

General Kenney's Air Task Force: A Model for Distributed Control

by

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General Kenney's Air Task Force: A Model for Distributed Control

For the past several decades, the United States' joint air forces have effectively operated under the air power tenet of *Centralized Control/Decentralized Execution*. The proliferation of technology in recent years, however, has enabled potential adversaries to challenge United States' forces in both the space and cyber domains. This challenge threatens the air commander's ability to use Centralized Control over fielded air forces. Air Force leaders, therefore, have begun developing the concept of *Distributed Control* in order to enable lower-echelon commanders to continue the fight even when communication links with higher-headquarters have been broken. While Distributed Control is a new term, the idea behind it is not. Air commanders have relied upon it at other points in history.

This work examines how General George C. Kenney, who commanded Allied Air Forces in the Pacific, overcame similar challenges during World War II. Using Kenney's organization as a model, the paper discusses ways in which future air commanders might organize the joint air component in preparation for Distributed Control operations. By examining doctrine, this work also considers the specific authorities the Combined Force Commander and Air Component Commander must delegate to their subordinates to continue air operations under the Distributed Control concept.

The Problem

The mechanism that American air commanders use to command and control joint air power developed from the Air Force's past experience. Derived from lessons learned early in World War II, *Centralized Control* has guided the United States' air component operations ever since.¹ Following the Vietnam War, during which the

Johnson White House drove the targeting, timing and tempo of the air campaign, the Air Force established the tenet of *Decentralized Execution* to maximize air power's responsiveness to local conditions.² Today, *Centralized Control/Decentralized Execution* is considered a fundamental tenet of air power.³ Nowhere has the application of this tenet been more evident than in United States Central Command's area of responsibility.

As the designated Combined Force Air Component Commander (CFACC) in Central Command's area of responsibility, the Commander, United States Air Forces Central, applied the tenet of *Centralized Control/Decentralized Execution* in command and control of the air wars over Iraq and Afghanistan. The CFACC exercised operational command and control responsibilities for both air wars through the Combined Air Operations Center (CAOC) at Al Udeid Air Base, Qatar. Leveraging the coalition's space and cyber domain superiority, the CAOC utilized a robust communications suite to stay connected to lower echelon forces and simultaneously execute air operations 800 miles to the northwest over Iraq, and 1,500 miles northeast over Afghanistan. According to Air Force General Michael Hostage, the former Commander of both Air Forces Central and Air Combat Command, "that connectedness has not gone unnoticed" by potential adversaries of the United States.⁴

Having observed the potency of United States' joint operations for the past 13 years, potential adversaries realize they cannot match the United States in a conventional force-on-force matchup. In order to confront the United States militarily, they must seek an asymmetric advantage. As a result, rivals are investing heavily in capabilities that would deny American forces access to their space and cyber-based

force multipliers, such as communication networks, data links, and Position Navigation and Timing capabilities.⁵

China's investments in this realm are perhaps the most well-known. In January 2007, much to the chagrin of the international community, the Chinese shot down one of their own satellites, demonstrating for the first time their development of a ground-based anti-satellite weapon.⁶ The Chinese have continued to develop this capability with non-destructive flight tests accomplished in both 2013 and 2014.⁷ The Chinese are also investing heavily in cyber domain capabilities. In 2013 an American computer security firm, Mandiant, released a report detailing the cyber espionage activities of the People's Liberation Army Unit 61398.⁸ In the report, Mandiant claimed to have observed Unit 61398 compromise the computer systems of over 140 companies since 2006.⁹ Moreover, in its 2014 report to Congress on China's military and security developments, the Office of the Secretary of Defense confirmed that China is collecting intelligence on United States defense programs using computer network exploitation: "The information targeted could potentially be used to benefit... military planners' understanding of U.S. defense networks, logistics, and related military capabilities that could be exploited during a crisis." Additionally, the technical abilities required to conduct this level of exploitation are similar to the skills needed to perform computer network attacks.¹⁰ While China's capabilities might be the most well-known, the trend in acquisition of high-end asymmetric space and cyber capabilities is not limited to near-peer competitors.

In the *Capstone Concept for Joint Operations: Joint Force 2020*, General Martin Dempsey, the Chairman of the Joint Chiefs of Staff, highlighted the fact that the availability of advanced technology allows less capable militaries, as well as non-state

actors, weapons access that has historically been available only to superpowers.¹¹ It is likely that most, if not all, future adversaries will operate in the space and cyber domains; they will seek to gain an asymmetric advantage, threatening the way in which the United States commands and controls air component forces. Senior Air Force leaders have taken notice of this potential threat.

Recently, Air Force leaders have voiced concern over potential disruptions to the connectedness between the air component commander and lower echelon forces. For example, General Hostage has speculated that future adversaries would have the ability to break this connectedness at some point “episodically, periodically, but not permanently.”¹² Similarly, the former Commander, Pacific Air Forces, General Herbert Carlisle, discussed how the threat to the air component’s communications will leave the CFACC with only “a thin blue-line of [communication]... we’ll get some [communication] but we won’t get it all.”¹³ Based on this realization, these leaders have begun to question the future efficacy of operations under *Centralized Control/Decentralized Execution*.

With the belief that potential adversaries will be able to disrupt the air components’ command and control networks, both Generals Hostage and Carlisle have advocated the development of a new command and control paradigm. Using the concept of *Centralized Command/Distributed Control/Decentralized Execution*, the air component would be able to fight through disruptions in its command and control architecture. Under this construct the air component commander would provide the necessary guidance to lower echelons so subordinate elements could continue air operations despite command and control network disruptions. As General Hostage

explained in a recent interview, Distributed Control would provide the ability to orchestrate air operations without “relying on long-range prompts from a centralized command and control element.”¹⁴ This synchronization would happen through a Distributed Control Element such as an Airborne Warning and Control System (AWACS), a Joint Surveillance Target Attack Radar System (JSTARS), or a Wing Command Post.¹⁵

Similarly, in the Pacific theater General Carlisle envisioned using the Distributed Control concept to provide mission-type-orders to subordinate air component command and control elements in order to synchronize operations across the joint force. In addition to the tactical-level command and control elements highlighted above, General Carlisle anticipated using the Marine Corps’ Tactical Air Operations Center on Okinawa, the Navy’s embarked 7th Fleet, and the 5th Air Force headquarters at Yokota Air Base, Japan, as separate Distributed Control elements in order to overcome the tyranny of distance inherent to the Pacific theater.¹⁶

General Carlisle was not the first airman, however, forced to consider how to command air forces in the Pacific over vast distances with little direct communication capability. General George C. Kenney did exactly that in World War II. Often, challenges that seem new to us are simply variants of challenges that our predecessors have faced in periods of open conflict or high stress. The responses these earlier leaders made to the hurdles in front of them can help guide us as we seek solutions to our own problems. These responses to historical challenges can also lend insight into the actual implementation of new communication, authorization and personnel infrastructures designed to operate in sub-optimal conditions.

General Kenney's 5th Air Force

In August 1942, then-Major General Kenney took command of the Allied Air Forces under General Douglas MacArthur in the Southwest Pacific Area (SWPA). In late July, Kenney arrived in Brisbane, Australia, home to MacArthur's headquarters, with the understanding that MacArthur had been dissatisfied up to that point with the Allied Air Force's performance.¹⁷ After an initial meeting with MacArthur, Kenney set out on a trip to assess his new command. At Port Moresby, New Guinea, the Allies' forward-most air base, Kenney observed Allied Air Force preparations for a bombing mission as well as their reaction to a Japanese attack on the airfield. General Kenney quickly identified several practices at the tactical level that he would need to change in order to shape the air component into a more effective fighting force.¹⁸

At the operational level, the Allied Air Force's organization—combined with the distance between headquarters and New Guinea—resulted in a convoluted command and control situation. In order to synchronize the air campaign with allied land and naval activities, the Allied Air Forces headquarters were collocated with MacArthur's headquarters in Brisbane. Thus, operational orders had to travel nearly 1,300 miles from Brisbane to Port Moresby using various modes of communication. As General Kenney explained, "communications to New Guinea were telephoned or mailed [690 miles] to Townsville and from there radioed or flown or sent on a boat across the Coral Sea [675 miles] to Port Moresby."¹⁹

Adding to the complexity, these orders originated from the Director of Bombardment at Allied Air Force headquarters. From Brisbane, headquarters forwarded them to an intermediate command echelon in Townsville, then to the 19th Bombardment Group stationed 20 miles west of Cairns at Mareeba Airfield. The bomb

group generated aircraft and flew over 500 miles north to Port Moresby where ground crews refueled the bombers while local personnel briefed the flight crews with updated weather and reconnaissance reports.²⁰ Some flexibility was built into the command arrangement as the local air force commander did have limited authority to change the bomber aircrafts' assigned mission while they were in New Guinea. In addition to commanding the fighter and light attack aircraft stationed at airfields in Port Moresby, the local commander could reassign a transient aircraft's mission in the case of an emergency or in operations against targets of opportunity. In fact, this authority was put to use on occasion when bombers would arrive at Port Moresby and neither the crew nor the local commander knew their assigned target or the mission.²¹ The relatively limited authority of the forward air commander combined with the distance and arduous communications channels between headquarters and the allies' forward base shaped the way in which General Kenney would reorganize the Allied Air Forces.

In September 1942, a little over a month after his arrival in theater, General Kenney restructured the Allied Air Forces. On the staff, he consolidated American power by making himself not only the commander, but also the temporary Chief of Staff until he could replace the previous Australian Chief of Staff with an American officer.²² General Kenney also split the force along national lines by giving each ally a geographic area of responsibility as well as control over allied air forces based within that area. Kenney established the Royal Australian Air Force (RAAF) Command responsible for defending the Australian homeland, hunting submarines and executing bombardment missions out of northwestern Australia. Kenney also established the American 5th Air Force, which he commanded personally; it would be responsible for offensive air

operations in New Guinea.²³ These moves helped standardize operational practices and logistics along national lines in an effort to improve overall combat effectiveness.

One of Kenney's changes, however, was tailored to directly address the issues associated with controlling an air campaign while headquartered 1,300 miles from the action.²⁴ General Kenney established an advanced headquarters at Port Moresby, the Advanced Echelon of the 5th Air Force, or ADVON, and appointed the Deputy Commander, 5th Air Force, Brigadier General Ennis Whitehead, as its Commanding General.²⁵ According to Kenney, Whitehead "had brains, leadership, loyalty, and liked to work."²⁶ Kenney fully trusted Whitehead and knew him to be a very capable airman and commander.

By appointing Whitehead to ADVON, Kenney tackled two issues at once. First, he put a capable commander in charge of cleaning up the tactical problems he had witnessed in New Guinea. Second, he tasked Whitehead with running the day-to-day combat operations out of Port Moresby and gave him the authorities required to realize airpower's inherent flexibility. Whitehead had the authority to adjust tasked missions based on changing weather, updated intelligence, or aircraft maintenance issues.²⁷ Moreover, Whitehead coordinated directly with the local ground commanders and could quickly task air support missions when requested.²⁸ In essence, Kenney would provide Whitehead with operational guidance and intent. Whitehead would turn that guidance into detailed operational plans and make adjustments to the plan as combat events unfolded. With this command and control setup, General Kenney could control the direction of the air campaign from his headquarters in Brisbane, while his deputy

ensured the air component remained a flexible force responsive to combat realities in New Guinea.

In the latter part of 1942, the Allies improved their foothold in Papua New Guinea. Kenney's air campaign focused on pushing the Japanese out of the airfields located along Papua's northern coast in Buna, Salamaua, and Lae.²⁹ This effort was intended to give Kenney air superiority over Papua and a greater ability to support the ground offensive. By November 1942, as part of a three-pronged ground attack against the Japanese in Buna, Kenney's transport aircraft began resupply missions using a grass strip just west of the objective, near Dobodura.³⁰ In the coming months, the Allies would build at Dobodura the first of many advanced airbases.

While Dobodura was less than 100 miles from Port Moresby, General Kenney believed it to be an important move operationally. First, fighters operating out of Dobodura would provide greater protection against Japanese aircraft along New Guinea's north coast. In addition, the move would extend the fighter and bomber range further into Japanese-held territory. Basing aircraft on the north coast of New Guinea had another advantage. Lying just north of Port Moresby, the Owen Stanley mountain range was a 13,000-foot tall barrier between Allied aircraft and their Japanese targets to the north. The mountain range also generated dangerous weather systems nearby. According to General Kenney, creating an airbase at Dobodura would mean "we wouldn't have to climb over the Owen Stanleys and buck the thunderheads which made a barrier almost as bad as the mountains themselves."³¹ In March 1943, fighter aircraft began operations out of the airfield; but the 5th Air Force soon realized that the

mountain range was as much a barrier to command and control as it had been to aircraft flying in and out of Port Moresby.³²

The primary operational disadvantage of basing aircraft at Dobodura was the unreliable communications between forward-based forces and ADVON. From Port Moresby, ADVON relied on radio communications to command and control aircraft based out of Dobodura. However, both the Owen Stanley mountain range and the frequent thunderstorms made radio communications spotty at best.³³ After a few months of operating from Dobodura, the Allies began stringing telephone line to connect with Port Moresby. This effort took more than 400 people five weeks of clearing jungles and stringing wires, yet it did not solve ADVON's communications issue.³⁴ As the official histories of the 5th Air Force would later explain, the unrelenting dampness in New Guinea "rotted poles and corroded wires, and frequent storms ground newly-strung lines." In addition, the move to Dobodura would be "the first of many leaps which took combat units, service units, and troop carrier units hundreds of miles ahead of bases that had been established only a few months or even weeks before."³⁵ They argued that, "In such circumstances, it was impossible to establish reliable communications between the advanced bases and those to the rear... it was clear that if authorization for every strike by aircraft based on the north side of the Owen Stanleys were required from Port Moresby or Brisbane, operations would be disastrously delayed."³⁶ General Kenney's answer to this dilemma was to establish a new, lower echelon headquarters that would exercise command and control over forward based units.

In March of 1943, General Kenney established at Dobodura the Buna Air Task Force under the command of Colonel Frederick H. Smith Jr.³⁷ Later renamed the First

Air Task Force, this would be the first of three air task forces that 5th Air Force would employ.³⁸ The air task force was a purpose-built organization containing a mixture of those fighter, bomber, reconnaissance, rescue and transport units required for a specific campaign or operation. The air task force commander had no administrative responsibilities, freeing the streamlined organization to focus entirely on the combat operation.³⁹ In fact, General Whitehead was each air task force commander's direct supervisor, establishing a purely operational chain of command.⁴⁰ Moreover, the only permanent part of the air task force was the core of its headquarters.⁴¹ The assigned combat and service units would return to their parent organizations, such as 5th Fighter Command or 5th Bomber Command, once the air task force completed the campaign or operation for which it had been built.⁴² Throughout the remainder of the war, Kenney used the air task forces to control attached Army, Navy, Marine Corps, and allied air forces.⁴³ Essentially, the air task force was a smaller, more forward version of Whitehead's ADVON.⁴⁴

General Kenney assigned each air task force commander an area of operation and gave him authorities similar to those he gave to General Whitehead as the commander of ADVON. Kenney's air task force commanders thus had the authority and responsibility when required to assume operational control over any and all air force units in the task force's area of operation. The air task force commander was expected to dispatch aircraft on defensive missions, in support of ground forces and against emerging targets when an immediate decision was necessary to inflict maximum damage on the enemy or protect friendly units.⁴⁵ Moreover, while General Whitehead retained operational control over all air forces in New Guinea, this control was

distributed at advanced bases through the air task force commanders.⁴⁶ Major Herbert Johansen, a writer for *Air Force* magazine during World War II, explained, “the air task force assumes operational control of all air activity inherent in an air force, including a prelude of saturation bombing where necessary, air patrol, attacks on shipping, reconnaissance, tactical bombing and strafing.”⁴⁷ With liaison officers from ground and naval forces attached to each air task force, the collocated flying units of various aircraft types were able to support joint campaigns by developing detailed, fully integrated operational plans with relative ease.⁴⁸ By organizing combat units into air task forces, General Kenney was able to ensure that forward-based units had the operational flexibility required in combat while still exercising centralized command of Allied Air Forces.⁴⁹

The air task force organization also provided the command and control means with which the air commander could decentralize control for better support of the ground component. When allied operations initially moved from New Guinea to the Philippines, the air task force operated in the same way as it had in New Guinea. As the allies’ advance pushed the Japanese air force out of the Philippines, the demand for defensive and offensive counter air missions diminished. With fewer counter air missions required, more assets could be allocated to ground support missions. In fact, 5th Air Force no longer required centralized control of air operations. In order to improve coordination between air and ground units, 5th Air Force attached an air task force to each Army Corps operating in the Philippines, giving Corps commanders unfettered access to air task force assets.⁵⁰

While there were many benefits of the air task force concept, this organizational construct did have one big disadvantage. Between 5th Air Force Headquarters, ADVON, and the air task forces, General Kenney employed three separate operational-level command echelons. This construct was manpower intensive, as it required staff at each echelon. In fact, Kenney initially had to use personnel from his own headquarters and from the flying units in order to staff these functions. The subsequent thin spread of manpower between the headquarters and the flying units ran Kenney's airmen ragged.⁵¹ However, the benefits of operating three command echelons outweighed the drain on manpower.

So effective was General Kenney's command and control over allied air forces in New Guinea that an officer touring the Southwest Pacific Area on behalf of U.S. Army Headquarters reported that he was impressed with the "apparently effortless manner and rapidity with which the very limited staffs of the Advanced Air Echelons are able to orient and control such a maximum concentration of their total striking force."⁵² He concluded that the main reason for the Air Force's extraordinary effectiveness was its flexibility. Furthermore, he explained how, once Generals MacArthur and Kenney approved a basic air plan, detailed planning and execution were completely decentralized, needing only a short face-to-face final coordination conference between ADVON and the air task force commanders to fully integrate the operational plan.⁵³ In this way, the Allied Air Force was able to ensure unified action and maintain operational flexibility despite its communication limitations.

The effects that General Kenney and 5th Air Force achieved while overcoming both the tyranny of distance and unreliable communications are similar to what today's

air commanders hope to achieve using the Distributed Control concept. In fact, Kenney essentially pioneered the concept in World War II. First, he exercised centralized command over allied air forces; next, he distributed control of his air forces by issuing general operational guidance to ADVON and the three air task forces, leaving these organizations to produce detailed air plans and permitting lower echelons to maintain the initiative even when communication channels broke down. Lastly, Kenney employed decentralized execution by giving lower echelon commanders authorization to adjust the operational plan in real time as local conditions required. The model General Kenney employed in the 5th Air Force had two key factors that model how best to implement Distributed Control: 1) the establishment of subordinate operational commands controlling composite air forces, and 2) the delegation of planning and execution authorities to those subordinate commanders. In order to design a command and control construct using General Kenney's as a model, today's air commanders should first update current doctrine to help shape the way they organize and employ air forces.

Doctrine

Joint and Service doctrine helps guide diverse and complex military organizations as they employ power and implement plans to achieve specified ends. Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, defines doctrine as, "Fundamental principles by which the military forces or elements thereof guide their actions in support of national objectives. It is authoritative but requires judgment in application."⁵⁴ By teaching and promoting doctrine, the Air Force creates "a common frame of reference on the best way to prepare and employ Air

Force forces.” In turn, doctrine shapes “the manner in which the Air Force organizes, trains, equips, and sustains its forces.”⁵⁵

Current Air Force doctrine does not discuss the concept of *Centralized Command/Distributed Control/Decentralized Execution*. Rather, doctrine continues to focus on the tenet of *Centralized Control/Decentralized Execution*.⁵⁶ Distributed Control tactics, techniques and procedures will need to be fully vetted through exercise and practice prior to their inclusion in doctrine. However, the Air Force’s Center for Doctrine Development and Education should include a description of the concept, as well as examples of possible uses, in basic Air Force doctrine in order to initiate a Service-wide discussion and help the Air Force begin to envision how best to implement Distributed Control.

One possible template can be found in a recent article in *Joint Forces Quarterly* by General Hostage and Lieutenant Colonel Larry Broadwell. Hostage and Broadwell define Distributed Control as “the conditional, adaptive delegation or assumption of control activities through orders or protocols to synchronize operations, maintain initiative, and achieve commander’s intent.”⁵⁷ The authors provide a comprehensive description of the concept and offer examples of how Distributed Control could be used during an air operation.⁵⁸ This article, combined with some of the concepts discussed hereafter, could form the baseline of the Distributed Control discussion in basic Air Force doctrine. While doctrine currently lacks a discussion of Distributed Control, it does afford the possibility of organizing air forces for Distributed Control operations consistent with General Kenney’s model.

Organization

Air Force doctrine specifies the way in which the service organizes and presents forces to the Joint Force Commander. Through the Air Expeditionary Task Force (AETF), the Air Force establishes a temporary expeditionary force to perform a specific mission.⁵⁹ Similar to the way that General Kenney organized his air task forces, the AETF is a task-organized, integrated package. Furthermore, AETFs can range in size from a relatively small expeditionary group to a large expeditionary air force made up of multiple wings.⁶⁰ Like General Kenney's air task force, an AETF contains three important elements that enable it to utilize Distributed Control.

First, each AETF has a single commander to ensure unity of effort. Second, an AETF is enabled by the command and control required to direct assigned and attached forces. Third, the assigned and attached forces are tailored for a specific mission or set of missions.⁶¹ While most airmen think of an AETF as the theater-level organization under which the entire Air Force contribution to the joint force is organized, current doctrine also describes subordinate AETFs that the air commander might establish below the theater level.⁶² Consistent with General Kenney's organizational model, the CFACC could organize several subordinate AETFs, and tailor each one to meet mission needs in preparation for Distributed Control operations. Because these organizations may include attached joint and coalition air forces, they could be called Air Task Forces (ATF), distinguishing them from the Air Force's theater-wide AETF. Each ATF would be a standing organization with authorities and responsibilities assigned by the CFACC directly, in the case of good communications, or established based on preset protocols, in the case of degraded communications.

One key to this construct is for the CFACC to right size each ATF, ensuring lower-echelon commanders have the span of control required to direct assigned and attached forces when Centralized Control mechanisms fail and Distributed Control becomes necessary.⁶³ Because the majority of units assigned to an Air Expeditionary Wing (AEW) are geographically collocated at a single air base, the CFACC should use the AEW as the baseline organization from which to build an ATF. The commander would have the requisite span of control due to unit proximity.

Using the AEW in this way does not align perfectly with General Kenney's model for Distributed Control. Due in part to their mobility requirement, Kenney's air task force headquarters were lean organizations with no administrative requirements.⁶⁴ However, today's AEW headquarters primarily have administrative duties while the CAOC carries the brunt of the operational load. Under Distributed Control protocols, the ATF would bear the operational load. Thus, designating an AEW as an ATF would require the staff to morph into a more operationally-focused headquarters.

Advantageously, this setup would be relatively lean, as it would not require an additional command echelon between the CFACC and the AEW. With the addition of operationally-focused personnel and equipment, the AEW headquarters could act as the ATF headquarters when executing under Distributed Control protocols. Similar to having a dual-hatted COMAFFOR and CFACC with distinct administrative and operational chains of command, the AEW commander would be dual-hatted as the ATF commander. During Distributed Control operations, this dual-hatted commander would retain operational control over assigned Air Force forces while exercising tactical control over attached joint and coalition air forces. Moreover, establishing distinct

administrative and operational chains of command would allow this organization to plug-and-play into any Joint Task Force in which the COMAFFOR is not also the CFACC.

While the collocation of units in a typical AEW make it a good starting point for designating a Distributed Control element, the CFACC could also align multiple AEWs based in the same region under a single ATF. This is similar to General Kenney's air task forces that directed multiple groups operating out of several regional airstrips.⁶⁵ For example, on the island of Okinawa, a single ATF commander would have the span of control required to command and control air forces based out of Naha Airport, Marine Corps Air Station Futenma, and Kadena Air Base during Distributed Control operations. These three airfields are within 14 miles of each other, enabling a single commander to direct planning and manage execution through either line-of-sight communications or face-to-face interaction. Establishing this type of ATF would not require an additional command echelon, as the AEW with the largest command and control capacity could act as the ATF headquarters.

Another key factor in designating ATFs would be ensuring each one is properly force packaged to support its mission set. Not every ATF would look alike. Ideally, their composition would be based on the ATF's assigned mission set when executing under Distributed Control protocols. However, air force basing rights as well as airfield capacity may drive a suboptimal ATF composition. A partner nation may only allow the coalition to fly a specific mission set from host nation airfields, such as air-to-air refueling or airborne intelligence, surveillance and reconnaissance. Similarly, an available airfield may only be capable of hosting fighter-sized aircraft. In both cases, the unit's composition may drive a very limited Distributed Control mission set.

If no basing limitations exist, the CFACC would be able to purpose-build each ATF for a specific set of missions. For example, an ATF with a mixture of fighter, bomber, electronic warfare and support assets assigned or attached would have the ability to integrate capabilities and employ effectively over a larger mission set than an ATF composed of a single weapon system. Much like General Kenney's fully established air task forces, a composite force would provide the ATF the flexibility required to focus on prioritized missions in accordance with CFACC guidance. Moreover, the inclusion of service liaisons would enable joint integration at the ATF level under Distributed Control protocols. For example, the Army's ground liaison detachments, which are typically collocated with Air Force operational flying units, could serve as links between the ATF and supported Army units.⁶⁶ The other services and coalition partners could establish similar liaisons should an ATF's mission set require it. By establishing composite ATFs with tailored joint and coalition liaisons, the CFACC would help ensure the air component's flexibility when operating under Distributed Control protocols.

The ability to conduct lateral coordination between ATFs would be key to synchronizing joint air operations and would make the overall effort more effective. As a starting point, each ATF would be assigned a specific area of operation as well as a distinct mission set. While an area of operation is a joint term that does not currently apply to air operations, Distributed Control may require this doctrinal shift.⁶⁷ Assigning each ATF responsibility for a distinct area of operation would be key to enabling air operations when ATFs were unable to coordinate their efforts laterally with one another. However, limiting air power's reach and flexibility with geographic restrictions is an

inefficient use of limited assets. One of the strengths of Centralized Control of air power is the ability to focus limited air assets where needed across an entire theater. Under Distributed Control, ATFs would require the ability to synchronize operations with the other ATFs in order to achieve similar effectiveness. General Kenney's organization achieved this largely through face-to-face interaction. Tomorrow's ATFs may be able to do the same. Other synchronizing mechanisms include the use of tactical-level command and control nodes as synchronizing agents, or standard communication systems when the CAOC is the only command echelon experiencing communications issues.

Using General Kenney's organizational model, preparing for Distributed Control will require a methodical force laydown plan. Leveraging the doctrinal description of an AETF, the CFACC would establish subordinate ATFs, tailoring the composition of each to fulfill a specific mission set when operating under Distributed Control protocols. Maintaining span of control is key, so the AEW would form the baseline organization for each ATF. However, geography matters and a single ATF may be able to maintain span of control over multiple AEWs operating from the same region. Moreover, partner nation basing rights and airfield capacity will influence ATF composition and drive each one's mission set. Unfettered by these considerations, the CFACC could establish tailored, composite ATFs with joint liaisons that are able to control joint, integrated air operations. These ATFs would each have specific areas of operation, but would synchronize laterally with other ATFs to optimize the entire air effort while operating under Distributed Control protocols. In order to be effective, these ATFs would also require authorities that today's air commanders typically retain at upper echelons.

Authorities

A well-organized air force with a mixture of assets capable of fully integrated operations can do very little if the commander does not have the authority to properly employ it. This authority flows to the air component from the Coalition Force Commander. According to Joint Publication 3-30, *Command and Control of Joint Air Operations*, “The [Coalition Force Commander] delegates the [CFACC] the authority necessary to accomplish assigned missions and tasks.”⁶⁸ In turn, Air Force Doctrine describes how the CFACC leverages decentralized execution by delegating authorities “to designated lower-level commanders and other tactical-level decision makers.”⁶⁹ While the air commander routinely delegates execution authorities to lower-echelons, the same cannot be said for those authorities associated with planning air operations. In order to effectively employ General Kenney’s command and control model, both the Combined Force Commander (CFC) and the CFACC would be required to delegate some level of planning and execution authorities to the ATF commanders when operating under Distributed Control circumstances.⁷⁰

When planning ongoing operations, the CFC makes two significant decisions on a routine basis that affect the air operation. Under Distributed Control circumstances, lower-echelon commanders may need authority to make these decisions. The first of these is the air apportionment decision. According to Joint Publication 3-30, “Forces are tasked by the [CFACC] based on the [CFC’s] approval of the [CFACC’s] air apportionment recommendation.”⁷¹ This decision outlines the weight-of-effort, by percentage or priority, devoted to various mission sets.⁷² In turn, the CFACC documents the apportionment decision as part of the Air Operations Directive, which

typically provides daily guidance for the joint air campaign and shapes each day's Air Tasking Order.⁷³

The second significant decision the CFC makes on a routine basis deals with joint targeting. As part of an operation's daily battle rhythm, the CFC typically establishes a Joint Targeting Coordination Board to coordinate targeting tasks across each of the components.⁷⁴ The board produces the Joint Integrated Prioritized Target List (JIPTL) for the commander's approval. This list of targets then flows to the components for the next day's tasking.⁷⁵ While the joint headquarters maintains a list of validated targets located in the joint operating area, the components do not receive approval to strike those targets through the deliberate targeting process until they are published on the approved JIPTL. While there are exceptions to this rule, the vast majority of deliberate targets are approved at the Combined Force Commander level.⁷⁶

In future operations, the CFC may need to delegate these authorities to the ATF commander. Recall that two of the main purposes of Distributed Control are to "maintain initiative, and achieve commander's intent."⁷⁷ Joint Doctrine describes the principle of the offensive, one of the principles of war, as "the means by which military force seizes and hold the initiative."⁷⁸ Thus, maintaining the initiative is inherently offensive in nature and requires the ability to deliberately target the enemy. Added to this, the air apportionment decision directly applies to achieving commander's intent. Joint Doctrine defines commander's intent, in part, as the "concise expression of the purpose of the operation and the desired military end state."⁷⁹ Moreover, "apportionment guidance should reflect prioritized operational objectives and relevant tactical tasks with approximate weights of effort for each objective," according to Air

Force Doctrine.⁸⁰ Thus, achieving commander's intent requires the ability to make air apportionment decisions. In order to maintain the initiative and meet commander's intent, future CFCs will need to delegate deliberate targeting and air apportionment authorities to ATF commanders, especially if they are expected to plan air operations while operating under Distributed Control protocols for extended periods of time. Superior commanders would need to make similar considerations for the execution phase of air operations.

During execution, the ATF commander, or other battle management platforms, would need similar authorities to adjust the operational plan to combat realities in real-time. Under current doctrine, the CFACC utilizes Decentralized Execution by delegating many defensive and offensive execution authorities to the tactical level. Examples of these authorities include the authority to scramble alert aircraft, authorities to identify and engage air targets, as well as the authority for an aircraft commander to self-identify and destroy certain types of military targets. However, the CFACC retains some execution authorities within the CAOC in order to ensure the entire operation is meeting the CFC's objectives. As one example, the authority to change a formation's mission from one to another typically resides at the CAOC-level.⁸¹ Moreover, the authority to engage certain types of dynamic targets rests with the CFACC, CFC, or an even higher-level authority.⁸² In order to maintain initiative and meet commander's intent, ATF commanders, or other battle management platforms, would need the execution authorities to re-role aircraft missions and direct dynamic targeting during Distributed Control operations.

Due to strategic and operational level concerns, the Combined Forces Commander would not always be able to delegate all planning and execution authorities to lower-echelon air commanders. With airpower's versatility, a tactical action can easily create unwanted strategic consequences. Moreover, a flawed air apportionment decision could result in insufficient assets dedicated to a CFC priority mission. So, CFCs and CFACCs would need to heavily weigh which authorities they are willing to delegate to ATF commanders under Distributed Control protocols based on the strategic situation. They would be required to balance the risk of limiting a lower-echelon commander's initiative and effectiveness with the risk of their air force making a tactical miscalculation that has an undesired strategic impact. As the strategic and operational situation changes, the CFC and CFACC would need to reconsider which authorities should be delegated to lower-echelon air commanders, then communicate those authorities to the ATFs and subordinate command and control nodes.

The CFACC could document these Distributed Control authorities in the daily Air Operations Directive as it already focuses on CFC and CFACC commander's intent and priorities.⁸³ In essence, the air forces would operate with two sets of authorities on hand. The first set would establish Centralized Control authorities and allow the CFACC to better manage risk when communications to and from lower-echelon forces are uncontested. The second set would establish Distributed Control authorities, identifying those mission areas where the CFC and CFACC are willing to take risk by delegating specific authorities to lower-echelon commanders when communications are cut or limited. With this method, ATF commanders and tactical-level command and control nodes would have access to the latest CFC and CFACC guidance on-hand

should they lose communications with upper-echelon command, thus enabling a smooth transition to Distributed Control operations.

Realizing smooth transitions between the CAOC's Centralized Control and the ATFs' Distributed Control will require the development of specific Tactics, Techniques and Procedures (TTP). If executed effectively, the transition in command and control authority would be transparent to aircraft commanders operating at the tactical level. However, the CAOC, ATF, and other battle management platforms must remain vigilant and prepared to transition when required. In order to enable a smooth transition, these entities must develop TTPs designed to detect attacks on friendly communication systems, identify the level of degradation, and transition to Distributed Control operations when warranted. Similarly, the CAOC needs to develop TTPs for regaining Centralized Control of the air operation once communications are restored. These TTPs would likely involve routine communications checks as well as the use of automated system monitoring methods. Furthermore, the TTPs need to address the level and duration of degradation required before transitioning to Distributed Control protocols, while also addressing the type and length of restored communications required before returning to Centralized Control. Training to these TTPs would help ensure smooth transitions to and from Distributed Control during combat operations.

Exercising the command and control enterprise to transition into and out of Distributed Control operations would have multiple effects. By the very nature of Distributed Control, the CAOC, ATF, and other battle management personnel would be required to participate in exercises during which they practice transitions to and from Distributed Control operations. This level of interaction would help improve

effectiveness under both Centralized Control and Distributed Control protocols. Additionally, exercising this command and control model would TTP enhancement while providing a platform to socialize the Distributed Control model with service, joint, and coalition stakeholders. This socialization is important, as it would help improve the CFC's comfort with the Distributed Control model and enable the delegation of authority required to execute operations under Distributed Control protocols.

Key to Distributed Control operations, the ATF commanders and tactical-level command and control elements must have the authority required to conduct air operations. In order to plan Distributed Control operations, the CFC would need to delegate deliberate targeting and air apportionment authority to ATF commanders, enabling them to maintain initiative and meet commander's intent. Moreover, the CFACC would need to delegate similar authorities during the execution phase to allow ATF commanders to reassign aircraft missions and execute dynamic targeting. Based on the strategic situation, the CFC and CFACC may be unable to delegate all planning and execution authorities. So, the CFACC should use the Air Operations Directive to document the authorities lower-echelon commanders would have under Distributed Control protocols. Lastly, routinely exercising specific TTPs would help enable smooth transitions to and from Distributed Control, while improving commander comfort with the concept. In this way, ATF commanders would have the ability to maintain initiative and meet commander's intent.

Conclusion

Due to the proliferation of technology and the potential sophistication of future adversaries, Air Force leaders are re-examining how best to command and control the air component in contested space and cyber domains characterized by degraded

communications between the CFACC and lower-echelon forces. To date, they are championing the concept of *Centralized Command/Distributed Control/Decentralized Execution*. While this concept is still under development, it is important to draw insights from the way in which a previous Air Force leader overcame similar command and control challenges. As the Commander, Allied Air Forces, in the Southwest Pacific Area during World War II, General George C. Kenney was effectively able to overcome extreme distances between headquarters and fielded forces, utilizing limited communications capability. He did so by organizing both an advanced headquarters and several air task forces, properly equipped and authorized to execute the air campaign given broad commander's guidance and priorities. His command and control model is helpful as it sheds light on how the Air Force might organize for future operations in similarly challenging circumstances.

Using General Kenney's organization as a guide, future air commanders can prepare for Distributed Control operations by methodically organizing and authorizing lower-echelon forces. By force packaging the air component into several AETF-like Air Task Forces, future CFACCs would create lower-echelon composite forces able to integrated air efforts within a designated area of operation. Moreover, through synchronization mechanisms, multiple ATFs would be able to optimize their employment, focusing limited assets where needed to best meet commander's intent. In order to realize this organization, both the CFC and CFACC must be prepared to delegate specific planning and execution authorities, enabling ATF commanders as well as tactical-level command and control organizations to maintain the initiative while meeting commander's intent. By documenting these, and other, Distributed Control

concepts into current Air Force Doctrine, today's Air Force leaders will help prepare the air component to meet tomorrow's command and control challenges.

Endnotes

¹ War Department, *Command and Employment of Air Power*, War Department Field Manual FM 100-20 (Washington, DC: War Department, July 21, 1943), 2, http://www.au.af.mil/au/awc/awcgate/documents/fm100-20_jul_1943.pdf (accessed December 23, 2014).

² Daniel F. Baltrusaitis, *Centralized Control with Decentralized Execution: Never Divide the Fleet?*, Air War College Center for Strategy and Technology Paper (Maxwell AFB, AL: Air University, June 2004), 13, <http://www.au.af.mil/au/awc/awcgate/cst/csats36.pdf> (accessed online December 23, 2014).

³ Curtis E. Lemay Center for Doctrine Development and Education, *Basic Doctrine*, Air Force Doctrine: Volume 1 (Maxwell AFB, AL: Air University, October 14, 2011), 58, <https://doctrine.af.mil/download.jsp?filename=Volume-1-Basic-Doctrine.pdf> (accessed December 22, 2014).

⁴ Gilmary Michael Hostage III, "Air Combat Command," public speech, Air Force Breakfast Program, Washington, DC, July 29, 2014, 12, http://www.airforcemag.com/afatranscripts/Documents/2014/July_2014/072914hostage_AFA-AFBP.pdf (accessed October 24, 2014).

⁵ Gilmary Michael Hostage III, "Future of the Combat Air Force," public speech, Air & Space Conference and Technology Exposition, Washington, DC, September 16, 2014, 9, http://www.af.mil/Portals/1/documents/af_events/Speeches/16SEP2014-Gen-Michael-Hostage-Future-of-the-Combat-AF-AFA-Conference.pdf (accessed October 24, 2014).

⁶ Marc Kaufman and Dafna Linzer, "China Criticized for Anti-Satellite Missile Test," *The Washington Post Online*, January 19, 2007, <http://www.washingtonpost.com/wp-dyn/content/article/2007/01/18/AR2007011801029.html> (accessed December 23, 2014).

⁷ Zachary Keck, "China Conducted Anti-Satellite Missile Test," *The Diplomat Online*, July 29, 2014, <http://thediplomat.com/2014/07/china-conducted-anti-satellite-missile-test/> (accessed December 23, 2014).

⁸ David E. Sanger, David Barboza, and Nicole Perlroth, "Chinese Army Unit Is Seen as Tied to Hacking against U.S.," *The New York Times Online*, February 18, 2013, http://www.nytimes.com/2013/02/19/technology/chinas-army-is-seen-as-tied-to-hacking-against-us.html?pagewanted=all&_r=0 (accessed December 23, 2014).

⁹ Mandiant, *APT1: Exposing One of China's Espionage Units* (Alexandria, VA: Mandiant a FireEye Company, 2013), 3, <http://www.mandiant.com/apt1> (accessed December 23, 2014).

¹⁰ Office of the Secretary of Defense, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2014* (Washington, DC: U.S.

Department of Defense, 2014), 34-35, http://www.defense.gov/pubs/2014_dod_china_report.pdf (accessed December 23, 2014).

¹¹ Martin E. Dempsey, *Capstone Concept for Joint Operations: Joint Force 2020* (Washington, DC: U.S. Joint Chiefs of Staff, September 10, 2012), 2, <http://capstone.dodlive.mil/files/2013/04/CCJO-Sep2012.pdf> (accessed December 23, 2014).

¹² Hostage III, "Air Combat Command," 13.

¹³ Herbert Carlisle, "Viewing the Asia Pacific Rebalance through the Lens of PACAF's Strategy," public speech, Air and Space Technology Exposition, Washington, DC, September 18, 2013, 11, http://www.af.mil/Portals/1/documents/af_events/af-130918-AFA-Carlisle_final.pdf (accessed September 24, 2014).

¹⁴ Robbin Laird and Ed Timperlake, "ACC's Gen. Hostage: On Fifth Gen Combat Cloud and Syria," *Breaking Defense Online*, October 22, 2014, <http://breakingdefense.com/2014/10/accs-gen-hostage-on-fifth-gen-combat-cloud-and-syria/> (accessed October 23, 2014).

¹⁵ Hostage III, "Air Combat Command," 13.

¹⁶ Carlisle, "Viewing the Asia Pacific Rebalance," 11.

¹⁷ George C. Kenney, *General Kenney Reports: A Personal History of the Pacific War* (New York: Duell, Sloan, and Pearce, 1949), 22; Thomas E. Griffith Jr., *MacArthur's Airman: General George C. Kenney and the War in the Southwest Pacific* (Lawrence: University Press of Kansas, 1998), 46.

¹⁸ Kenney, *General Kenney Reports*, 35-39.

¹⁹ *Ibid.*, 47.

²⁰ *Ibid.*, 35.

²¹ *Ibid.*, 36.

²² Griffith Jr., *MacArthur's Airman*, 61.

²³ *Ibid.*

²⁴ *Ibid.*, 63.

²⁵ Donald M. Goldstein, *Ennis C. Whitehead, Aerospace Commander and Pioneer*, Doctoral Thesis (Denver, CO: University of Denver, 1970), 91, <http://search.proquest.com.ezproxy.usawcpubs.org/docview/250796551?pq-origsite=summon> (accessed October 26, 2014).

²⁶ Kenney, *General Kenney Reports*, 12.

²⁷ Griffith Jr., *MacArthur's Airman*, 63.

²⁸ *Ibid.*, 64.

²⁹ George C. Kenney, "Air Power in the Southwest Pacific," *Air Force* 27, no. 6 (June 1944): 7.

³⁰ Richard L. Watson, *The Fifth Air Force in the Huon Peninsula Campaign: January to October 1943* (Washington, DC: Headquarters, Army Air Forces, January 1946), 107, <http://www.ibiblio.org/hyperwar/AAF/AAFHS/AAFHS-113.pdf> (accessed November 24, 2014).

³¹ Kenney, *General Kenney Reports*, 91.

³² Watson, *The Fifth Air Force: January to October 1943*, 109.

³³ *Ibid.*, 111.

³⁴ *Ibid.*

³⁵ *Ibid.*, 112.

³⁶ *Ibid.*

³⁷ *Ibid.*

³⁸ Herbert O. Johansen, "Our Air Task Force," *Air Force* 27, no. 12 (December 1944): 7; Watson, *The Fifth Air Force: January to October 1943*, 112.

³⁹ Johansen, "Our Air Task Force," 7.

⁴⁰ Richard L. Watson, *The Fifth Air Force in the Huon Peninsula Campaign: October 1943 to February 1944* (Washington, DC: Headquarters, Army Air Forces, April 1947), 8, <http://www.afhra.af.mil/shared/media/document/AFD-090522-054.pdf> (accessed November 24, 2014).

⁴¹ Robert R. Herring, *From Dobodura to Okinawa: 308th Bomb Wing's Warbook*, World War Regimental Histories No. 100 (San Angelo, TX: Newsfoto Publishing Company, 1946), 25, http://digicom.bpl.lib.me.us/ww_reg_his/100/ (accessed November 6, 2014).

⁴² Johansen, "Our Air Task Force," 7.

⁴³ Griffith Jr., *Macarthur's Airman*, 217; Johansen, "Our Air Task Force," 4; Watson, *The Fifth Air Force: January to October 1943*, 114.

⁴⁴ Griffith Jr., *Macarthur's Airman*, 116.

⁴⁵ Watson, *The Fifth Air Force: October 1943 to February 1944*, 8; Watson, *The Fifth Air Force: January to October 1943*, 113.

⁴⁶ Watson, *The Fifth Air Force: January to October 1943*, 113.

⁴⁷ Johansen, "Our Air Task Force," 7.

⁴⁸ Griffith Jr., *Macarthur's Airman*, 117; Johansen, "Our Air Task Force," 8.

⁴⁹ Griffith Jr., *Macarthur's Airman*, 117.

⁵⁰ Ibid., 217.

⁵¹ Ibid., 175; Watson, *The Fifth Air Force: January to October 1943*, 113.

⁵² Quoted in Watson, *The Fifth Air Force: October 1943 to February 1944*, 197.

⁵³ Ibid.

⁵⁴ U.S. Joint Chiefs of Staff, *Department of Defense Dictionary of Military and Associated Terms*, Joint Publication 1-02 (Washington, DC: U.S. Joint Chiefs of Staff, December 15, 2014), 73.

⁵⁵ Lemay Center, *Basic Doctrine*, 10.

⁵⁶ Ibid., 59.

⁵⁷ Gilmary Michael Hostage III and Larry R. Broadwell Jr., "Resilient Command and Control," *Joint Force Quarterly* 74 (3d Quarter 2014): 39.

⁵⁸ Ibid.

⁵⁹ Lemay Center, *Basic Doctrine*, 74.

⁶⁰ Ibid., 73.

⁶¹ Ibid., 72.

⁶² Ibid., 82.

⁶³ Joint Publication 3-30, *Command and Control of Joint Air Operations*, defines span of control as "the [CFC's] ability to effectively manage the actions of subordinates. Span of control is based on the number of subordinates, number of activities, range of weapon systems, force capabilities, and the size and complexity of the operational area." U.S. Joint Chiefs of Staff, *Command and Control of Joint Air Operations*, Joint Publication 3-30 (Washington, DC: U.S. Joint Chiefs of Staff, February 10, 2014), II-1.

⁶⁴ Goldstein, *Ennis C. Whitehead*, 148 and 213.

⁶⁵ Ibid., 152-153.

⁶⁶ Air Land Sea Application Center, *Multi-Service Tactics, Techniques, and Procedures for the Theater Air-Ground System* (Joint Base Langley-Eustis, VA: Air Land Sea Application Center, June 2014), 14, <https://jdeis.js.mil/jdeis/index.jsp?pindex=84> (accessed February 7, 2015).

⁶⁷ U.S. Joint Chiefs of Staff, *Dictionary of Military and Associated Terms*, 15.

⁶⁸ U.S. Joint Chiefs of Staff, *Command and Control of Joint Air Operations*, II-2.

⁶⁹ Lemay Center, *Basic Doctrine*, 60.

⁷⁰ The CFC routinely designates the CFACC as the Area Air Defense Commander (AADC) and Airspace Control Authority (ACA). The AADC is responsible for integrated air and missile defense across the joint operations area, while the ACA synchronizes and deconflicts joint air space users across the operations area. The follow-on discussion assumes the CFACC is also designated as the AADC and ACA. See U.S. Joint Chiefs of Staff, *Countering Air and Missile Threats*, Joint Publication 3-01 (Washington, DC: U.S. Joint Chiefs of Staff, March, 23 2012), xii, http://www.dtic.mil/doctrine/new_pubs/jointpub_operations.htm (accessed February 8, 2015).

⁷¹ U.S. Joint Chiefs of Staff, *Command and Control of Joint Air Operations*, II-16.

⁷² U.S. Joint Chiefs of Staff, *Dictionary of Military and Associated Terms*, 5.

⁷³ Curtis E. Lemay Center for Doctrine Development and Education, *Targeting*, Air Force Doctrine: Annex 3-60 (Maxwell AFB, AL: Air University, January 10, 2014), 57, <https://doctrine.af.mil/DTM/dtmtargeting.htm> (accessed February 7, 2015); U.S. Joint Chiefs of Staff, *Command and Control of Joint Air Operations*, III-19 and D-1.

⁷⁴ U.S. Joint Chiefs of Staff, *Joint Targeting*, Joint Publication 3-60 (Washington, DC: U.S. Joint Chiefs of Staff, January 31, 2013), III-3, <https://jdeis.js.mil/jdeis/index.jsp?pindex=27&publd=537> (accessed February 7, 2015).

⁷⁵ *Ibid.*, III-5.

⁷⁶ According to Joint Publication 3-60, *Joint Targeting*, "component commanders are normally authorized to make execution day changes compelled by current conditions, consistent with the [CFC's] guidance and intent." *Ibid.*, III-6.

⁷⁷ Hostage III and Broadwell Jr., "Resilient Command and Control," 39.

⁷⁸ U.S. Joint Chiefs of Staff, *Joint Operations*, Joint Publication 3-0 (Washington, DC: U.S. Joint Chiefs of Staff, August 11, 2011), A1, http://www.dtic.mil/doctrine/new_pubs/jp3_0.pdf (accessed January 16, 2015).

⁷⁹ U.S. Joint Chiefs of Staff, *Dictionary of Military and Associated Terms*, 41.

⁸⁰ Lemay Center, *Targeting*, 57.

⁸¹ U.S. Department of the Air Force, *Operational Procedures - Air Operations Center*, Air Force Instruction 13-1AOC, Volume 3 (Washington, DC: U.S. Department of the Air Force, May 18, 2012), 40, http://static.e-publishing.af.mil/production/1/af_a3_5/publication/afi13-1aocv3/afi13-1aocv3.pdf (accessed March 19, 2015).

⁸² U.S. Joint Chiefs of Staff, *Joint Targeting*, I-8.

⁸³ U.S. Joint Chiefs of Staff, *Command and Control of Joint Air Operations*, D-1.