortfalls. As a capstone document for all Army operations it narrowly focused on brigade and below

[13] Richard Swain, "Filing the Void: The Operational Art and the U.S. Army," in B.J.C. McKercher and Michael Hennessy, ed. *Operational Art: Developments in the Theories of War* (Wesport: Praeger, 1996), 148.

[14] Ibid., 150.

[15] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1976), i.

[16] Ibid., i.

operations.[17] It was a heavily tactical document and thus did not become the envisioned reinvigorating document for Army reform at the operational level of war as Depuy initially intended. It also narrowly focused on a confrontation with the Soviet Union, which some disputed as too myopic.[18] Its central theme was termed "active defense". Active Defense called for force to be concentrated at the enemy's main point of attack matching strength with strength to stall for another force to assist.[19] Army leaders were not quick to accept a concept based on attrition warfare against a numerically superior force. FM 100-5 was written more as a prescriptive document rather than one that describes and guides on the proper use of a services power in military operations.[20] The 1976 FM 100-5 did however force Army intellectuals to return their focus to the existential threat facing them in Central Europe. The Army was now at least on track to fix the shortfalls and gaps created by fighting the long war in Vietnam. Unfortunately, this also heralded a general reluctance to institutionalize lessons learned from Vietnam in irregular warfare.

It became General Donn A. Starry's responsibility, the successor to Depuy as Commander of TRADOC, to refine FM 100-5. In 1982, TRADOC published an update to 100-5 identifying AirLand Battle as the Army's operational concept. Interestingly, the fundamental mission of the Army shifted from winning the ground war to deterring war. This move likely made the document more appealing to our North Atlantic Treaty Organization partners. Despite the mission change, the content of the document was more offensive in nature. AirLand Battle brought the Army out of the weeds of the tactical environment and discussed responsibilities of all echelons up to the Corps level across all warfighting functions. The Corps level was

[17] Swain, 151.

[18] Ibid., 154.

[19] Ibid., 152.

[20] Ibid., 154.

designated as the principal unit to fight campaigns and operate at the operational level of war. It no longer was a document directed at primarily Colonels, Lieutenant Colonels, and Captains. It introduced the levels of warfare: tactical, operational, and strategic and resurrected the campaign and major operations, the precursor to operational art. It included concepts like the extended battlefield, the deep fight, and close integration with airpower. Finally, the rewrite better balanced the descriptive vs prescriptive tone of the previous version.[21]

In September 1984, the first director of the School of Advanced Military Studies (SAMS), Colonel Huba Wass de Czege, was tasked by the then TRADOC commander, General Richardson, to draft another revision of the FM.[22] SAMS stood up the year prior in 1983. The final version of AirLand battle was published in 1986, just before the Goldwater-Nichols Act of 1986 forced joint doctrine on the services, and rightfully so. This new version of FM-100 introduced the key concepts of close, deep, and rear operations; operational art; high, medium, and low intensity conflicts; and included thirty-one pages on planning.[23] The inclusion of detailed planning is of no surprise since Wass de Czege leveraged his SAMS students in the rewrite.[24] It also restored the Corps as the highest tactical echelon in the Army. The 1986 version also guided a much more cautious use of nuclear weapons; whereas the 1982 version treated nuclear weapons like any other tool at the commander's disposal. In the next version of FM 100-5, published in 1993, AirLand Battle was removed from the Army's official lexicon due to the implementation of the Goldwater-Nichols act causing AirLand Battle to evolve into a number of joint and combined operations.[25]

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[21] Swain, 159.

[22] Ibid., 161.

[23] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1986), 9-74.

[24] Swain, 161.

[25] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1993), v.

AirLand Battle Defined

AirLand Battle is principally a doctrine to fight outnumbered and win using all three dimensions of the battlespace in a nuclear or conventional conflict. In its final 1986 FM 100-5 form it consisted of three types of operations (high, medium, and low intensity conflict), four elements of combat power, four tenets, and ten imperatives. It stipulated "Superior combat is generated through a commander's skillful combination of the elements of maneuver, firepower, protection, and leadership in a sound plan flexibly but forcefully executed."[26] It continues, "Success on the battlefield will depend on the Army's ability to fight in accordance with four basic tenets."[27] In explaining the imperatives of AirLand Battle, FM 100-5 states they "provide more specific guidance than the principles of war and the AirLand Battle tenets, and apply to all operations. They are historically valid and fundamentally necessary for success on the modern battlefield."[28]

Table 1. AirLand Battle Fundamentals

AirLand Battle Fundamentals	
Elements of Combat Power	**Imperatives**
Maneuver	Ensure unity of effort
Firepower	Anticipate events on the battlefield
Protection	Concentrate combat power against enemy vulnerabilities
Leadership	Designate, sustain, and shift the main effort
Tenets	Press the fight
Initiative	Move fast, strike hard, and finish rapidly
Agility	Use terrain, weather, deception, and OPSEC
Depth	Conserve strength for decisive action
Synchronization	Combine arms and sister services to complement and reinforce
	Understand the effects of battle on soldiers, units, and leaders

Source: FM 100-5, *Operations* (Washington, DC: Government Printing Office, 1986), Ch. 2.

AirLand Battle was a forward-thinking doctrine, not a descriptor of the past commonalities of war. Douglas Skinner defined five central characteristics to AirLand Battle:

[26] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1986), 12.

[27] Ibid., 15.

[28] Ibid., 23.

corps perspective, operational art and maneuver warfare, decentralized execution of mission orders, integrated battle, the extended battlefield, and reliance on innovative technologies.[29]

As discussed previously, the 1982 version resurrected the Corps from almost extinction but placed it at the operational level of war, leaving tactical action to the Brigade and echelons below. This conflicted with the concept of a deep fight in an extended battlefield where the Corps had principle responsibility. Thus, in the 1986 version the Corps was reinstated as the senior tactical echelon.[30] To assist in carrying out the deep fight, the Corps was also established as central to distribution of allocated airpower from the Air Force.[31] The extended battlefield concept aimed at attriting enemy forces well prior to engaging friendly ground forces in the close fight. It primarily relied on airpower with interdiction but included long range artillery, special forces, airborne, and air mobile/air assault units.[32] To employ large formations to achieve strategic objectives, the Army required operational level planning and the use of operational art to reconcile ends, ways, and means to give purpose to battle. All this was to avoid winning every battle, but ultimately losing the war, as happened during the Vietnam War. Furthermore, AirLand Battle called for a rebalance of fires and maneuver. Fires would support maneuver; however, maneuver could also support fires. The rapid tempo of decision making required in fighting an adversary the likes of the Soviet Union required subordinates to make decisions normally left to general officers. Hence the emphasis on decentralized execution of mission orders. Skinner defines integrated battle as “a unified approach to battle that involved several concepts, including

[29] Douglas Skinner, *Airland Battle Doctrine* (Arlington: Office of Naval Research, 1988), 11.

[30] Richard Swain, "Filing the Void: The Operational Art and the U.S. Army," in B.J.C. McKercher and Michael Hennessy, ed. *Operational Art: Developments in the Theories of War* (Wesport: Praeger, 1996), 157.

[31] Skinner, 11-13.

[32] Ibid., 18-21.

joint operations, combined arms, unity of effort, and the possible use of tactical nuclear, chemical, and biological weapons."[33]

The Army required not only a doctrine but also the means to wage war leading to Skinner's final central characteristic – reliance on new technologies. To achieve the AirLand Battle way of war the Army acquired several systems including the "big five"—the Bradley Fighting Vehicle, the Abrams tank, the UH-60 Blackhawk, the AH-64 Apache helicopter, and the Patriot air defense missile system.[34] Other systems included multiple-launch rocket systems, a standoff attack missile which later become the Army Tactical Missile System (ATACMS), remotely piloted vehicles (quite prescient), and the Hellfire missile, among many others.

Finally, AirLand Battle explicitly tied the Air Force and Army together in a pre-joint environment. The second paragraph in Chapter 8 of the 1976 FM 100-5 said, "Both the Army and Air Force deliver firepower against the enemy. Both can kill a tank. Both can collect intelligence, conduct reconnaissance, provide air defense, move troops and supplies, and jam radios and radar. But neither the Army nor the Air Force can fulfill any one of those completely or by itself. Thus, the Army cannot win the land battle without the Air Force. In fact, the Army consciously avoids the development of weapons or equipment to perform functions which the Air Force can perform more effectively."[35] The following two versions of FM 100-5 did not say this as clearly. But they both captured Air Force missions and capabilities required for the success of ground operations. These missions included offensive counterair (OCA), defensive counterair (DCA), suppression of enemy air defenses (SEAD), air interdiction (AI), close air support (CAS), special operations, airlift, and surveillance and reconnaissance operations.

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[33] Skinner, 33.

[34] Todd Larson, *John Boyd and the AirLand Battle Doctrine* (monograph, School of Advanced Military Studies, AY 2012-001), 20.

[35] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1976), 8-1.

Air Force Perspective on AirLand Battle

The Vietnam War affected the Air Force differently than the Army. The Army was "virtually shattered" and required doctrine to lead its "moral and intellectual" restoration as an effective fighting force.[36] The Air Force came away from the Vietnam War having confirmed it could effectively interdict conventional forces, re-affirmed its advocacy of strategic attack to directly achieve political ends through Linebacker I and II, and the importance of a single commander orchestrating all air efforts in a joint fight.[37] It also acquiesced to the increased likelihood of conventional conflict over nuclear warfare acknowledging the Korean War and now the Vietnam War could not just be anomalies. This gave rise to flexibility in thought of the Tactical Air Command (TAC) over the rigid thinking of Strategic Air Command (SAC), and thus the rise of the fighter pilot. The Air Force, like the Army, needed reform, but because Airmen are typically less infatuated with doctrine, it led with innovation in capabilities first and caught up with the Army in doctrine second.

Air Force Manual 1-1 was the service's capstone doctrine document. Its 1975 and 1979 editions did little to reform Air Force thought on the conduct of air warfare. According to Colonel Dennis Drew, in his 1986 article, "Two Decades in the Air Power Wilderness: Do We Know Where We Are?", claimed 1979 was the "nadir of Air Force Doctrine" and the publication itself "clearly reflected neglect, misunderstanding, and general confusion."[38] By 1986, with the refined publication of FM 100-5 and the publication of the 1984 Air Force Manual (AFM) 1-1, the Air Force and the Army were significantly closer on the application and use of airpower. Key debates, which remain today, were centralized control of airpower, the use of interdiction, and the

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[36] Harold Winter, "Partnership and Tension: The Army and Air Force between Vietnam and Desert Shield," *Parameters* (Spring 1996), 100-119

[37] Ibid., 100-119.

[38] Dennis Drew, "Two Decades in the Air Power Wilderness: Do We Know Where We Are?," *Air University Review* (September-October 1986).

placement of the Fire Support Coordination Line (FSCL). Airmen to this day believe in unity of command, centralized control, and decentralized execution due to airpower's speed and flexibility. Both the Army and the Air Force disagreed on the role of interdiction. The Air Force preferred deep interdiction and the Army preferred "shallow" interdiction. A compromise was made with battlefield air interdiction (BAI) versus AI, but it never made it into Air Force doctrine due to concerns over who was going to control airpower. BAI was shallow and AI was deep. As the Army's range of organic fires increased, the Army desired to place the FSCL further, limiting the Air Force's ability to conduct its missions. However, by 1986 both service doctrines agreed that they were serving a higher commander in charge of winning a campaign not just a separate land or air war.

At the center of Air Force reform were TAC and intellectual Air Force fighter pilots Col John Boyd and Col John Warden. TAC was headquartered at Langley AFB just a few miles from TRADOC and formed a natural partnership. Through several conferences the Army and the Air Force agreed to thirty-one initiatives on improving air-ground operations. For the Air Force these included the A-10, the E-8 Joint Surveillance Target Attack Radar System (J-STARS), the Maverick Missile, placing the Air Support Operations Center (ASOC) at the Corps level, improvements to the Air Liaison Officer (ALO) and Tactical Air Control Party (TACP), the C-17, and others.[39]

John Boyd's contribution to reform post-Vietnam was significant. There is great debate whether his theories influenced the Army's AirLand Battle doctrine. Regardless his theories added to the debate and his abilities as an engineer directly improved the Air Force. The similarities between AirLand Battle and Boyd's theories were his Observe, Orient, Decide, Act model, his thinking on operational art and the operational level of war, and his ideas of

[39] Richard Davis, *The 31 Initiatives: A Study in Air Force - Army Cooperation* (Air Staff Historical Study, Washington, DC: Office of the Air Force History, 1987), 35-62.

decentralized command and control to enable junior commanders to take appropriate action for the conditions they encounter.[40] As an engineer, Boyd's contributions in the design and production of aircraft were of greater import. He developed energy management models to compare aircraft performance and instinctively knew how to distribute weight on aircraft to maximize their capability. Boyd was charged with the F-X program where he both designed the F-15, F-16, and influenced the development of the F-18. Even more importantly for air-ground operations he designed the requirements for the A-10. John Warden's theory on the use of airpower, published in his book *The Air Campaign*, advanced Air Force thinking at the operational level of war and was used effectively in the air effort during Operation Desert Storm.

The Army and the Air Force reformers through both independent thought and increased cooperation were on path to significantly increase air-ground integration and capability to fight outnumbered and win. Ultimately their theories, doctrine, and capabilities would be successfully put to test in Desert Storm.

Modern Doctrine

Army Doctrine

With the fall of the Berlin Wall and the collapse of the Soviet Union, the United States decided to cash in on the supposed peace dividend of the new world order and as covered in the introduction began a massive military drawdown. The perceived operational environment following the end of the Cold War also profoundly affected Army doctrine. In the 1993 version of 100-5, the Army dropped the offensively-minded AirLand Battle doctrine and transitioned to a somewhat un-coined operational concept called full dimension operations. Although it rarely mentions the term full dimension operations, in the glossary it defines it as "the ability to avoid surprise as operations unfold, mental and physical adjustments as a result of monitoring

[40] Larson, 32-33.

operations and determining future actions."[41] It did however retain many features of AirLand Battle, but it failed to replace it with an explicit central thesis. It held to initiative, agility, depth, and synchronization as tenets and added versatility to handle the full range of operations it expected to conduct. It also sustained the four elements of combat power of maneuver, firepower, protection, and leadership. It accurately predicted the withdrawal from Europe and reduction in the size of the Army and thus included chapters on force projection, joint operations, and combined operations. It removed low, medium, and high intensity conflicts and added the universally controversial term "military operations other than war" (MOOTW). It evolved the concept of decentralized execution by introducing the term Battle Command. Battle Command acknowledged the exponential increase in information available to a commander and the requirement for him or her to "visualize the battlefield, assess the situation, and direct military action."[42] It allowed for delegation, flexibility, and the empowerment of subordinates to execute as conditions required. Battle command was an evolutionary step to the modern-day term mission command.

In 2001, the Army, in FM 3-0 Operations, adopted Full Spectrum Operations as its central idea. Although it didn't explicitly define it as such, it refers to the term 104 times, defining it as Army operations to include "offensive, defensive, stability and support operations."[43] Equally shortsightedly and presciently, the Army removed the terms deep, close, and rear operations. Little did the Army know for the next fifteen years it would be engaged against elusive enemies in a non-linear battlefield in Iraq, Afghanistan, and elsewhere. Deep, close, and rear operations were replaced with shaping, decisive, and sustaining operations. It did however,

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[41] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 1993), Glossary-4.

[42] Ibid., 2-14.

[43] Field Manual (FM) 100-5, *Operations* (Washington, DC: Government Printing Office, 2001), vii.

hold on to deep, close, and rear as areas, retaining tools commanders could use if engaged in a linear conflict. Linear conflict was not seen as likely in the now unipolar world where the United States remained the sole superpower. The Army discarded the concept of a supporting effort, since the main effort may not be the decisive operation. However, it did include complimentary and reinforcing effects. It also introduced the concept of unified action and mission command which both remain in doctrine today. In 2008, FM 3-0 formally declared full spectrum operations as the operational concept of the Army and retained much of its 2001 version. After seven years of COIN operations, the Army raised stability operations to that of the same level as offensive and defensive operations. Colonel (ret.) Bill Benson, United States Army, said of this, "Making stability operations equal to offensive and defensive operations represents the most significant and controversial doctrinal evolution of the past 30 years."[44] The Army removed its primary focus from defeating a peer or near-peer of the Cold War to the irregular threat of the time.

The Army published Army Doctrine Publication (ADP) 3-0 Unified Land Operations in November 2011. Unified Land Operations built upon both AirLand Battle and Full Spectrum Operations doctrine. It returned content included in AirLand Battle and concepts deleted out of previous FM 3-0 iterations. The central concept of Unified Land Operations was for "Army units to seize, retain, and exploit the initiative to gain and maintain a position of relative advantage in sustained land operations to create conditions for favorable conflict resolutions".[45] In November 2016, the Army updated ADP 3-0 and returned to the naming construct Operations. The central idea of ADP 3-0 Operations remained Unified Land Operations and called for "as part of a joint force, Army forces seize, retain, and exploit the initiative to gain and maintain a position of

[44] Bill Benson. 2012. "Unified Land Operations - The Evolution of Army Doctrine for Success in the 21st Century." *Military Review* (March-April 2012): 8.

[45] Army Doctrine Publication (ADP) 3-0, *Unified Land Operations* (Washington, DC: Government Printing Office, 2011), 1.

relative advantage in sustained land operations to prevent conflict, shape the operational environment, and win our Nation's wars as part of unified action."[46]

Unified Land Operations is defined as "Simultaneous offensive, defensive, and stability or defense support of civil authorities tasks to seize, retain, and exploit the initiative and consolidate gains to prevent conflict, shape the operational environment, and win our Nation's wars as part of unified action".[47] It returns to the concepts of main and supporting efforts, defines the Army's six warfighting functions as we have grown to know them, and sustains both the deep, close, and rear area spatial construct and the shaping, decisive, and sustaining operations model. ADP 3-0 Operations, written in the context of a resurgent Russia, evolves the term combined arms maneuver, reintroduced in the 2011 version, to combined arms operations in its newest form. Lastly, it fully embraces the concept of Mission Command.

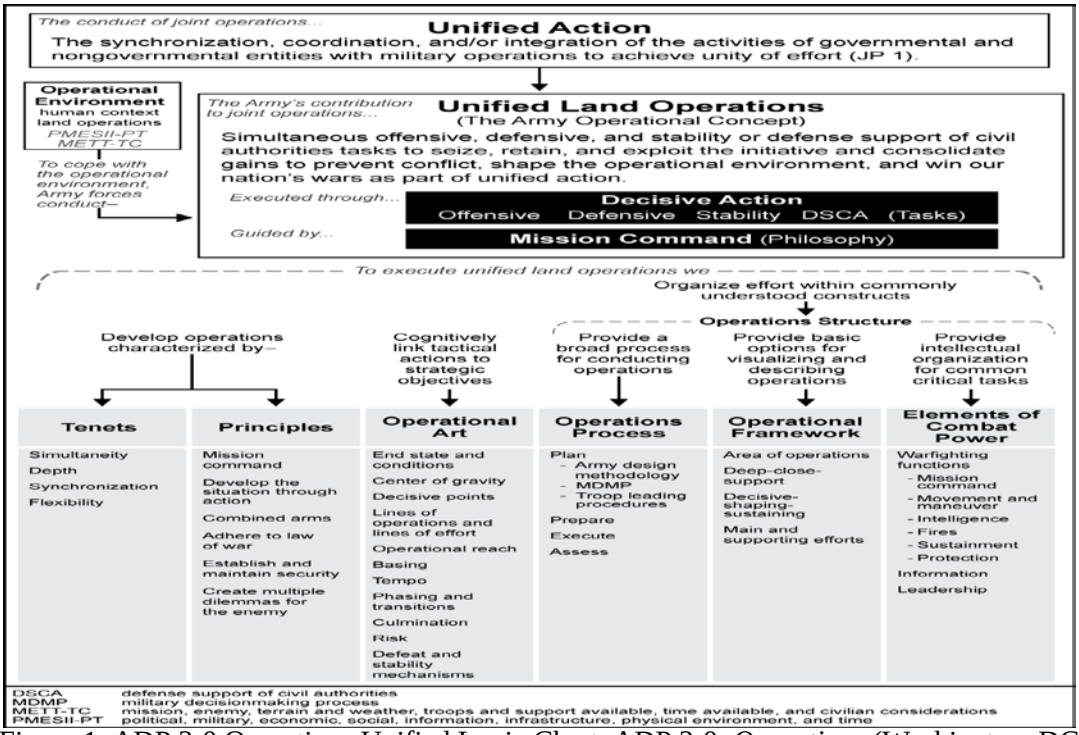

Figure 1. ADP 3-0 Operations Unified Logic Chart. ADP 3-0, *Operations* (Washington, DC: Government Printing Office, 2016), iv.

[46] Army Doctrine Publication (ADP) 3-0, *Operations* (Washington, DC: Government Printing Office, 2016), forward.

[47] Ibid., 1.

Air Force Doctrine

The Air Force took a big step forward in creating doctrine when it stood up the Doctrine Center in 1993 at Langley Air Force Base (AFB). Until then several organizations produced both basic and operational doctrine. With the standup of the Doctrine Center, the center became the sole source to publish doctrine. In 1997, the Doctrine Center was moved to Maxwell, AFB still as a direct reporting unit to Headquarters Air Force. The Air Force then in 2007 subordinated it under the Air University and changed its name to the Curtis E. Lemay Center for Doctrine and Education. The Air Force now had an organization, under the Air University, responsible for both producing and teaching doctrine. The Air University could then better institutionalize doctrine by teaching it to students in its Air Force Command and Staff College, the Air War College, and the School of Advanced Air and Space Studies.

Air Force doctrine has evolved only slightly since its AFM series of publications. Its last AFM 1-1 was published in March of 1992. In 1997, Air Force doctrine switched to Air Force Doctrine Documents (AFDD). AFDD 1-1 was the capstone document. In 2014, Air Force doctrine underwent a major re-organization. Air Force doctrine went purely online and now consists of three capstone documents, Air Force Basic Doctrine Volumes One, Two, and Three and thirty annexes including a glossary. The annexes describe the operations of the Air Force in greater detail.

Air Force Basic Doctrine Volume One captures the Air Force's mission to provide global vigilance, global reach, and global power with the capability to impose national will anywhere on the globe. It defines airpower as "the ability to project military power or influence through the control and exploitation of air, space, and cyberspace to achieve strategic, operational, or tactical objectives."[48] Since AirLand Battle days, Air Force doctrine has only evolved to elaborate on

[48] Air Force Basic Doctrine, *Volume* 1, Curtis E. LeMay Center for Doctrine Development and Education (Washington, DC: Government Printing Office, 2015), 25.

Irregular Warfare, the use of space, and to incorporate the cyberspace domain. Airpower operates through the air, space, and cyber domain to achieve effects in all five domains, including of course land and sea. It is innately strategic due to its ability to strike at enemies' strategic centers of gravity bypassing much of its armed forces. Airpower doctrine holds to the principle of unity of command by demanding a single air commander control airpower resources to enable unity of effort in war. Inseparable from centralized control is decentralized execution empowering subordinate leaders and operators closest to the fight to exercise appropriate judgement and tactics suitable to the situation at hand. The tenet of centralized control and decentralized execution enables the inherent flexibility of airpower. A sortie fragged as interdiction can immediately be re-tasked to a CAS mission or sent to another theater of war in the same mission. airpower's breadth and depth in capability is unique among the combat powers of the services. Annexes describe Air Force operations including counterair, counterland, countersea, globally integrated intelligence, surveillance, and reconnaissance (ISR), personnel recovery, cyberspace, space, and air mobility, among others. Surprisingly, there is no longer a single document that defines all Air Force operations like previous doctrine documents nor is there a central concept.

Strategic Environment

Current Environment

Before taking what the services learned from AirLand Battle and charting a path forward for 21st century warfare we will first assess the current and future strategic environments. There have been many prognosticators predicting the end of war and the blooming of global peace. Of course, history proved them wrong every time. John Mueller, in his assessment on war in 2009, revealed several such diviners. G.P. Gooch in his book, *History of Our Time: 1885-1911,* where he captured a period of great conflict and its end concluded in the final paragraph that "we can now look forward with something like confidence to the time when war between civilized nations

will be considered as antiquated as the duel, and when peacemakers shall be called the children of God."[49] Sir Charles Barclay, in the 1911 edition of *Encyclopedia Britannica*, in his article "Peace", stated, "Surely with all the existing activity in the removal of causes of war…in no distant future, life among nations" will be characterized by "law, order, and peace among men."[50] Three years later The Great War would break out.

At the end of the of the Cold War, more rallied to the same call. Michael Howard professed in his 1991 book, *The Lessons of History*, that "war in the sense of major, organized armed conflict between highly developed societies may not recur, and that a stable framework for international order will become firmly established."[51] Eight years later Operation Allied Force would begin, and ten years later the Global War On Terror began. Colin Gray counters this supposition that war is at an end in his book, *Another Bloody Century*, where he predicted the nation-state remaining the key power broker in the globe and that "War and warfare will always be with us; war is a permanent feature of the human condition."[52]

General Martin Dempsey, Chairman of the Joint Chiefs of Staff, opened in the 2015 United States National Military Strategy (NMS) with "Today's global security environment is the most unpredictable I have seen in 40 years of service. Since the last National Military Strategy was published in 2011, global disorder has significantly increased while some of our comparative military advantage has begun to erode. We now face multiple, simultaneous security challenges from traditional state actors and transregional networks of sub-state groups – all taking advantage of rapid technological change."[53] The 2015 NMS describes the current strategic environment as

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[49] G.P. Gooch, *History of Our Time, 1885*-1911 (London: Williams and Norgate, 1911), 248-249.

[50] Thomas Barclay, "Peace", *Encyclopedia Britannica 1911 ed. Vol 21* (New York: Cambridge University Press), 16.

[51] Michael Howard, *The Lessons of History* (New Haven. CT: Yale University Press, 1991).

[52] Gray, 378.

[53] Martin Dempsey, *The National Military Strategy of the United States of America 2015* (Washington, DC: Government Printing Office, 2015), i.

complex and highly dynamic, due to the three factors: globalization, diffusion of technology, and demographic shifts.[54] Furthermore, it agrees with Colin Gray's assessment on the primacy of sovereign states in global affairs. It outlines what has become known as the "4+1" threats to United States national security: Russia, China, Iran, Korea, and Violent Extremist Organizations (VEOs).[55]

The Secretary of Defense, Ash Carter, in his Department of Defense (DOD) 2017 Force Posture Statement stated "…following over a decade when we were focused on large-scale counterinsurgency operations in Iraq and Afghanistan… it has also been abundantly clear to me over the last year that the world has not stood still since then — the emergence of ISIL, and the resurgence of Russia, being just the most prominent examples."[56] DOD's Force Posture Statement identified five challenges to national security. The first, Russia and China, he describes as a "return in some ways [to] great power competition".[57] The third and fourth challenges, North Korea and Iran, he characterized as regional threats and the last challenge as the global threat in the form of terrorism, most prominently the IS.[58]

Future Environment

The Joint Operating Environment (JOE) document, published 14 June 2016, identifies trends and gives context to what the strategic environment will look like in 2035. The JOE characterizes the future operating environment using two different but related pillars – "contested norms" and "persistent disorder". Contested norms refers to states and some states actors that will

[54] Martin Dempsey, *The National Military Strategy of the United States of America 2015* (Washington, DC: Government Printing Office, 2015), 1.

[55] Ibid., 2-3.

[56] Ash Carter, *2017 Defense Posture Statement: Taking the Long View, Investing for the Future* (Washington, DC: Government Printing Office, 2016), 3.

[57] Ibid., 4-5.

[58] Ibid., 4-5.

use all the instruments of power at their disposal to influence international order in ways that challenge United States interests. Persistent disorder, on the other hand, refers to the increase in weak and failing states that are unable to govern or maintain order increasing the likelihood of conflict. The authors of the JOE see changing relationships at the strategic level caused by shifts in the economic powers of the world, energy needs, the weakening of traditional allies, and to the rise of non-state actors with increasing power. They claim we will also see a decline in the power of supra-national institutions as regional players continue to rise. Especially as Russia, China, Iran, Brazil, and India rise and increasingly become dissatisfied with their role in the global order.[59]

Regional powers are rising. Russia in Eurasia, China in South East Asia and the Western Pacific, and Iran in the Middle East. They will all contest access to the global commons to varying degrees. These nations will continue to close the capability gap with the United States in the air, sea, land, space, and cyberspace domains. Advances in technology will aid them to include: nano-technology, radio frequency weapons, non-nuclear electromagnetic pulse weapons, advances in robotics, significant improvement in laser capabilities, advances in energy, and hypersonics. Potential adversaries will challenge United States information dominance and the ability to command and control its military. Denying the United States the ability to command and control its forces threatens our most important ability in effecting a synchronized war effort.[60]

Multi-Domain Battle

The United States Army and United States Marine Corps are developing a new concept to deal with twenty-first century warfare called Multi-Domain Battle (MDB). The draft white paper is informed by the "JOE 2035" and targets 2020-2035 challenges to United States ground forces.

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[59] *Joint Operating Environment 2035 - The Joint Force in a Contested and Disordered World* (Washington, DC: Government Printing Office, 14 July 2016), 4-9.

[60] Ibid., 15-20.

Its main premise is that the United States military will be challenged in all domains air, land, sea, space, and cyberspace. In it, United States land forces are finally taking both eyes off Irregular Warfare (IW), are placing one eye on current and future threats posed by near peers, and are finally catching up to the problem the United States Air Force and Navy have been trying to solve for over a decade. It correctly articulates adversaries with A2 and AD capabilities, like China and Russia, will challenge the United States military from deployment to employment. Additionally, it correctly claims, United States global force posture, as mostly a CONUS-based force, is out of balance against emerging threats. Further complicating the balance of power, not only has the United States military withdrawn significant force from Europe and the Pacific and drawn down the overall size of the military, our allies have likewise reduced the size and capabilities of their militaries.

The Army and Marine Corps offer MDB as a possible solution to the strategic dilemmas of tomorrow. MDB is defined as "outmaneuvering adversaries physically and cognitively by applying combined arms in cross-domain operations. Through credible forward presence and resilient battle formations, joint forces create temporary windows of superiority across multiple domains to seize, retain, and exploit the initiative and achieve military objectives."[61] Multi-function battle teams with cross domain capabilities are the units in the MDB framework. The construct of the team is not yet defined but these units are categorized as flexible and resilient. Multiple such teams dispersed but mutually supporting will temporarily create domain superiority to hold at risk an adversary's anti-access and area denial capabilities.

Success of these multi-function battle teams rests on three key components: "restore capability balance and build resilient battle formations, alter force posture to enhance deterrence,

[61] *Multi-Domain Battle, Draft, September 2016 version 44*,(US Army, US Marine Corps White Paper, Ft Eustis: United States Army Training and Doctrine Command, 2016), 5.

and create and exploit temporary windows of advantage."[62] The first component calls for fixing certain warfighting functions where adversaries already have or will have a capability edge. These areas include "improvements in protection, mobility, firepower and range of key ground systems and adding or enabling cross-domain capabilities down to the lowest practical levels."[63] Surviving as a resilient battle formation in an AD environment requires many capabilities. They must operate dispersed to survive against precise enemy attacks and have sufficient organic combat power to counter threats. These units must have increased active and passive defenses, better mounted capability both on the ground and in the air. Organic firepower should include highly mobile long range air defenses, longer range fires and more of them, and un-manned ground attack systems to add capability, force multiply and decrease risk. Ground units must be able to operate in a degraded or denied space and cyberspace environment. To do this they must be able to operate "semi-autonomously" through mission command when command and control (C2) systems are disrupted or denied. Likewise, operating in such an environment will require a much more robust and survivable C2 network than we depend upon today.

The second component is somewhat a return to a Cold War force posture where United States forces were forward deployed and ready to respond to a crisis. This serves multiple purposes. First, by being in theater our forces have already gained access defeating the difficulties of force projecting into an A2 environment. Access enables our forces to degrade an adversaries A2 capabilities for follow on forces to get into the fight. Second, by being forward, United States ground forces provide conventional deterrence adjusting an adversary's calculus. Lastly, it demonstrates United States resolve because forward deployed forces "communicate commitment".[64]

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[62] *Multi-Domain Battle, Draft, September 2016 version 44*, (US Army, US Marine Corps White Paper, Ft Eustis: United States Army Training and Doctrine Command, 2016), 6.

[63] Ibid., 6.

[64] Ibid., 9.

The final component to MDB captures the character of warfare against a near-peer threat. Achieving domain dominance will not be quick. Our forces will be required to operate in contested domains. United States military units will only have temporal domain superiority for a longer period of conflict. To create temporary advantages, the services will require reaching a new level of "jointness" and partnership. To take advantage of these windows of opportunity the joint force must act quickly and decisively to hold our adversary's strategy at risk. MDB is not entirely a new concept but rather serves to reinvigorate United States ground forces to better organize, train, and equip for future conflict with a peer or near-peer threat and to better integrate with the Air Force and Navy.

Multi-Domain Wing

At the end of Vietnam war the services shifted their focus back to the dominant threat of the time, the Soviet Union. The Army's task to rehabilitate its forces was daunting; the Air Force as well but to a lesser degree. The Army led first with doctrine, AirLand Battle, and followed with systems acquisition and enhanced training to rebuild the Army as the dominant ground force on the planet. The Air Force on the other hand, not in love with doctrine, led with acquisitions based on the threat, and then subsequently caught up with doctrine. Although, the Air Force never formally incorporated AirLand Battle as its doctrine, close cooperation with the Army at various levels led the two services on parallel efforts. Ultimately, both the Army and the Air Force proved the merits of this partnership in Desert Storm where United States forces decimated the third largest military in the world.

Now, after sixteen years of COIN, we find ourselves in a comparable situation. We now face multiple sophisticated threats with asymmetric capabilities directly targeting our strengths. Although we cannot forget the lessons learned in COIN, since our fight against a militant radical Islam has no end in sight, we must turn one eye wide open towards tomorrow's fight.

Tomorrow's fight, and in many respects today's fight, must acknowledge contested domains and adversaries with A2 and AD capabilities. The Army is again leading with the intellectual prowess of the institution, manifesting itself as an encouraging draft concept called Multi-Domain Battle.

The Air Force, still not endeared towards doctrine, continues to lead with innovation. As a service, it never took its eye off the "high end" fight, but due to years fighting in a long war, dedicated a significant percentage of its resources towards capability suitable primarily for irregular warfare. This fractured the Air Force's acquisition plans to recapitalize and modernize its forces to pick a part an adversary's advanced capabilities. In a time of economic uncertainty, where each dollar spent carries more weight due to significantly increased opportunity costs of getting it wrong, it would behoove the Air Force as an institution to deliberate over its future first, then lay out an adaptable acquisition plan to enable it. Refreshingly, the Air Force is showing signs of adopting such an approach. The new Chief of Staff of the Air Force (CSAF), published his intent, "A Dialogue about Joint Warfighting Excellence" leading the Air Force to have such a debate. A concept the Air Force should consider takes us back to the future.

Composite Wing

The Air Force has a storied past with the composite wing. Traditionally, an Air Force flying wing's combat power consisted of three squadrons of the same aircraft. For example, the 1st Fighter Wing in 1975, at the time called the 1st Tactical Fighter Wing, at Langley AFB stood-up three squadrons of McDonnell Douglas F-15C Eagles, the 94th, the 27th, and 71st Fighter Squadrons. The wing's combat capability employed a single aircraft with a single mission – to achieve air superiority. The massive drawdown post-Desert Storm and the transfer of a significant amount of iron to the Air National Guard changed this dynamic. Now most wings do not have three combat squadrons effectively reducing the tooth to tail ratio.

General Merrill A. McPeak took over as CSAF from October 1990 and retired as the Chief in October 1994. General McPeak led the Air Force through sweeping large-scale organizational changes. One such change was the implementation of the composite wing. The composite wing was a concept General McPeak wrote about while he was the Commander in Chief, Pacific Air Forces.[65] In combat, multiple aircraft from multiple airbases each with varying capabilities and weapons are typically packaged under a mission commander to execute multiple tasks as directed by the Air Tasking Order (ATO). The composite wing merged several squadrons of different aircraft under a single a commander. This construct gave the wing commander tremendous organic capability to force package. The only composite wing stood up at Mountain Home AFB and consisted of F-15C air-to-air fighters, F-15E and F-16C multi-role fighters, EF-111 electronic combat aircraft, KC-135 air refueling aircraft, the B-1B bomber, and the E-3 Airborne Warning and Control System C2 platform. Plans to stand up two additional composite wings at Pope and Moody AFB failed. The Pope AFB composite wing failed due to the lack of coordination with the Army and Moody AFB's composite wings never came to fruition because of Hurricane Andrew. Ultimately, the composite wing concept was scrapped in favor of transforming the Air Force into an Expeditionary Air Force by employing units as part of Air Expeditionary Forces (AEFs), to be discussed in the next section. [66]

There were many advantages in adopting the composite wing construct. At the operational level, a single commander now had many of the capabilities of the Air Force writ large under his command reducing the amount of direction required from higher C2. Force projecting capability to a conflict became much easier. Units could train daily at home station as packages similarly to how they would fight in combat. At the tactical level, operators of multiple

[65] Merrill McPeak, "For the Composite Wing", *Airpower Journal* (Fall 1990).

[66] Thomas Bussier, *General Merrill A. McPeak - Leadership and Organizational Change,* (thesis, Maxwell AFB, AL: School of Advanced Airpower Studies, Air Univesity, 2001), 27-39.

weapon systems would brief, execute, and debrief together day in and day out, yielding improved tactics, techniques, and procedures (TTPs). Pilots had immediate access to dissimilar air combat training which was difficult to train to under a single platform wing.

There were also several disadvantages to the change. The first was readiness. A wing with three squadrons of like aircraft has a pool of spare parts and a larger pool of aircraft and maintenance personnel to keep the birds flying. Wing overhead increased to account for the diverse needs of different aircraft. For example, a wing of three squadrons of similar aircraft would require only one Wing Weapons Officer.[67] Since a composite wing has multiple squadrons of different aircraft the Wing Weapons Shop required multiple weapons officer taxing the units more so than a traditional wing. For a myriad of reasons the composite wing at Mountain Home never reached its mandated capability. It lacked Suppression of Enemy Air Defense (SEAD), Personnel Recovery (PR), airlift, and ISR aircraft. Lastly, the RAND Corporation conducted a study and found that the composite wing would be much more expensive to operate in garrison than a traditional wing.[68]

The composite wing would give way to the emerging Air Expeditionary Force (AEF) Concept. The 366th Wing at Mountain Home AFB, the only composite wing, would remain as the core to AEF until essentially 9/11. Over the next decade, the 366th would be renamed the 366th FW and be stripped of its composite aircraft.

Expeditionary Air Force

In August 1995, Lt Gen John Jumper, Commander of United States Central Command Air Forces (CENTAF) and 9th Air Force, who would later become CSAF, created the AEF

[67] A weapons officer is a graduate of the Weapons School, an elite 6-month program to create the best operators and instructors, put them back into a squadron to increase the lethality of their units, and is the standard bearer for weapon system TTPs.

[68] RAND Corporation, *Composite Wings: Needs, Costs, and Options* (Santa Monica, California: RAND, 1992), vi.

concept. An AEF was a tailored force mix of personnel and capability similar in nature to a composite wing, except it would be constituted in theater and was not a permanent organization in garrison. As the CENTAF commander, he was also dual hatted as the Joint Force Air Component Commander (JFACC) enforcing the no-fly zones in Iraq. As the JFACC he saw the same units deploying to the theater and saw the need to leverage the entire Air Force rather than just the units operationally aligned with the Middle East. At the same time the DOD was debating the role of the United States military in the post-cold war era. Many concluded state on state warfare less likely and saw what would be termed MOOTW more likely. MOOTW formally entered Air Force doctrine in the 1997 AFDD-1. AFDD-1 defined MOOTW as "military actions not associated with sustained, large-scale combat operations".[69] The Air Force created the AEF construct to solve the problem of a shrinking force, a largely CONUS-based force posture, and an increased demand signal for forces in unexpected theaters.

General Jumper tested the concept under his leadership as the CENTAF commander. The first AEF was deployed to Bahrain in support of Joint Task Force-Southwest Asia to enforce the southern no-fly-zone in Iraq. It consisted of twelve F-16CGs from Moody AFB in an air-to-air role, six F-16CJs from Shaw AFB in a SEAD role, and 516 total personnel.[70] The AEF fell in on existing infrastructure and air refueling and airborne command and control assets already in theater. It began flying sorties within 10 hours of arrival. The concept was deemed a success. Scheduled AEF rotations would become the method of deployment for known contingencies. For unexpected deployments, an on-call AEF could be sent or one constituted in less than seventy-two hours.

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[69] Air Force Doctrine Document (AFDD) 1-1, *Air Force Basic Doctrine* (Washington, DC: Government Printing Office), 7.

[70] Jeffrey Paulk, *United States Air Force Air Expeditionary Force*, (monograph, Command and Staff College, Maxwell AFB, 1997).

The AEF construct first became doctrinal with the publication of the 1997 AFDD-1. AFDD-1 used the term Expeditionary Air and Space Forces. The Air and Space Expeditionary Task Force (ASETF) would form "under a JTF for a temporary period of time to perform a specified mission" and "provides the JFC with a tailored package of air, space, and information capabilities in a structure that preserves Air Force unity of command."[71] The size of an ASETF would vary ranging from a Numbered Air Force, an Air Expeditionary Wing, or an Air Expeditionary Group, and would employ several expeditionary squadrons of varying types. In today's doctrine, the concept remains the same; however, it is now called the Air Expeditionary Task Force.

The AEF concept has largely been successful. Its success to date; however, is due mostly to its use in mature and permissive theaters. Where infrastructure was not suitable, conditions were permissive such that a Contingency Readiness Group could develop sufficient basic infrastructure to support operations. Its access to a theater has never been opposed by a near-peer. Once arriving in theater, adversaries were unable to deny or degrade AEF bases to any degree. Our greatest challenge to the AEF concept has been diplomatic in nature – securing diplomatic clearances, overflight rights, and basing rights.

Our air forces have not been challenged in the air domain and our ground forces have enjoyed air superiority for so long it is taken for granted. 15 April 1953 is a date most Airmen have memorized. It is the last day United States ground troops were killed by enemy aircraft. For over sixty-three years the Air Force has dominated the skies. The same cannot be said for the adversaries of the United States who have felt the wrath of our Air Force. As General Dave Goldfein, our current CSAF, wrote in his commander's intent, "Air and Space superiority quickly become the oxygen the joint team breathes in combat. Have it and you don't even think about it.

[71] Air Force Doctrine Document (AFDD) 1-1, *Air Force Basic Doctrine* (Washington, DC: Government Printing Office), 71.

Don't have and it is ALL you think about."[72] After a startling defeat in Desert Storm, the Iraqi Air Force buried their aircraft in the sand rather than oppose our Air Force in Operation Iraqi Freedom. On the opening two nights of Operation Allied Force, the Yugoslav Air Force challenged the United States Air Force with its MiG-29s, Russia's premier fighter at the time. The United States Air Force shot down four out of the seven and damaged another in air-to-air combat. For the remainder of the war the Yugoslav MiG-29s refused to engage until the 4th of May when another MiG-29 was shot down. Surface to air threats, on the other hand, in both Desert Storm and Allied Force were a much greater threat to United States Air Force aircraft. A trend we see growing as Russia and China develop advanced, highly mobile, long range SAMs.

The methods by which the Air Force deployed and employed its forces over the past several decades will likely not work against a near-peer competitor with A2 and AD capabilities. This monograph proposes a new construct, the Multi-Domain Wing as a concept and part of the solution to prepare us better for 21st century warfare.

Multi-Domain Wing

Adversaries have developed and will continue to build capabilities to contest the Air Force's ability to project power from CONUS and other areas of the globe. They will also hold at risk any existing base in their area of influence. Furthermore, once in theater they will contest our air forces in the air, space, and cyber domain. Multi-Domain Wings, therefore must be able to fights their way into theater, establish operating bases, build spheres of air superiority, and then penetrate enemy defenses to breakdown if not collapse its A2 and AD networks for subsequent action against the adversary's centers of gravity and enable the flow of follow-on forces.

[72] David Goldfein, "CSAF Intent - A Dialogue about Joint Warfighting Excellence" (Headquarters AF, September 2016), 2.

The terms anti-access and area denial are often misused. The two terms are almost always combined as anti-access/area denial (A2/AD) and used as if they describe the same thing. The terms are however very distinct. Some senior leaders have scrapped the words. Deleting the words; however, does not make these formidable adversary capabilities go away. A2 and AD capabilities may overlap but their aims are different. For the purposes of this paper we will use the following definitions:

> **Anti-Access:** Capabilities directed at preventing a force from projecting (i.e. gaining access) to a theater. These actions may include, but are not limited to cyber-attacks and sabotage at CONUS bases, attacking US civilian and military shipping, or using political pressure to deny overflight of certain countries.
>
> **Area Denial**: Capabilities directed at preventing forces from employing once they have secured access to a theater. These capabilities may include, but are not limited to, long range mobile SAMs, theater ballistic missiles, massed artillery, or even short range mortars targeting an airfield in theater.

Construct

The Multi-Domain Wing is a combination of and an evolution of the composite wing of the past and the current AEF construct. Such a wing would have the required capabilities to achieve domain superiority in the air, space, and cyber domains, and a network to maintain localized information dominance. Air domain capabilities would include manned and unmanned fighters, bombers, ISR, electronic warfare, SEAD, C2, PR, air refueling, and tactical airlift. The wing would include space operators to primarily secure access to space through defensive space control operations for the wing, but also to conduct offensive space control operations as needed to secure their Area of Operations (AO) or as directed by the ATO. Likewise, the wing would include cyberspace operators to execute both offensive and defensive operations in the cyber domain. The size of the construct could vary from Multi-Domain Air Task Forces, Wings, to

Groups. However, the Wing is likely the size of the force most tenable to employ as an organic entity to achieve higher headquarters commander's intent in a specific AO.

The greatest threat to our Air Force's ability to defeat a near peer in this century is the potential enemy's ability to deny our means of command and control. This directly threatens our ability to employ as we have since the disaster of Kasserine Pass, where our forces were penny-packeted to support specific ground units. Unity of command, centralized control, and decentralized execution has been and will forever be the most effective use of airpower's speed, range, and flexibility. However, if we lose our traditional ability to command and control our forces those tenets become a weakness and a liability. Several commanders each leading Multi-Domain Wings operating under commander's intent until the larger C2 network is restored will allow our forces to maintain the initiative and continue to do battle. A new concept is emerging – centralized planning, distributed control, decentralized control.[73]

Unlike the composite wing intent, combat squadrons would remain in a wing with the same aircraft to leverage all the synergy of a single-type aircraft, multi-squadron wing. There are of course exceptions to this rule. For example, ISR squadrons would remain under a multiple platform wing, and PR squadrons would remain tied to a wing of different capabilities based on their smaller numbers and to keep their capabilities geographical separated to support civil authorities. Bottom-line this concept does not change the current in-garrison basing construct. Like the AEF construct Multi-Domain Wings would form for immediate tasking or for a pre-planning contingency. The Multi-Domain Wing construct preserves the advantages of both the composite wing and the AEF without the disadvantages of either.

[73] Goldfein, 7.

Training

The current ad hoc AEF concept has largely been successful due to the character of the threat we have faced. An ad hoc collection of forces combined just prior to deployment will likely not be effective against a near-peer adversary. Thus, Multi-Domain Wings must train as an entity on a regular basis. Units will form three times a year to exercise as a Multi-Domain Wing: live fly at Red Flag, in garrison through simulation, and a CPX for leadership. Red Flag gives Airmen the opportunity to live fly using assets and capabilities they would take to the fight in a high threat environment. Unfortunately, our ranges are no longer as robust as they need to be to train to current and future capabilities of 21st century, therefore networked simulation becomes a vital component to Multi-Domain Wing training. The new wing will link its home station simulators to fight threat realistic training missions. Lastly, annual command post exercises (CPX) with a higher headquarters will focus training at the operational level of war employing multiple Multi-Domain Wings in a theater of operations. These exercises should include our joint partners but Air Forces should drive the primary desired learning objectives. Our sister services should likewise hold exercises to their needs to drive each service to push the envelope of the domains of their primary expertise.

Training commanders in the human dimension will likewise be extremely important. Wing, Group, and Squadron commanders will need to be educated on the full range of capabilities available to a multi-domain wing. Furthermore, inculcating every Airman to think through combat operations through a multi-domain lens is equally as important. All Air Force professional military education (PME) syllabi should include not only Air Force capabilities across domains but sister service capabilities across domains.

Defeating Anti-Access

As discussed earlier, adversaries of the 21st century will challenge our ability to project power from deployment to employment. Multi-Domain Wings will have the resident capability to

fight their way into theater. Sections of the Time Phased Force Deployment Data (TPFDD) or force modules of the TPFDD become a combat ATO with all the appropriate guidance and special instructions. Squadrons within the Multi-Domain Wing will initially stage in a relatively secure area and fight from initial deployment or land at an intermediate staging base or bases and fight from there, effectively base hopping into the fight, in a similar fashion to the island hopping Pacific Campaign of World War II.

Wings will create spheres of air and ground superiority around their operating bases for follow-on operations. To do so the initial phase of the deployment will employ air superiority assets to create a sanctuary for follow-on capabilities of the wing. The wing would target first those capabilities that threaten the security of its operating base. The first shot will likely be a cyber-attack. What cannot be taken out with cyber will be neutralized physically by offensive counter air assets. Forces will land back at their intermediate staging base depending on how long it takes to gain required superiority at the operating base. Ground based air defenses will play a critical role. As will Air Force Security Forces and Army ground forces to defend the base. Other assets would include Army artillery to defend against any initial attempts to overwhelm these bases in initial operations. Multi-Domain Wings collaborated with specially tailored MDB multi-function teams will be employed to secure air bases.

Defeating Area Denial

Once Multi-Domain Wings establish themselves in theater with localized air superiority, their next task will be to dismantle the adversaries remaining anti-access capabilities or attack the adversary's center of gravity in accordance with Joint Force Commander guidance. In either case, Multi-Domain Wings must contend with the enemy's area denial capabilities. The multi-domain wing will leverage all its cross-domain capabilities to destroy, degrade, or neutralize enemy area denial capabilities to attack the enemy's leadership, command control, critical infrastructure, and fielded forces.

Command and Control

Command and control processes will be flexible. Our C2 networks will likely be intact prior to conflict; therefore, initially our forces will be guided traditionally through unified command, centralized control, and decentralized execution. However; our forces will deploy with the understanding that external C2 with higher headquarter will likely be severed. Initial guidance will include all the standard products starting with a Joint Air Operational Plan, Air Operations Directives, Airspace Control Plan, Air Tasking Orders, and SPINS. These products will, however, be drafted with the foreknowledge that C2 will be denied and contain guidance on how Multi-Domain Wings will operate semi-autonomously.

To operate semi-autonomously each Multi-Domain Wing will be assigned an AO within the Joint Operations Area. Higher headquarters will provide commanders intent, goals, and priorities for each Multi-Domain Wing in each AO in the event of loss of external C2. The commanders of the Multi-Domain Wings upon losing communication from higher headquarters will operate under unified command, distributed control, and decentralized execution. They will produce their own products to guide their respective wings. Although this harkens back to route packages of Vietnam, when C2 is denied we must accept some inefficiency to retain effectiveness and continue to do battle. Airborne and ground command and control systems during execution will integrate and deconflict operations at the seams between multiple AOs. This will mitigate the inflexibility of the route package system employed in the Vietnam war and other ineffective uses of Airpower. Once external C2 is restored and information dominance is assured the C2 construct will snap back to centralized control and decentralized execution to maximize the effectiveness of airpower commanded by a JFACC in support of a Joint Force Commander.

Air and Ground Integration

One of the more challenging scenarios the joint force will face is one where we have forces already on the ground in a defensive posture and the adversary initiates hostilities. Examples, likely or not, include a Russian invasion of the Baltics or Ukraine. MDB rightfully calls for forward presence with ground force for multiple reasons. First, its takes the Army considerable time to deploy heavy forces required to fight in a high intensity conflict. Second, with forward presence the Army already has access to a theater. It now must survive and operate within that access. Lastly, forward presence deters and alters the calculus of the enemy.

The challenge with forward presence in deterring a near peer enemy is initiative. If our adversary initiates war, our ground forces will be engaged prior to the Air Force's ability to reduce the enemy's area denial capabilities. In this scenario, the enemy effectively denies our traditional way of war of sequentially conducting a massive air effort to gain air superiority, attrite enemy forces, and then follow up with ground forces. Enemy ground forces in this scenario advance under the cover of mobile ground based air defenses, advanced airpower of their own, and mobile long range and capable artillery, not to mention numerically superior armor and mechanized forces.

In this scenario, the Army must realize it will operate in an environment where we do not have air superiority. It must have its own organic advanced mobile air defenses. The Air Force and Army air defense forces need to train together to develop as effective fighting team. Ground-based air defenses should be included in aircraft targeting plans effectively acting as a fifth wingman to a four-ship of offensive or defensive counterair (OCA/DCA) aircraft. Risk to ground forces from enemy air attack will be much higher than recent conflicts. Furthermore, the joint force will not be able to apportion and allocate a majority of airpower to support ground forces since the air forces will have their hands full trying to gain air superiority. At the same time, we cannot leave our ground forces unsupported. We must apportion some weight of effort to

leverage the cooperation of ground forces and air forces operating together. Not only will this support our ground forces, it will also help reduce the enemy's AD network.

Airpower, Maneuver, and Fires

The Army has long recognized the inseparability of fires and maneuver. We must remember that while fires enable maneuver the opposite is true as well. Likewise, airpower can enable ground maneuver yet we forget from history ground maneuver and fires can also enable airpower. In the Yom Kippur War, the Egyptians radically improved their air defenses. The Egyptians crossed the Suez Canal in astounding numbers under the cover of interlocked surface to air defenses denying the highly capable Israeli Air Force from disrupting what normally would be a very lucrative and vulnerable airpower target. Eventually, the Israeli military used its capable armored forces to overrun ground based air defenses paving the way for airpower. Furthermore, long range ground fires can be used to destroy enemy integrated air defense system (IADS) as well as attrite deeper ground forces. Long range ground forces will be especially important versus an adversary with area denial capabilities where airpower will be more pre-occupied with defeating the enemy IADS than destroying first or second echelon forces. The US Army should develop specialized ground maneuver forces tailored towards surviving and operating in these environments.

From a traditional warfare theater perspective, the Pacific will likely be an air and maritime power supported effort. The Army's focus should therefore be on ground-based fires and other capabilities to present the enemy with challenges from all three earthly domains. The Army should develop capabilities to defeat an adversary's IADS and maritime targets, usually left to the Air Force and the Navy. Where a ground conflict is more likely, in Europe, the Middle-East, and Asia, land power will likely be the supported effort. Here the Army should focus on survivable maneuver forces, supported by effective ground fires. Of course, this is an

oversimplification but serves to engender thought as to what capabilities services should develop. We rarely choose our type of conflict or our adversary. Capabilities effective against a state-power with anti-access and area-denial capabilities can also be effectively used in irregular warfare, especially as advanced systems are further proliferated. Likewise, ground conflict is still a potential in the Pacific theater, just as political constraints may deny the use of ground forces in a European conflict.

Some will argue each service should specialize in their respective domains. For the most part this is true; however, we should be more pre-occupied with effectiveness versus pure efficiency. So instead of a completely interdependent force, where each service has unique capabilities, to be more effective, there should be some overlap in capability. Developing an acquisition strategy in such a fashion will enable the joint force to produce effects originating from multiple domains, in multiple domains, and from multiple services presenting the greatest of challenges to an adversary. The limitation here is our ingenuity and of course the ultimate arbitrator – the budget.

Close Air Support

In the scenario described above, enemy ground forces under the cover of mobile ground air defenses and airpower overhead will engage friendly ground forces. Friendly airpower will be forced to conduct CAS within an area denial envelope. To be successful, the Air Force and the Army must continue to leverage the very effective team that is airpower, the ground commander, and the link between the two, the TACP and the ASOC.

Executing CAS in a highly-contested environment will be much different than that executed in permissive IW operations. The CAS environment against a near-peer, where airpower has not had the opportunity to roll back the enemies IADS, will be characterized by a highly-contested air and land domain. CAS will not be persistent. It will require force packaging

similarly to deep strategic attack and interdiction missions. A combination of stand-in jamming, stand-off jamming, penetrating ISR, stand-off ISR, next generation air superiority and air-to-ground fighters and bombers, legacy fighters and bombers employing stand-in and stand-off weapons will all be part of the solution.

Next generation air superiority aircraft will protect next generation CAS aircraft and ground forces from enemy aircraft operating inside enemy air defenses. Legacy air superiority aircraft will remain outside of advanced surface to air defense engagement zones and provide a layered defense while protecting high value aircraft like C2, ISR, and air refueling tankers. Penetrating ISR platforms will derive precise coordinates of enemy air defenses and other targets. Stand-in and stand-off jamming will allow next generation air-to-ground aircraft to penetrate enemy engagement zones and through digital links with TACP to execute CAS. Penetrating aircraft will only remain inside surface-to-air engagement zones long enough to deliver weapons and will not be able to loiter within the threat. Ground forces must rely to a higher degree on organic firepower due to the nature of the threat. Legacy air-to-ground fighter and bombers can employ stand-off long range weapons from outside enemy engagement zones to assist in defending ground forces. Legacy platforms or even ground units would also employ future network enabled hypersonic weapons potentially terminally controlled by joint terminal attack controllers on the ground. The Air Force must leverage Red Flag exercises and the integration phases of Weapons School to train to this threat and develop appropriate TTPs.

Interdiction

As the Army gains increased capability on the ground we must relearn how to execute interdiction short of the FSCL. Executing interdiction inside the FSCL should not use CAS procedures since this slows down the kill chain for no added benefit. Instead, we need to leverage airspace control measures to unleash the devastating capabilities of airpower. Sixteen years of

COIN has entrenched services to use CAS procedures as the means to use airpower in almost all its forms. Targets are nominated through air support requests instead of the joint targeting process through the Air Operation Center's Target Effects Team. 9-Lines are used to target anything in the AOR even when NOT in close proximity to friendly forces and/or NOT requiring detailed coordination. We see this happening even in Iraq and Syria today where we are executing CAS procedures to strike target nowhere near friendly forces. Simple mechanisms like kill boxes can significantly increase the lethality of airpower and decrease the C2 required to execute. This is not a call to return to the naming convention of BAI vs AI or long versus shallow CAS, rather to execute interdiction where CAS is not required inside the FSCL.

Specialized Air Forces

The Air Force should consider developing an elite ground reconnaissance force purposed towards enabling a more effective use of Airpower in both conventional but more importantly in irregular warfare. Intelligence gathering and finding targets on the ground is critical to empowering Airpower. These forces would operate in small teams behind enemy lines or in contested rear areas to enable interdiction of threats. Airpower would support these teams, similarly to how Airpower supported Wingate and his Chindits in Burma during World War II. They would remain under operational control of the Commander Air Forces (COMAFFOR) and tactically controlled by the JFACC. These teams would give the senior Airman an organic ground capability to find, fix, track, target, engage through terminal control of airpower, and assess ground targets. Under certain missions they could also operate under Title 50 operations when required to support clandestine Airpower-centric operations.

Foundations for Future Air Force Doctrine

Beyond a massive reorganization of Air Force doctrine to align with the joint doctrine numbering system, Air Force doctrine has evolved very little since post-Vietnam. The three Air

Force capstone doctrine volumes are strong but lack a central concept to tie the whole together. Recently, however, to prevent annual budgets from driving strategy, the Air Force published three strategic guidance documents: "America's Air Force: A Call to the Future", the United States Air Force Strategic Master Plan (SMP), and Air Force Future Operating Concept (AFFOC). These documents are forward leaning and will serve not only to shape acquisitions but also to refine doctrine.

"America's Air Force: A Call to the Future" is the Air Force's principle strategic document. It provides guidance for the Air Force to ensure it can fulfill its core missions over the next several decades. The document captures four trends, "The Air Force will need to win in complex battlespaces characterized by rapidly changing technological breakthroughs, geopolitical instability, a wide range of operating environments, and an increasingly important and vulnerable global commons."[74] The document calls for two strategic imperatives: agility and inclusiveness. Agility is defined as "the counterweight to the uncertainty of the future and its associated rated of change" and will be the cornerstone of all activities of the Air Force from acquisition to employment."[75] Inclusiveness is defined as "the ability to harness diversity of thought within our Airmen and our partners…recognizing none of us is as smart as all of us."[76] Finally it lays out five strategic vectors for the future: 1) provide effective twenty-first century deterrence, 2) maintain a robust and flexible global integrated ISR capability, 3) ensure a full-spectrum-capable, high-end-focused force, 4) pursue a multi-domain approach to our five core missions, and 5) continue the pursuit of game changing technologies.[77]

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[74] Mark Welsh, "A Call to the Future - The New Air Force Strategic Framework", *Air & Space Power Journal* (May-June 2015), 4-5.

[75] Welsh, 5.

[76] Ibid., 5.

[77] Ibid., 5-6.

The Air Force SMP translates the strategy captured in "A Call to the Future" into guidance, goals, and objectives. Its base plan will be updated every two years and its four annexes updated every year. The three main purposes of the SMP are to: 1) translate the Air Force strategy's imperatives and vectors into capability development and planning direction, 2) align activities across the Air Force, and 3) provide a mechanism to track progress against the Air Force strategy.[78] The four annexes are: 1) Human Capital, 2) Strategic Posture, 3) Capabilities, and 4) Science and Technology.[79] For each of the two strategic imperatives, agility and inclusiveness, the SMP charts a narrative, goals, and objectives. Likewise, for each of the five AF Strategic Vectors outlined in "A Call to the Future", the SMP also establishes a narrative, goals, and objectives. The SMP translates strategy into an assessable action plan.

Lastly, the AFFOC provides an end-state as envisioned today for how the Air Force will execute its five core missions in 2035. Its central idea is operational agility which it defines as "the ability to rapidly generate—and shift among—multiple solutions for a given challenge".[80] It evolves the core missions of today to fit the strategic environment of tomorrow as depicted in Table 2. It also establishes five facets through which the Air Force will use operational agility from the tactical to the strategic level operating as part of a joint force. These five facets are flexibility, speed, coordination, balance, and strength.[81] The document reads like a science fiction novel in describing how to apply the five facets of agility to the Air Force's future core missions. It envisions an adaptable and resilient Air Force leveraging the air, space, and cyber domain to defeat adversaries and achieve national objectives as part of a large joint and combined team.

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[78] Headquarters US Air Force, *USAF Strategic Master Plan* (Washington, DC: Headquarters US Air Force, May 2015), 7-8.

[79] Ibid., 8.

[80] Headquarters US Air Force, *Air Force Future Operating Concept - A View of the Air Force in 2035* (Washington, DC: Headquarters US Air Force, September 2015), 7-8.

[81] Ibid., 7-8.

Table 2: Evolution of Air Force Core Missions

1947	Today	Future
Air Superiority	Air & Space Superiority	Adaptive Domain Control
Air Reconnaissance	Global Integrated ISR	Global Integrated ISR
Airlift Mobility	Rapid Global Mobility	Rapid Global Mobility
Strategic Air Force	Global Strike	Global Precision Strike
Coordination of Air Defense	Command and Control	Multi-Domain C2

Source: Headquarters US Air Force, *Air Force Future Operating Concept - A View of the Air Force in 2035* (Washington, DC: Headquarters US Air Force, September 2015), 12.

These three documents, the Air Force Strategy "America's Air Force: A Call to the Future", the Air Force SMP, the AFFOC, and the 2017 CSAF Intent together provide a solid foundation with which to build a future Air Force as part of a joint force capable of defeating a peer or near peer threat. These documents also serve as a solid foundation to evolve current Air Force doctrine to meet the needs of a complex future operating environment.

Conclusion

This monograph examines the development of AirLand Battle to draw insight into how best to conduct 21st century warfare. It calls for increased cooperation among services as the Air Force and the Army did during the post-Vietnam War era. It analyzes current doctrine, both the current and future strategic environment, and introduces the Army future concept called Multi-Domain Battle. This paper makes three recommendations for senior leaders to consider. The first is for the Air Force to test a new organizational construct – the Multi-Domain Wing. The Multi-Domain Wing yields all the advantages of the former composite wing and the current AEF concept without any of their shortcomings. A Joint Force Commander will leverage multiple Multi-Domain Wings as part of a resilient and highly capable force to provide an adversary with multiple dilemmas. When operational C2 is degraded, Multi-Domain Wings will operate autonomously using unified command, distributed control, and decentralized execution under commander's intent to maintain initiative and tempo. Multi-Domain Wings will be able to power

project into anti-access environments and operate within areas held at risk by enemy area denial capabilities. Furthermore, this monograph offers several considerations to increase the lethality of the joint force through improved air and ground integration. It calls for increased Army capabilities in areas normally devoted to other services. It calls for greater synergy between Air and Ground forces by leveraging Army fires and maneuver to enable airpower not just the reverse. Lastly, this monograph introduces four innovative Air Force documents, the Air Force Strategy "America's Air Force: A Call to the Future", the Air Force SMP, the AFFOC, and the latest CSAF intent. These documents serve as a strong starting point to shape the Air Force into a force capable of fighting and winning wars of the 21st century and should serve as a vehicle to evolve Air Force doctrine.

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