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Air Force SMARTBOOK



**SECOND EDITION
(AFOPS2)**

**Airpower Fundamentals
& Principles (Vol 1)**

**Commanding &
Organizing (Vol 3)**

**Command & Control
(Annex 3-30/3-52)**

**Airpower
(Doctrine Annexes)**

**Operations &
Planning (Annex 3-0)**

**Planning for Joint
Air Operations (JP 3-30)**

**Targeting
(Annex 3-60)**

**Combat Support
(Annex 4-0, 4-02,
3-10, and 3-34)**

OPERATIONS & PLANNING

Guide to Curtis E. LeMay Center & Joint Air Operations Doctrine

The Lightning Press
Norman M Wade



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(AFOPS2) The Air Force Operations & Planning SMARTbook, 2nd Ed.

Guide to Curtis E. LeMay Center & Joint Air Operations Doctrine

AFOPS2: The Air Force Operations & Planning SMARTbook, 2nd Ed. (Guide to Curtis E. LeMay Center & Joint Air Operations Doctrine) is the second edition of our Air Force SMARTbook. Topics and references of the 376-pg AFOPS2 include airpower fundamentals and principles (Volume 1), command and organizing (Volume 3); command and control (Annex 3-30/3-52), airpower (doctrine annexes), operations and planning (Annex 3-0), planning for joint air operations (JP 3-30/3-60), targeting (Annex 3-60), and combat support (Annex 4-0, 4-02, 3-10, and 3-34).

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About our cover photo: An F-22 Raptor pilot lines up his aircraft March 31, 2011, to be refueled by a KC-135 Stratotanker. (U.S. Air Force photo/TSgt Kendra M. Owenby)

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[AFOPS2] Notes to Reader

As the nation's most comprehensive provider of military airpower, the **Air Force** conducts continuous and concurrent air, space, and cyberspace operations.

Airpower exploits the third dimension of the operational environment; the electromagnetic spectrum; and time to leverage speed, range, flexibility, precision, tempo, and lethality to create effects from and within the air, space, and cyberspace domains. From this multi-dimensional perspective, Airmen can apply military power against an enemy's entire array of diplomatic, informational, military, and economic instruments of power, at long ranges and on short notice.

The Air Force conducts operations along a varying scale of military involvement and violence, referred to as the **range of military operations (ROMO)**. They range from continuous and recurring operations such as military engagement, security cooperation, and deterrence; through smaller-scale contingencies and crisis response operations, as well as irregular warfare; to major operations and campaigns such as declared wars.

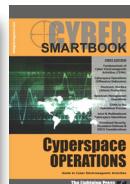
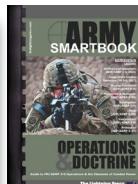
The Air Force designs, plans, conducts, and assesses operations according to an **effects-based approach (EBAO)**. There are some significant differences between the focus of strategy during steady-state conditions and the focus during contingencies and major operations. Contingency planning and steady-state planning employ a common logical approach and process referred to as the **common framework for operations**, which helps to foster coherence in Air Force strategy creation.

The JFC's estimate of the operational environment and articulation of the objectives needed to accomplish the mission form the basis for determining components' objectives. The JFACC uses the JFC's mission, commander's estimate and objectives, commander's intent, CONOPS, and the components' objectives to develop a course of action (COA). When the JFC approves the JFACC's COA, it becomes the basis for more detailed **joint air operations planning**—expressing what, where, and how joint air operations will affect the adversary or current situation.

Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. The targeting cycle supports the joint force commander's (JFC) joint operation planning and execution with a comprehensive, iterative and logical methodology for employing ways and means to create desired effects that support achievement of objectives.

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(AFOPS2) The Air Force Operations & Planning SMARTbook, 2nd Ed.

Core Doctrine (Volumes 1-3)



Volume 1



Volume 2



Volume 3

Chap 1: Airpower Fundamentals & Principles (Volume 1)

Air Force Doctrine Volume 1, Air Force Basic Doctrine, is the senior statement of Air Force doctrine. It discusses the fundamental beliefs that underpin the application of Air Force capabilities across the range of military operations. It provides guidance on the proper employment of airpower, sets the foundation for educating Airmen on airpower, guides the development of all other doctrine, and provides insight where personal experience may be lacking.

Chap 2: Commanding & Organizing (Volume 3)

Organization is critically important to effective and efficient operations. Service and joint force organization and command relationships—literally, who owns what, and who can do what with whom, and when—easily create the most friction within any operation. Air Force organization and preferred command arrangements are designed to address unity of command, a key principle of war.

Joint Air Operations Doctrine (Joint Pubs)



JP 3-30



JP 3-52



JP 3-60

Chap 6: Joint Air Operations Planning (JP 3-30, 3-52, 3-60)

The JFACC uses the JFC's mission, commander's estimate and objectives, commander's intent, CONOPS, and the components' objectives to develop a course of action (COA). When the JFC approves the JFACC's COA, it becomes the basis for more detailed joint air operations planning—expressing what, where, and how joint air operations will affect the adversary or current situation.

The JFACC is responsible for planning joint air operations and uses the joint operation planning process for air (JOPPA) to develop a JAOP that guides employment of the air capabilities and forces made available to accomplish missions assigned by the JFC. The JFC will normally delegate the authority to conduct execution planning, coordination, and deconfliction associated with joint air targeting to the JFACC and will ensure that this process is a joint effort. The joint air tasking cycle process provides an iterative, cyclic process for the planning, apportionment, allocation, coordination, and tasking of joint air missions and sorties within the guidance of the JFC.

Doctrine Annexes (& Air Force Instructions)



Annexes



Chap 3: Command & Control (Annexes 3-30 & 3-52)

Command and control (C2) and organization are inextricably linked. Forces should be organized around the principle of unity of command. Clear lines of authority, with clearly identified commanders at appropriate echelons exercising appropriate control, are essential to achieving unity of effort, reducing confusion, and maintaining priorities. Airspace control is defined as "capabilities and procedures used to increase operational effectiveness by promoting the safe, efficient, and flexible use of airspace.

Chap 4: Airpower (Annexes 2-0, 3-01, 3-03, 3-04, 3-05, 3-12,

3-13, 3-14, 3-17, 3-50, 3-51, 3-61, 3-17, 3-72)

Airpower entails the use of military power and influence to achieve objectives at all levels by controlling and exploiting air, space, and cyberspace. Airpower is a vital component of successful military operations and can often provide for decisive, rapid, and more efficient attainment of enduring advantage. It has been an asymmetric advantage for the United States in many operations. Defeating enemy forces has traditionally been the most important of the tasks assigned to the military, and while that remains vitally important, national strategic guidance increasingly emphasizes the importance of preventing conflict, deterring adversaries, and shaping the operational environment so as to obtain continuing strategic advantage for the US and its allies.

Chap 5: Operations & Planning (Annex 3-0, AFI 10-401/421)

Air Force Doctrine Annex 3-0 is the Air Force's foundational doctrine publication on strategy and operational design, planning, employment, and assessment of airpower. It presents the Air Force's most extensive explanation of the effects-based approach to operations (EBAO) and contains the Air Force's doctrinal discussion of operational design and some practical considerations for designing operations to coerce or influence adversaries. It presents doctrine on cross-domain integration and steady-state operations—emerging, but validated concepts that are integral to and fully complement EBAO. A common framework of processes helps to foster coherence in Air Force strategy creation through a process of operational design, effects-based approach to planning operations, execution, and assessment.

Chap 7: Targeting (Annex 3-60)

Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. This process is systematic, comprehensive, and continuous. Combined with a clear understanding of operational requirements, capabilities, and limitations, the targeting process identifies, selects, and exploits critical vulnerabilities of target systems and their associated targets to achieve the commanders' objectives and desired end state.

Chap 8: Combat Support (Annexes 4-0, 4-02, 3-34, 3-10)

The Air Force defines combat support (CS) as the foundational and crosscutting capability to field, base, protect, support, and sustain Air Force forces across the range of military operations. CS enables airpower through the integration of its functional communities to provide the core effects, core processes, and core capabilities required to execute the Air Force mission.



AFOPS2 References

The following primary references were used to compile *AFOPS2: The Air Force Operations & Planning SMARTbook, 2nd Ed.* All references are open-source, public domain, available to the general public, and/or designated as "approved for public release; distribution is unlimited." *AFOPS2: The Air Force Operations & Planning SMARTbook, 2nd Ed.* does not contain classified or sensitive material restricted from public release.

Air Force Core Doctrine

- Volume 1, Basic Doctrine (27 Feb 15)
- Volume 2, Leadership (08 Aug 15)
- Volume 3, Command (22 Nov 16)

Air Force Doctrine Annexes

- Annex 2-0, Global Integrated ISR Ops (29 Jan 15)
- Annex 3-0, Operations and Planning (04 Nov 16)
- Annex 3-01, Counterair Ops (01 Feb 16)
- Annex 3-2, Irregular Warfare (12 Jul 16)
- Annex 3-03, Counterland Ops (17 Mar 17)
- Annex 3-04, Countersea Ops (07 Nov 14)
- Annex 3-05, Special Ops (09 Feb 17)
- Annex 3-10, Force Protection (17 Apr 17)
- Annex 3-12, Cyberspace Ops (30 Nov 11)
- Annex 3-13, Information Ops (28 Apr 16)
- Annex 3-14, Counterspace Ops (27 Aug 18)
- Annex 3-17, Air Mobility Ops (05 Apr 16)
- Annex 3-22, Foreign Internal Defense (10 Jul 15)
- Annex 3-27, Homeland Ops (28 Apr 16)
- Annex 3-30, Command and Control (7 Nov 14)
- Annex 3-34, Engineer Ops (15 Aug 17)
- Annex 3-40, Counter-WMD Ops (05 Apr 16)
- Annex 3-50, Personnel Recovery (23 Oct 17)
- Annex 3-51, Electronic Warfare Ops (10 Oct 14)
- Annex 3-52, Airspace Control (23 Aug 17)

4-References

- Annex 3-59, Weather Ops (27 May 15)
- Annex 3-60, Targeting (14 Feb 17)
- Annex 3-61, Public Affairs (28 Jul 17)
- Annex 3-70, Strategic Attack (25 May 17)
- Annex 3-72, Nuclear Ops (19 May 15)
- Annex 4-0, Combat Support (21 Dec 15)
- Annex 4-02, Medical Ops (29 Sep 15)

Air Force Instructions

- AFI 10-401, Air Force Operations Planning & Execution (w/Chg 4, 13 Mar 12)
- AFI 10-421, Operations Planning for the Steady-State (25 Jun 15)
- AFI 13-1AOC, Volume 3, Operational Procedures-Air Operations Center (AOC) (w/ Chg 1, 18 May 12)
- AFI 13-103, AFFOR Staff Operations, Readiness and Structures (19 Aug 14)

Joint Publications

- JP 3-01, Countering Air and Missile Threats (May '18)
- JP 3-08, Interorganizational Cooperation (12 Oct 16).
- JP 3-14, Space Operations (10 Apr 18)
- JP 3-16, Multinational Operations (16 Jul 13)
- JP 3-17, Air Mobility Operations (20 Sept 13)
- JP 3-30, Command and Control of Joint Air Operations (10 Feb 2014)
- JP 3-52, Joint Airspace Control (13 Nov 2014)
- JP 3-60, Joint Targeting (31 Jan 2013)



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I. Introduction to Air Force Basic Doctrine

Ref: Volume 1, *Air Force Basic Doctrine* (27 Feb 15), introduction.

Air Force Doctrine Volume 1, Air Force Basic Doctrine, is the senior statement of Air Force doctrine. It discusses the fundamental beliefs that underpin the application of Air Force capabilities across the range of military operations. It provides guidance on the proper employment of airpower, sets the foundation for educating Airmen on airpower, guides the development of all other doctrine, and provides insight where personal experience may be lacking.

As a whole, Air Force doctrine describes the various operations and activities that underpin the Service's ability to provide global vigilance, global reach, and global power, which allows us to anticipate threats and provide strategic reach to curb crises with overwhelming power to prevail.

Global Vigilance

Global Vigilance is the ability to gain and maintain awareness – to keep an unblinking eye on any entity – anywhere in the world; to provide warning and to determine intent, opportunity, capability, or vulnerability; then to fuse this information with data received from other Services or agencies and use and share relevant information with the joint force commander.

Global Reach

Global Reach is the ability to project military capability responsively – with unrivaled velocity and precision – to any point on or above the earth, and provide mobility to rapidly supply, position, or reposition joint forces.

Global Power

Global Power is the ability to hold at risk or strike any target anywhere in the world, assert national sovereignty, safeguard joint freedom of action, and achieve swift, decisive, precise effects.

The global context in which Airmen must anticipate and plan will remain ambiguous; unlike the Cold War era, there is no single, clearly defined opponent against which we can design forces and anticipate strategy. Air Force studies of the likely future operating environment, such as the Air Force Strategic Environment Assessment, provide a perspective on future trends and implications. Some key points are summarized as follows:

- Changes are leading to a shift in the balance of power, a more multi-polar world, and potentially adverse deviations to traditional US alliances and partnerships.
- The potential demand for certain types of operations—especially those associated with irregular warfare (IW), humanitarian operations, special operations, information gathering, and urban operations—will likely increase, and effective deterrence will likely become more challenging.
- Adversaries are gaining access to potential new and enhanced technologies and their associated capabilities. These capabilities, which will challenge Air Force operations include more lethal and precise weapon systems, enablers, and defenses; improved capabilities in space and cyberspace; weapons of mass destruction; and emerging and disruptive technology.

II. Air Force Doctrine

Ref: Volume 1, Air Force Basic Doctrine (27 Feb 15), pp. 4 to 21.

Doctrine Defined

Doctrine is defined 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**” (Joint Publication [JP] 1-02, Department of Defense Dictionary of Military and Associated Terms).

“... fundamental principles...”

Doctrine is a body of carefully developed, sanctioned ideas which has been officially approved or ratified corporately, and not dictated by any one individual. Doctrine establishes a common frame of reference including intellectual tools that commanders use to solve military problems. It is what we believe to be true about the best way to do things based on the evidence to date.

“...military forces...”

For the purposes of Air Force doctrine, this includes all Airmen, both uniformed and Department of the Air Force civilians. These constitute the uniformed warfighters, their commanders, and the capabilities and support that they employ. They operate across the range of military operations (ROMO) and can be task-organized into the “right force” for any particular joint contingency.

“...in support of national objectives...”

Military forces should always conduct operations in order to support objectives that create continuing advantage for our nation.

“...guide their actions... authoritative... judgment...”

Doctrine is a guide to action, not a set of fixed rules; it recommends, but does not mandate, particular courses of action.

Air Force doctrine describes and guides the proper use of airpower in military operations. It is what we have come to understand, based on our experience to date. The Air Force promulgates and teaches its doctrine as a common frame of reference on the best way to prepare and employ Air Force forces. Subsequently, doctrine shapes the manner in which the Air Force organizes, trains, equips, and sustains its forces. Doctrine prepares us for future uncertainties and provides a common set of understandings on which Airmen base their decisions. Doctrine consists of the fundamental principles by which military forces guide their actions in support of national objectives; it is the linchpin of successful military operations. It also provides us with common terminology, conveying precision in expressing our ideas. In application, doctrine should be used with judgment. It should never be dismissed out of hand or through ignorance of its principles, nor should it be employed blindly without due regard for the mission and situation at hand. On the other hand, following doctrine to the letter is not the fundamental intent. Rather, good doctrine is somewhat akin to a good “commander’s intent;” it provides sufficient information on what to do, but does not specifically say how to do it. Airmen should strive above all else to be doctrinally sound, not doctrinally bound.

In the current turbulent environment of expeditionary operations and the arena of homeland security, doctrine provides an informed starting point for the many decisions Airmen make in what seems to be a continuous series of deployments. Airmen no longer face the challenge of starting with a blank sheet of paper; with doctrine, Airmen now have a good outline that helps answer several basic questions:

- What is my mission? How should I approach it?
- What should my organization look like, and why?
- What are my lines of authority within my organization and within the joint force?
- What degrees of control do I have over my forces?
- How am I supported? Who do I call for more support?
- How should I articulate what the Air Force provides to the joint force?

From one operation to the next, many things are actually constant. Doctrine, properly applied, often can provide a 70-, 80-, or even 90-percent solution to most questions, allowing leaders to focus on the remainder, which usually involves tailoring for the specific operation. Good doctrine informs, provides a sound departure point, and allows flexibility.

A study of airpower doctrine should draw a distinction between theory and practice.

Theory is less constrained by limited empirical context, and designed to encourage debate and introspection with an eye towards improving military advantage. It is part of a vital, iterative investigation of what works under particular circumstances, and why. Theoretical discussion is critical to a successful military. This publication does not present a comprehensive theory for airpower. Instead, it focuses on those ideas and validated concepts, grounded in experience and Service consensus. This is the heart of doctrine.

Finally, a study of airpower doctrine should also distinguish between doctrine and public relations-like pronouncements concerning the Air Force's role. There have been many of the latter since the Air Force's inception. Some have been developed with an eye towards influencing public and congressional perception of the Air Force's role and value. Others have been made in a strategic planning context (e.g., a "vision-mission-goals" development process) that are a normal part of formal, long range corporate planning. Such statements are not enduring and not doctrine; they should be viewed in the context in which they were created.

Policy, Strategy, and Doctrine

The term "doctrine" is frequently (and incorrectly) used when referring to policy or strategy. These terms are not interchangeable; they are fundamentally different. Because policy and strategy may impact each other, it is important to first understand their differences before delving into a discussion of doctrine.

Policy

Policy is guidance that is directive or instructive, stating what is to be accomplished. It reflects a conscious choice to pursue certain avenues and not others. Thus, while doctrine is held to be relatively enduring, policy is more mutable and also directive. Policies may change due to changes in national leadership, political considerations, or for fiscal reasons. At the national level, policy may be expressed in such broad vehicles as the National Security Strategy or Presidential Executive Orders. Within military operations, policy may be expressed not only in terms of objectives, but also in rules of engagement (ROE)—what we may or may not strike, or under what circumstances we may strike particular targets.

Strategy

Strategy defines how operations should be conducted to accomplish national policy objectives. Strategy is the continuous process of matching ends, ways, and means to accomplish desired goals within acceptable levels of risk. Strategy originates in policy and addresses broad objectives, along with the designs and plans for achieving them.

Doctrine

Doctrine presents considerations on how to accomplish military goals and objectives. It is a storehouse of analyzed experience and wisdom. Military doctrine is authoritative, but unlike policy, is not directive.

II. Airpower

Ref: Volume 1, Air Force Basic Doctrine (27 Feb 15), pp. 23 to 35.

Airpower is defined 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.” The proper application of airpower requires a comprehensive doctrine of employment and an Airman’s perspective. As the nation’s most comprehensive provider of military airpower, the Air Force conducts continuous and concurrent air, space, and cyberspace operations. The air, space, and cyberspace capabilities of the other Services serve primarily to support their organic maneuver paradigms; the Air Force employs air, space, and cyberspace capabilities with a broader focus on theater-wide and national-level objectives. Through airpower, the Air Force provides the versatile, wide-ranging means towards achieving national objectives with the ability to deter and respond immediately to crises anywhere in the world.

Airpower exploits the third dimension of the operational environment; the electromagnetic spectrum; and time to leverage speed, range, flexibility, precision, tempo, and lethality to create effects from and within the air, space, and cyberspace domains. From this multi-dimensional perspective, Airmen can apply military power against an enemy’s entire array of diplomatic, informational, military, and economic instruments of power, at long ranges and on short notice. Airpower can be applied across the strategic, operational, and tactical levels of war simultaneously, significantly increasing the options available to national leadership. Due to its range, speed, and flexibility, airpower can compress time, controlling the tempo of operations in our favor. Airpower should be employed with appropriate consideration of land and maritime power, not just during operations against enemy forces, but when used as part of a team that protects and aids friendly forces as well.

Much of what airpower can accomplish from within these three domains is done to critically affect events in the land and maritime domains—this is the heart of joint-domain integration, a fundamental aspect of airpower’s contribution to US national interests. Airmen integrate capabilities across air, space, and cyberspace domains to achieve effects across all domains in support of joint force commander objectives.

The Third Dimension

Airmen exploit the third dimension, which consists of the entire expanse above the earth’s surface. Its lower limit is the earth’s surface (land or water), and the upper limit reaches toward infinity. This third dimension consists of the air and space domains. From an operational perspective, the air domain can be described as that region above the earth’s surface in which aerodynamics generally govern the planning and conduct of military operations, while the space domain can be described as that region above the earth’s surface in which astrodynamics generally govern the planning and conduct of military operations.

Airmen also exploit operational capabilities in cyberspace. Cyberspace is “a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.” In contrast to our surface-oriented sister Services, the Air Force uses air, space, and cyberspace capabilities to create effects, including many on land and in the maritime domains, that are ends unto themselves, not just in support of predominantly land or maritime force activities.

I. The Foundations of Airpower

Airpower stems from the use of lethal and nonlethal means by air forces to achieve strategic, operational, and tactical objectives. The Air Force can rapidly provide national leadership and joint commanders a wide range of military options for meeting national objectives and protecting national interests.

Elevation above the earth's surface provides relative advantages and has helped create a mindset that sees conflict more broadly than other forces. Broader perspective, greater potential speed and range, and three-dimensional movement fundamentally change the dynamics of conflict in ways not well understood by those bound to the surface. The result is inherent flexibility and versatility based on greater mobility and responsiveness.

With its speed, range, and three-dimensional perspective, **airpower operates in ways that are fundamentally different from other forms of military power**. Airpower has the ability to conduct operations and impose effects throughout an entire theater and across the range of military operations (ROMO), unlike surface forces that typically divide up the battlefield into individual operating areas. Airmen generally view the application of force more from a functional than geographic standpoint, and classify targets by generated effects rather than physical location.

By making effective use of the third dimension, the electromagnetic spectrum, and time, airpower can seize the initiative, set the terms of battle, establish a dominant tempo of operations, better anticipate the enemy through superior observation, and take advantage of tactical, operational, and strategic opportunities. Thus, airpower can simultaneously strike directly at the adversary's centers of gravity, vital centers, critical vulnerabilities, and strategy. Airpower's ability to strike the enemy rapidly and unexpectedly across all of these critical points adds a significant impact to an enemy's will in addition to the physical blow. This capability allows airpower to achieve effects well beyond the tactical effects of individual actions, at a tempo that disrupts the adversary's decision cycle.

Airpower can be used to rapidly express the national will wherever and whenever necessary. The world at large perceives American airpower to be a politically acceptable expression of national power which offers reasonable alternatives to long, bloody ground battles, while making an impact on the international situation. While a "boots-on-the-ground" presence may often be required, airpower makes that presence more effective, in less time, and often with fewer casualties.

The Air Force provides national leadership and joint commanders with options, the threat of which may accomplish political objectives without the application of lethal force. The means is embedded in the ability to respond rapidly to crises anywhere in the world and across the ROMO.

The Air Force provides the unique ability to hold at risk a wide range of an adversary's options and possible courses of action; this is increasingly the key to successful joint campaigns. Airpower is increasingly the first military instrument brought to bear against an enemy in order to favorably influence the overall campaign. Frequently, and especially during the opening days of a crisis, airpower may be the only military instrument available to use against an enemy; this may be especially true if friendly ground forces are not immediately present in a given region.

Air Force forces can respond rapidly to apply effects. The same spacecraft which Airmen employ to observe hostile territory prior to the outbreak of hostilities provide key intelligence to battle planners. The same aircraft which provide visible to battle planners. The same aircraft which provide visible to battle planners. The same aircraft which provide visible

Airpower is more than dropping bombs, strafing targets, firing missiles, providing precision navigation and timing, or protecting networks. It is also a way of influencing world situations in ways which support national objectives.

II. Airmindedness

Ref: Volume 1, Air Force Basic Doctrine (27 Feb 15), p. 33.

The perspective of Airmen is necessarily different; it reflects a unique appreciation of airpower's potential, as well as the threats and survival imperatives unique to Airmen. The study of airpower leads to a particular expertise and a distinctive point of view that General Henry H. "Hap" Arnold termed "airmindedness."

Airmen normally think of airpower and the application of force from a functional rather than geographical perspective. Airmen do not divide up the battlefield into operating areas as some surface forces do; airmindedness entails thinking beyond two dimensions, into the dimensions of the vertical and the dimension of time. Airmen think spatially, from the surface to geosynchronous orbit. Airmen typically classify targets by the effect their destruction would have on the adversary instead of where the targets are physically located. This approach normally leads to more inclusive and comprehensive perspectives that favor strategic solutions over tactical ones. Finally, Airmen also think of power projection from inside the US to anywhere on the globe in hours (for air operations) and even nanoseconds (for space and cyberspace operations).

Airmindedness impacts Airmen's thoughts throughout all phases of operations. It is neither platform- nor situation-specific. Airmindedness enables Airmen to think and act at the tactical, operational, and strategic levels of war, simultaneously if called for. Thus, the flexibility and utility of airpower is best fully exploited by an air-minded Airman.

The Airman's Perspective

The practical application of "airmindedness" results in the Airman's unique perspective, which can be summarized as follows.

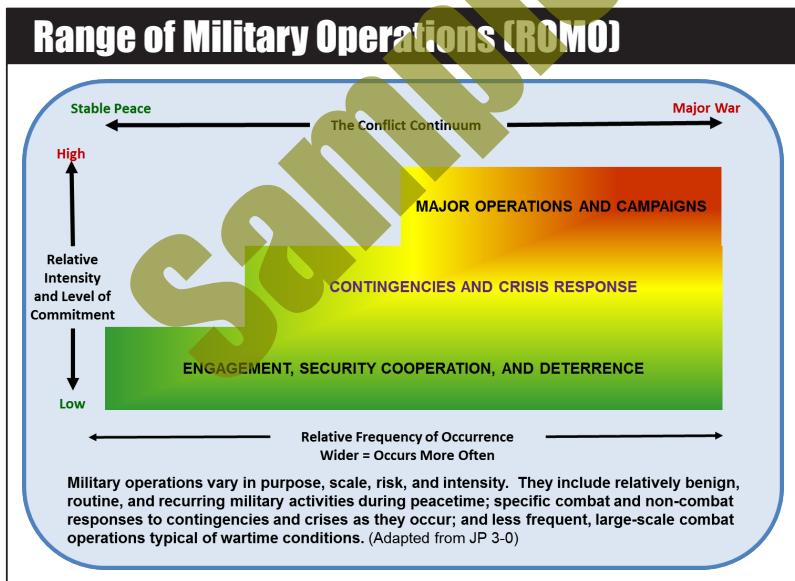
- Control of the vertical dimension is generally a necessary precondition for control of the surface
- Airpower is an inherently strategic force
- Airpower can exploit the principles of mass and maneuver simultaneously to a far greater extent than surface forces
- Airpower can apply force against many facets of enemy power. Air Force-provided capabilities can be brought to bear against any lawful target within an enemy's diplomatic, informational, military, economic, and social structures simultaneously or separately.
- Air Force forces are less culturally intrusive in many scenarios
- Airpower's inherent speed, range, and flexibility combine to make it one of the most versatile components of military power
- Airpower results from the effective integration of capabilities, people, weapons, bases, logistics, and all supporting infrastructure
- The choice of appropriate capabilities is a key aspect in the realization of airpower. Weapons should be selected based on their ability to create desired effects on an adversary's capability and will. Achieving the full potential of airpower requires timely, actionable intelligence and sufficient command and control capabilities to permit commanders to exploit precision, speed, range, flexibility, and versatility.
- Supporting bases with their people, systems, and facilities are essential to launch, recovery, and sustainment of Air Force forces
- Airpower's unique characteristics necessitate that it be centrally controlled by Airmen. Airpower can quickly intervene anywhere, regardless of whether it is used for strategic or tactical purposes

III. The Range of Military Operations

Ref: Volume 1, Air Force Basic Doctrine (27 Feb 15), pp. 36 to 47.

I. The Range of Military Operations (ROMO)

Military operations slide along an imprecise scale of violence and scale of military involvement, from theater-wide major operations and campaigns; to smaller scale contingencies and crisis response operations; to engagement, security cooperation, and deterrence (see figure, "The Range of Military Operations"). No two operations are alike; scope, duration, tempo, and political context vary widely. Some operations may even change from one form to another, either escalating or de-escalating; several may exist simultaneously. Military leaders carefully assess the nature of the missions they may be assigned, not only to properly determine the appropriate mix of forces but also to discern implied requirements. Some operations involve open combat between regular forces; in others, combat may be tangential to the main effort. In some operations, the US military's contribution may not involve combat at all; simply providing an organizational framework for an interagency force and key elements of infrastructure may be all that's required.



For further discussion on the ROMO from JP 3-0, see following pages (pp. 1-10 to 1-11). Refer also to Annex 3-0, Operations and Planning, and Joint Publication 1, Doctrine for the Armed Forces of the United States.

II. Steady-State Operations

The Department of Defense (DOD) and the Air Force have increased the emphasis on the military engagement, security cooperation, and deterrence portion of the range of military operations (ROMO). A key milestone was the 2008 release of the inaugural Guidance for Employment of the Force and complementary Joint Strategic

Joint Operations, Unified Action, & the Range of Military Operations (ROMO)

Ref: JP 3-0, Joint Operations (Jan '17) and Annex 3-0 (4 Nov 16), pp. 28 to 32.

Services may accomplish tasks and missions in support of Department of Defense (DOD) objectives. However, the DOD primarily employs two or more services in a single operation, particularly in combat, through joint operations. The general term, joint operations, describes military actions conducted by joint forces or by Service forces employed under command relationships. A joint force is one composed of significant elements, assigned or attached, of two or more military departments operating under a single joint force commander. Joint operations exploit the advantages of interdependent Service capabilities through unified action, and joint planning integrates military power with other instruments of national power to achieve a desired military end state.

Unified Action

Whereas the term joint operations focuses on the integrated actions of the Armed Forces of the United States in a unified effort, the term unified action has a broader connotation. JFCs are challenged to achieve and maintain operational coherence given the requirement to operate in conjunction with interorganizational partners. CCDRs play a pivotal role in unifying joint force actions, since all of the elements and actions that comprise unified action normally are present at the CCDR's level. However, subordinate JFCs also integrate and synchronize their operations directly with the operations of other military forces and the activities of nonmilitary organizations in the operational area to promote unified action.

Unified action is a comprehensive approach that synchronizes, coordinates, and when appropriate, integrates military operations with the activities of other governmental and nongovernmental organizations to achieve unity of effort.

When conducting operations for a joint force commander, Army forces achieve unified action by synchronizing actions with the activities of components of the joint force and unified action partners.

The Range of Military Operations (ROMO)

The range of military operations is a fundamental construct that provides context. Military operations vary in scope, purpose, and conflict intensity across a range that extends from military engagement, security cooperation, and deterrence activities to crisis response and limited contingency operations and, if necessary, to major operations and campaigns. Use of joint capabilities in military engagement, security cooperation, and deterrence activities helps shape the operational environment and keep the day-to-day tensions between nations or groups below the threshold of armed conflict while maintaining US global influence.



V. Tenets of Airpower

Ref: Volume 1, Air Force Basic Doctrine (27 Feb 15), pp. 65 to 75.

The application of airpower is refined by several fundamental guiding truths. These truths are known as tenets. They reflect not only the unique historical and doctrinal evolution of airpower, but also the current appreciation for the nature of airpower. The tenets of airpower complement the principles of joint operations. While the principles of war provide general guidance on the application of military forces, the tenets provide more specific considerations for the employment of airpower.

Tenets of Airpower

- A** Centralized Control and Decentralized Execution
- B** Flexibility and Versatility
- C** Synergistic Effects
- D** Persistence
- E** Concentration
- F** Priority
- G** Balance

The tenets of airpower are interconnected, overlapping, and often interlocking. Flexibility and versatility necessitate priorities. Priorities determine synergies, levels of concentration, and degrees of persistence. Balance calculations influence all operations. The combinations and permutations of interrelationships between the tenets are nearly endless. However, the oldest tenet of airpower—centralized control and decentralized execution—remains the keystone of success in modern warfare.

As with the principles of joint operations, these tenets require informed judgment in application. They require a skillful blending to tailor them to the ever-changing operational environment. The competing demands of the principles and tenets (for example mass versus economy of force, concentration versus balance, and priority versus objective) require an Airman's expert understanding in order to strike the required balance. In the last analysis, commanders accept the fact that war is incredibly complicated and no two operations are identical. Commanders should apply their professional judgment and experience as they employ airpower in a given situation.

I. Commanding U.S. Air Force Forces

Ref: Volume 3, *Command* (22 Nov 16), pp. 43 to 48.

Organization is critically important to effective and efficient operations. Service and joint force organization and command relationships—literally, who owns what, and who can do what with whom, and when—easily create the most friction within any operation. Air Force organization and preferred command arrangements are designed to address unity of command, a key principle of war. Clear lines of authority, with clearly identified commanders at appropriate echelons exercising appropriate control, are essential to achieving unity of effort, reducing confusion, and maintaining priorities.

The key to successful employment of Air Force forces as part of a joint force effort is providing a single Air Force commander with the responsibility and authority to properly organize, train, equip and employ Air Force forces to accomplish assigned functions and tasks. The title of this commander is Commander, Air Force Forces (COMAFFOR).

Operationally, the COMAFFOR should be prepared to employ Air Force forces as directed by the joint force commander (JFC), and if directed be prepared to employ joint air forces as the joint force air component commander (JFACC). In either event, the COMAFFOR should also ensure that Air Force forces are prepared to execute the missions assigned by the JFC. The requirements and responsibilities of the COMAFFOR and JFACC are inextricably linked; both are critical to operational success.

Commander, Air Force Forces (COMAFFOR)

The title of COMAFFOR is reserved exclusively to the single Air Force commander of an Air Force Service component assigned or attached to a JFC at the unified combatant command, subunified combatant command, or joint task force (JTF) level.

If Air Force forces are attached to a JFC, they should be presented as an air expeditionary task force (AETF).

- The AETF becomes the Air Force Service component to the JTF and the AETF commander is the COMAFFOR to the JTF commander. Thus, depending on the scenario, the position of COMAFFOR may exist simultaneously at different levels within a given theater as long as each COMAFFOR is separately assigned or attached to and under the operational control of a different JFC.
- The COMAFFOR provides unity of command. To a JFC, a COMAFFOR provides a single face for all Air Force issues. Within the Air Force Service component, the COMAFFOR is the single commander who conveys commander's intent and is responsible for operating and supporting all Air Force forces assigned or attached to that joint force.
- The COMAFFOR commands forces through two separate branches of the chain of command: the operational branch and the administrative branch.

The COMAFFOR should normally be designated at a command level above the operating forces and should not be dual-hatted as commander of one of the subordinate operating units. This allows the COMAFFOR to focus at the operational level.

II. COMAFFOR Administrative Responsibilities

Ref: Volume 3, Command (22 Nov 16), pp. 47 to 48.

Commanders of Air Force components have responsibilities and authorities that derive from their roles in fulfilling the Service's administrative control (ADCON) function.

- Within the administrative branch, the COMAFFOR has complete ADCON of all assigned Air Force component forces and specified ADCON of all attached Air Force component forces.
- The specified responsibilities listed below apply to all attached forces, regardless of major command or Air Force component (regular, Guard, or Reserve).
- The COMAFFOR also has some ADCON responsibilities for Air Force elements and personnel assigned to other joint force components (such as liaisons).

As the Service component commander to a JFC, the COMAFFOR has the following responsibilities:

- Organize, train, and sustain assigned and attached Air Force forces for combatant commander (CCDR)-assigned missions.
 - Prescribe the chain of command within the Air Force Service component.
 - Maintain reachback between the Air Force component and other supporting Air Force elements. Delineate responsibilities between forward and rear elements.
 - Provide training in Service-unique doctrine, tactical methods, and techniques.
 - Provide for logistics and mission support functions normal to the command.
- Inform the JFC (and the CCDR, if affected) of planning for changes in logistics support that would significantly affect operational capability or sustainability sufficiently early in the planning process for the JFC to evaluate the proposals prior to final decision or implementation.
- Provide lateral liaisons with Army, Navy, Marines, special operations forces, and coalition partners.
- Maintain internal administration and discipline, including application of the Uniform Code of Military Justice (UCMJ).
- Establish force protection and other local defense requirements.
- Provide Service intelligence matters and oversight of intelligence activities to ensure compliance with laws, executive orders, policies, and directives.

At the CCDR level, the Air Force Service component commander also has the following additional responsibilities:

- Develop program and budget requests that comply with CCDR guidance on warfighting requirements and priorities.
- Inform the CCDR (and any intermediate JFCs) of program and budget decisions that may affect joint operation planning.
- Support the CCDR's theater campaign plans through development of appropriate supporting Service plans.
 - Develop steady-state strategy to support the CCDR's strategy.
 - Contribute to the development of CCDR steady-state campaign plans and security cooperation country plans.
 - Develop campaign support plans in support of CCDR campaign plans.

II. Organizing U.S. Air Force Forces

Ref: Volume 3, Command (22 Nov 16), pp. 49 to 66.

Organization is critically important to effective and efficient operations. Service and joint force organization and command relationships—literally, who owns what, and who can do what with whom, and when—easily create the most friction within any operation.

I. Regional versus Functional Organization

It is important to understand that airpower is flexible in organization and presentation. Because it encompasses a wide range of capabilities and operating environments, it defies a single, general model for organization, planning, and employment.

- Some assets and capabilities provide relatively localized effects and generally are more easily deployable, and thus may organize and operate within a regional model.
- Other assets and capabilities transcend geographic areas of responsibility simultaneously, and thus have global responsibilities. Such forces may be better organized and controlled through a functional model.

However, at the focus of operations within any region, it is possible to place the collective capabilities of airpower in the hands of a single Airman through skillful arrangement of command relationships, focused expeditionary organization, reach-back, and forward deployment of specialized talent.

There will usually be tension between regionally-organized forces and functionally-organized forces. The former seek effectiveness at the point of their operation, while the latter seek effectiveness and efficiency across several regions. At critical times, the requirement for effectiveness may trump efficiency, and additional functional forces may be transferred to the regional command and organized accordingly.

See following page (p. 2-7) for an overview and further discussion. See related discussion on transferring forces and the complete discussion on “Transfer of Functional Forces to a Geographic Command”, Annex 3-30, Command and Control. These situations require careful and continuing dialogue between competing senior commanders and their common superior commander.

II. The Air Expeditionary Task Force (AETF)

The air expeditionary task force (AETF) is the organizational structure for Air Force forces in response to operational tasking (i.e., established for a temporary period of time to perform a specified mission). It provides a task-organized, integrated package with the appropriate balance of force, sustainment, control, and force protection.

AETFs may be established as an Air Force Service component to a joint task force (JTF), or as a subordinate task force within a larger Air Force Service component to address specific internal tasks. If an AETF is formed as the former, the AETF commander is also a commander, Air Force forces (COMAFFOR). Otherwise, the AETF commander is not a COMAFFOR, but reports to a COMAFFOR.

A single commander presents a single Air Force face to the joint force commander (JFC) and results in clear lines of authority both ways.

- Internal to the task force, there is only one person clearly in charge; for a JFC, there is only one person to deal with on matters regarding Air Force issues.
- The AETF commander is the senior Air Force warfighter and exercises the appropriate degree of control over the forces assigned, attached, or in support of the AETF.

AETF Organization

Ref: Annex 3-30, *Command and Control* (7 Nov '14), pp. 58 to 61.

AETFs can be sized and tailored to meet the specific requirements of the mission. The basic building block of an AETF is the squadron; however, a squadron normally does not have sufficient resources to operate independently. Thus, the smallest AETF is normally an air expeditionary group; larger AETFs may be composed of several expeditionary wings. Within an AETF, the AETF commander organizes forces as necessary into wings, groups, squadrons, flights, detachments, or elements to provide reasonable internal spans of control, command elements at appropriate levels, and to retain unit identity.

A. Numbered Expeditionary Air Force (NEAF)

Numbered expeditionary Air Force (NEAF) is the generic title for an AETF made up of multiple expeditionary wings and is the largest sized AETF. NEAFs normally carry an appropriate numerical designation based on NAFs historically associated with the region or command. Subordinate expeditionary units may retain their own numerical designations. Use of the NEAF designation is also intended to provide appropriate unit awards and honors credit for the units and staffs within the NEAF. The NEAF commander is normally a COMAFFOR.

B. Air Expeditionary Task Force-X (AETF-X)

"Air Expeditionary Task Force - X" (AETF-X) is the generic title used when a provisional Air Force command echelon is needed between a NEAF and an air expeditionary wing (AEW). AETF-X is used when a NEAF-level AETF establishes a subordinate provisional command echelon consisting of two or more AEWs. An example of this usage is when the Commander, US Air Forces Central (USAFCENT) established two subordinate AETFs, AETF-Iraq (AETF-I) and AETF-Afghanistan (AETF-A), to provide command over multiple AEWs in their respective JOAs. Depending on why this echelon is established, and its relationship within Service and joint force organizations, the AETF-X commander may or may not be a COMAFFOR.

C. Air Expeditionary Wing (AEW)

AEW is the generic title for a deployed wing or a wing slice within an AETF. An AEW normally is composed of the wing command element and subordinate groups and squadrons. AEWs normally carry the numerical designation of the wing providing the command element. Subordinate expeditionary groups and support squadrons carry the numerical designation of the parent AEW. Subordinate mission squadrons and direct combat support units retain their numeric designation in an expeditionary status. Use of the AEW designation is also intended to provide appropriate unit awards and honors credit for the parent unit. An AEW may be composed of units from different wings, but where possible, the AEW is formed from units of a single wing. AEW commanders report to the COMAFFOR.

D. Air Expeditionary Group (AEG)

Air expeditionary group (AEG) is the generic title for a deployed group assigned to an AEW or a deployed independent group assigned to an AETF. Unlike traditional "home station" groups, which are functionally organized (i.e., operations group, maintenance group, etc.), expeditionary groups that are deployed independent of a wing structure should contain elements of all the functions to conduct semi-autonomous operations. An AEG is composed of a slice of the wing command element and some squadrons. Since Air Force groups are organized without significant staff support, a wing slice is needed to provide the command and control for echelons smaller than the normal wing. An AEG assigned to an AEW carries the numeric designation of the AEW. An independent AEG normally carries the numerical designation of the unit providing the command element and/or the largest portion of the expeditionary organization. Deployed squadrons (assigned or attached) retain their numerical designation and acquire the "expeditionary" designa-

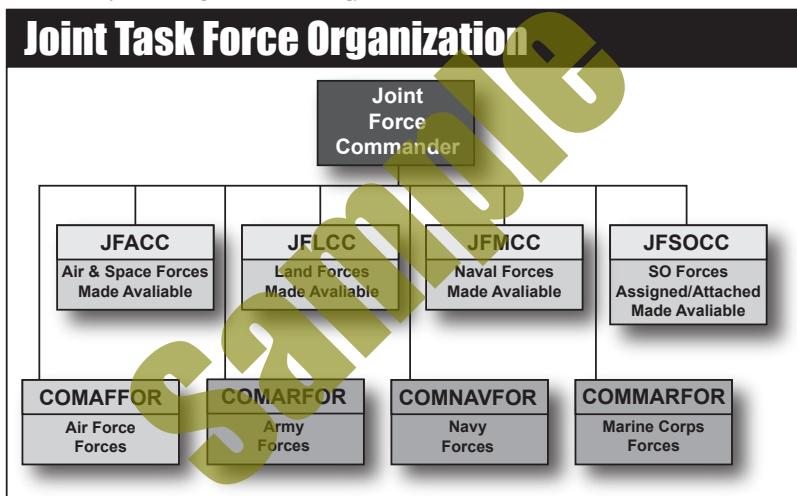
III. Air Force Component Within the Joint Force

Ref: Volume 3, Command (22 Nov 16), pp. 67 to

I. Joint Force Organizational Basics

When a crisis requires a military response, the geographic combatant commander (CCDR) will usually form a tailored joint task force (JTF). If Air Force forces are attached to the JTF, they stand up as an air expeditionary task force (AETF) within the JTF. The AETF commander, as the commander, Air Force forces (COMAFFOR), provides the single Air Force face to the JTF commander.

Other Services may also provide forces, and normally stand up as separate Army, Navy, and Marine forces, each with their respective commander (Commander, Army forces [COMARFOR]; Commander, Navy forces [COMNAVFOR]; and Commander, Marine Corps forces [COMMARFOR]).



The designation of joint force air, land, maritime and special operations component commanders (JFACC, joint force land component commander [JFLCC], joint force maritime component commander [JFMCC], and joint force special operations component commander [JFSOCC] respectively) is at the discretion of the joint force commander (JFC). The JFC normally assigns broad missions to the component commanders; with each mission comes a specification of supported commander for that mission. As an example, the JFC may designate the COMAFFOR as the supported commander for strategic attack, air interdiction, and theater airborne intelligence, surveillance, and reconnaissance (among other missions).

The COMAFFOR should establish a close working relationship with the JFC to ensure the best representation of airpower's potential. The commander responsible for a mission should be given the requisite authority to carry out that mission.

VI. Joint Air Component Coordination Element (JACCE)

Ref: Volume 3, Command (22 Nov 16), pp. 72 to 73.

The commander, Air Force forces (COMAFFOR), when acting as the joint force air component commander may establish one or more joint air component coordination elements (JACCEs) with other component commanders' headquarters to better integrate the air component's operations with their operations, and with the supported joint task force (JTF) headquarters (if the theater COMAFFOR is designated in support to a JTF) to better integrate air component operations within the overall joint force.

The JACCE facilitates integration by exchanging current intelligence, operational data, and support requirements, and by coordinating the integration of COMAFFOR requirements for airspace coordinating measures, fire support coordinating measures, close air support, air mobility, and space requirements. As such, the JACCE is a liaison element, not a command and control (C2) node; thus, the JACCE normally has no authority to direct or employ forces. The JACCE should not replace, replicate, or circumvent normal request mechanisms already in place in the component/JTF staffs, nor supplant normal planning performed by the air operations center and AFFOR staff.

Normally, the JACCE should:

- Ensure the COMAFFOR is aware of each commander's priorities and plans.
- Ensure the COMAFFOR staff coordinates within their surface component/JTF headquarters counterparts to work issues.
- Ensure appropriate commanders are aware of the COMAFFOR's capabilities and limitations (constraints, restraints, and restrictions).
- Ensure appropriate commanders are aware of the COMAFFOR's plan to support the surface commander's scheme of maneuver and JFC's intent and objectives.
- Facilitate COMAFFOR staff processes with the surface/JTF commanders. Provide oversight of other COMAFFOR liaisons to component/JTF headquarters staffs, if directed.
- Ensure information flows properly between the AOC, sister components, and the JFC.

See also p. 3-25 (JACCE).

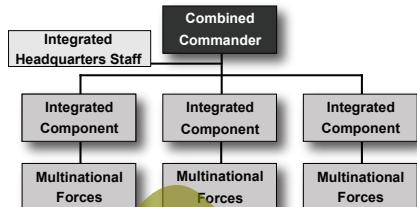
B. Command Structures of Forces in Multinational Operations

Ref: JP 3-16, *Multinational Operations* (Jul '13), pp. II-4 to II-8.

No single command structure meets the needs of every multinational command but one absolute remains constant; political considerations will heavily influence the ultimate shape of the command structure. Organizational structures include the following:

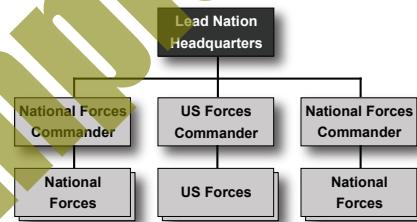
Integrated Command Structure

Multinational commands organized under an integrated command structure provide unity of effort in a multinational setting. A good example of this command structure is found in the North Atlantic Treaty Organization where a strategic commander is designated from a member nation, but the strategic command staff and the commanders and staffs of subordinate commands are of multinational makeup.



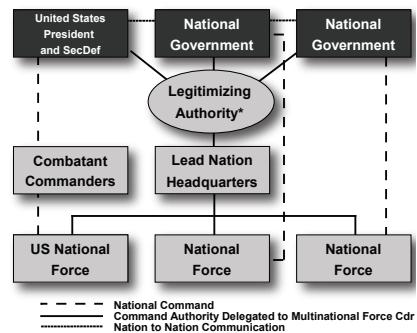
Lead Nation Command Structure

A lead nation structure exists when all member nations place their forces under the control of one nation. The lead nation command can be distinguished by a dominant lead nation command and staff arrangement with subordinate elements retaining strict national integrity. A good example of the lead nation structure is Combined Forces Command-Afghanistan wherein a US-led headquarters provides the overall military C2 over the two main subordinate commands: one predominately US forces and the other predominately Afghan forces.



Parallel Command Structures

Under a parallel command structure, no single force commander is designated. The coalition leadership must develop a means for coordination among the participants to attain unity of effort. This can be accomplished through the use of coordination centers. Nonetheless, because of the absence of a single commander, the use of a parallel command structure should be avoided if at all possible.



Command & Control Overview

Ref: Annex 3-30, *Command and Control* (7 Nov 2014), pp. 11 to 22.

Modern military operations require flexibility in execution to adapt to a wide variety of scenarios; this drives a need to assemble the right mix of forces from the appropriate Services to tailor the operation. This need to assemble the right forces drives a corresponding need for proper organization, clearly defined command relationships, and appropriate command and control mechanisms.

Command and control (C2) and organization are inextricably linked. Forces should be organized around the principle of unity of command. Clear lines of authority, with clearly identified commanders at appropriate echelons exercising appropriate control, are essential to achieving unity of effort, reducing confusion, and maintaining priorities. To this end, commanders should be clearly identified and empowered with appropriate operational and administrative command authorities, and appropriate joint command arrangements should be clearly specified to integrate effects across Service lines. Effective joint and Service organization is “rocket science.”

Air Force expeditionary organization and preferred command arrangements are designed to address unity of command. The axiom that “Airmen work for Airmen, and the senior Airman works for the joint force commander (JFC),” not only preserves the principle of unity of command, it also embodies the principle of simplicity. When Air Force forces are assigned or attached to a joint force at any level, the senior ranking Airman qualified for command should be designated as the commander, Air Force forces (COMAFFOR) and the Air Force component should normally be formed as an air expeditionary task force (AETF). As the senior Airman representing the Air Force component, the COMAFFOR provides a single Air Force face to the JFC for all Air Force matters.

Some capabilities may not be organic to the component and may be made available through a supported/supporting command relationship, or be made available through reachback or distributed C2 arrangements.

I. Key Considerations of Command and Control

Commanders should be cognizant of the authorities they are given and their relationships under that authority with superior, subordinate, and lateral force commanders. Command relationships should be clearly defined to avoid confusion in executing operations. The command of airpower requires intricate knowledge of the capabilities and interdependencies of the forces to be employed, and a keen understanding of the joint force commander's (JFC's) intent and the authorities of other component commanders.

A. Unity of Command

Unity of command is one of the principles of war. According to Air Force doctrine Volume 1, Basic Doctrine, “unity of command ensures concentration of effort for every objective under one responsible commander. This principle emphasizes that all efforts should be directed and coordinated toward a common objective.”

Unity of command is not intended to promote centralized control without delegation of execution authority to subordinate commanders. Some commanders may fulfill their responsibilities by personally directing units to engage in missions or tasks. However, as the breadth of command expands to include the full spectrum of operations, commanders are normally precluded from exercising such immediate control over all operations in their area of command. Thus, C2 arrangements normally

include the assignment of responsibilities and the delegation of authorities between superior and subordinate commanders. A reluctance to delegate decisions to subordinate commanders impedes operations and inhibits the subordinates' initiative. Senior commanders should provide the desired end state, desired effects, rules of engagement (ROE), and required feedback on the progress of the operation and not actually direct tactical operations.

Forces should be organized to assure unity of command in a carefully arranged hierarchy with commanders clearly delineated at appropriate echelons. Within a joint force, the COMAFFOR provides a single Airman in command of assigned and attached Air Force forces.

B. Centralized Control and Decentralized Execution

Centralized control and decentralized execution are key tenets of C2; they provide Airmen the ability to exploit the speed, flexibility, and versatility of airpower. Centralized control is defined as "in joint air operations, placing within one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations" Decentralized execution is defined as "the delegation of execution authority to subordinate commanders" and other tactical-level decision makers to achieve effective span of control and to foster disciplined initiative and tactical flexibility. Airpower's unique speed, range, and ability to maneuver in three dimensions depend on centralized control and decentralized execution to achieve the desired effects.

Centralized control and decentralized execution are critical to the effective employment of airpower. Indeed, they are the fundamental organizing principles Airmen use for effective C2, having been proven over decades of experience as the most effective means of employing airpower. Because of airpower's potential to directly affect the strategic level of war and operational level of war, it should be controlled by a single Airman at the air component commander level. This Airman should maintain the broad strategic perspective necessary to balance and prioritize use of airpower resources that have been allocated to the theater. A single commander, focused on the broader aspects of an operation, can best mediate competing demands for tactical support against the strategic and operational requirements of the conflict.

Air Force doctrine Volume 1, Basic Doctrine, embodies the Air Force's commitment to the tenet of centralized control and decentralized execution of airpower.

C. Commander's Intent

Two joint C2 concepts that nurture implicit communications are commander's intent and mission-type orders. By expressing intent and direction through mission-type orders, the commander attempts to provide clear objectives and goals to enable subordinates to execute the mission.

Guidance for planning and conducting air component operations is reflected in the commander's intent. Those granted delegated authority must understand the commander's intent, which is disseminated through such products as a JFC's operation plan; a COMAFFOR's air operations plan and air operations directive; air, space, or cyberspace tasking orders produced by appropriate Air Force components; and annexes to such plans and orders that provide specific guidance for specialized functions. Unity of effort over complex operations is made possible through decentralized execution of centralized, overarching plans. Roles and responsibilities throughout the chain of command should be clearly spelled out and understood, not only to ensure proper follow-through of the original mission intent and accountability for mission completion, but also to provide continuity of operations in the event of degraded communications between echelons. Communication between commanders and those to whom authority is delegated is essential throughout all phases of the military operation.

Command Authorities and Relationships

Ref: Annex 3-30, *Command and Control* (7 Nov 2014), app. A.

Clear and effective command relationships are central to effective operations and organizations. A working understanding of command terminology is essential to understanding the relationships among components and the responsibilities inherent in organizations.

Combatant Command (COCOM)

Combatant command (command authority) (COCOM) is defined as “nontransferable command authority, which cannot be delegated, of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces; assigning tasks; designating objectives; and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command.”

COCOM is exercised by commanders of combatant commands (CCMDs) as directed by the President or the Secretary of Defense. COCOM should be exercised through the commanders of subordinate organizations such as subordinate joint force commanders and Service and/or functional component commanders. COCOM provides full authority to organize and employ commands and forces as the combatant commander (CCDR) considers necessary to accomplish assigned missions. (Note that the acronym “COCOM” refers only to the command authority, not to an individual or an organization.)

Operational Control (OPCON)

Operational control (OPCON) is defined as “the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission.”

OPCON is able to be delegated from a lesser authority than combatant command (command authority) (COCOM). OPCON normally provides full authority to organize commands and forces and to employ those forces as the commander in operational control considers necessary to accomplish assigned missions. It does not include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training. For example, OPCON does not include the authority to change the Service’s internal organization of its forces.

Component forces (e.g., the air expeditionary task force and its subordinate mix of expeditionary wings, groups, or squadrons) “should remain organized as designed and in the manner accustomed through training to maximize effectiveness.” (Joint Publication 1, Doctrine for the Armed Forces of the United States). OPCON should be exercised through the commanders of subordinate organizations, such as subordinate JFCs and Service and/or functional component commanders. Normally, JFCs exercise OPCON of assigned and attached Air Force forces through the commander, Air Force forces.

Tactical Control (TACON)

Tactical control (TACON) is defined as “the authority over forces that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned.”

TACON is able to be delegated from a lesser authority than operational control (OPCON) and may be delegated to and exercised by commanders at any echelon at or below the level of combatant command (CCMD). TACON provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. TACON does not provide organizational authority or authoritative direction for administrative and logistic support.

An example of TACON is when the commander, Air Force forces (COMAFFOR), acting as the joint force air component commander (JFACC), produces an air tasking order that

provides detailed instructions for joint air assets made available for tasking. For example, a JFACC functioning as the area air defense commander (AADC) with TACON over Army PATRIOT surface-to-air missile forces would have the authority to specify which asset/battery would be responsible for providing which portion of the air defense coverage for the joint force (exact placement of the assets/battery necessary to achieve the required coverage should normally be left to the Army component commander). The commander exercising TACON is responsible for ensuring communications with the controlled unit.

Support

Support is a command authority that aids, protects, complements, or sustains another force. It is used when neither operational control (OPCON) nor tactical control (TACON) is appropriate. The Secretary of Defense (SecDef) specifies support relationships between combatant commanders (CCDRs); the CCDR may establish support relationships between components assigned or attached to the command.

Over several years of experience, the most common example of this between CCDRs is seen when a functional CCDR (e.g., Commander, USTRANSCOM) is established by the SecDef as a supporting commander and a geographic CCDR (e.g., Commander, USCENTCOM) is established as the supported commander. Within a combatant command, the best example is the last several years of experience within USCENTCOM, in which the commander, Air Force forces (COMAFFOR) (Commander, USAFCENT) is the supporting commander with the joint force commanders in Operations IRAQI FREEDOM (redesignated Operation NEW DAWN) and ENDURING FREEDOM designated by Commander, USCENTCOM as supported commanders.

The supported commander should ensure that the supporting commanders understand the assistance required. The supporting commanders should then provide the assistance needed, subject to a supporting commander's existing capabilities and other assigned tasks. When a supporting commander cannot fulfill the needs of the supported commander, the establishing authority should be notified by either the supported commander or a supporting commander. The establishing authority is responsible for determining a solution.

An establishing directive is normally issued to specify the purpose of the support relationship, the effect desired, and the scope of the action to be taken. It also should include: the forces and resources allocated to the supporting effort; the time, place, level, and duration of the supporting effort; the relative priority of the supporting effort; the authority, if any, of the supporting commander to modify the supporting effort in the event of exceptional opportunity or an emergency; and the degree of authority granted to the supported commander over the supporting effort.

There are four defined categories of support that a CCDR may direct over assigned or attached forces to ensure the appropriate level of support is provided to accomplish mission objectives. These include:

- **General support.** That support which is given to the supported force as a whole rather than to a particular subdivision thereof.
- **Mutual support.** That support which units render each other against an enemy because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities.
- **Direct support.** A mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance.
- **Close support.** That action of the supporting force against targets or objectives that are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force.

A supported relationship does not include authority to position supporting units but does include authority to direct missions or objectives for those units.

I. Air Operations Center (AOC)

Ref: Annex 3-30, *Command and Control* (7 Nov 2014), app. B and AFI 13-1AOCV3, *Operational Procedures—Air Operations Center* (2 Nov 11), w/Chg 1.

The AOC provides operational-level C2 of air component forces as the focal point for planning, executing, and assessing air component operations. The AOC can be tailored and scaled to a specific or changing mission and to the associated task force the COMAFFOR presents to the JFC. Thus, for smaller scale operations, the Air Force may not necessarily provide all of the elements described in the following sections if the situation does not warrant them.

I. AOC Primary Functions

The primary functions of the AOC are to:

- Develop air component operations strategy and planning documents that integrate air, space, and cyberspace operations to meet COMAFFOR objectives and guidance.
- Task, execute, and assess day-to-day air component operations; provide rapid reaction, positive control, and coordinate and deconflict weapons employment as well as integrate the total air component effort.
- Receive, assemble, analyze, filter, and disseminate all-source intelligence and weather information to support air component operations planning, execution, and assessment.
- Integrate space capabilities and coordinate space activities for the COMAF-FOR when the COMAFFOR is designated as space coordinating authority.
- Issue airspace control procedures and coordinate airspace control activities for the airspace control authority (ACA) when the COMAFFOR is designated the ACA.
- Provide overall direction of air defense, including theater missile defense (TMD), for the area air defense commander (AADC) when the COMAFFOR is designated the AADC.
- Plan, task, and execute the theater air- and space-borne intelligence, surveillance, and reconnaissance (ISR) mission.
- Conduct component-level assessment to determine mission and overall air component operations effectiveness as required by the JFC to support the theater assessment effort.
- Plan and task air mobility operations according to the theater priorities.

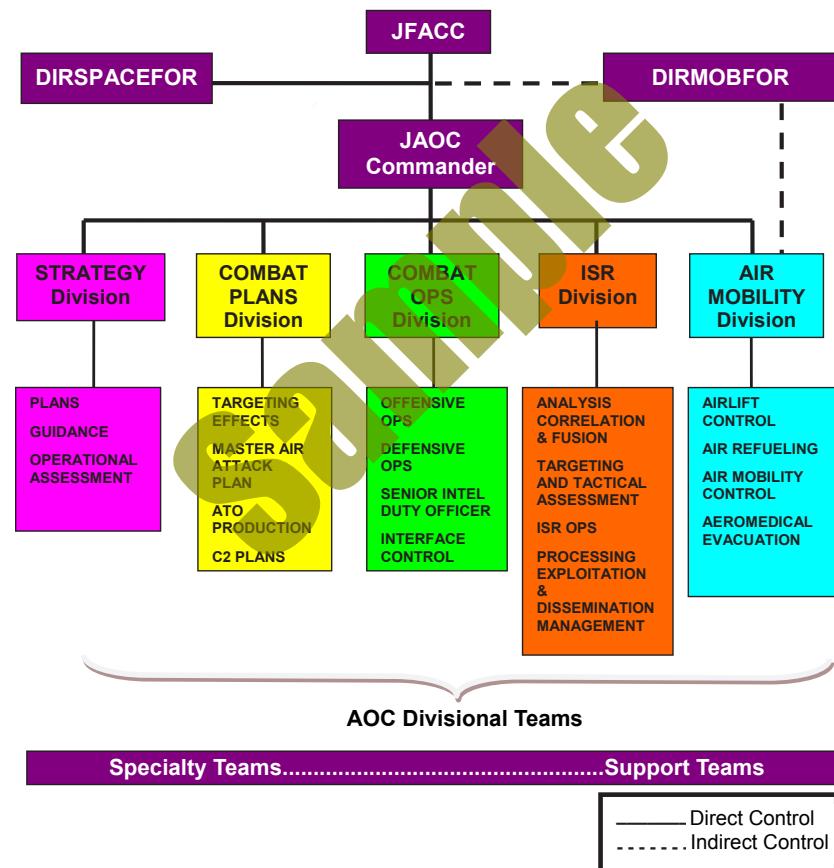
The Air Operations Center (AOC) provides operational-level C2 of air, space, and cyberspace operations. It is the focal point for planning, directing, and assessing air, space, and cyberspace operations to meet JFACC operational objectives and guidance. The regional scope of Geographic AOCs and disparate, global scope of Functional AOCs, require AOCs to be tailored to efficiently and effectively plan and execute their steady-state missions. Although the USAF provides the core manpower for the AOC, other service components provide personnel in support of exercises and contingency operations. The AOC coordinates closely with superior and subordinate C2 nodes, as well as the headquarters of other functional and service component commands to integrate the numerous aspects of air, space, and cyberspace operations and accomplish its mission.

II. AOC Organization & Functional Teams

Ref: AFI 13-1AOCV3, Operational Procedures—Air Operations Center (w/Chg 1, 18 May 12), pp. 12 to 16 and Annex 3-30, Command and Control (7 Nov 2014), app. B

The baseline AOC organization includes an AOC commander, five divisions (strategy, combat plans, combat operations, ISR, and air mobility), and multiple support/specialty teams. Each integrates numerous disciplines in a cross-functional team approach to planning and execution. Liaisons from other Service and functional components may be present to represent the full range of joint air, space, and cyberspace capabilities made available to the COMAFFOR. The following provides a summary of the major elements of an AOC.

Note: The AOC is an AF unit. The AOC Commander is responsible for the day-to-day readiness of the AOC. When the AOC is employed in contingency operations, the AOC should be prepared to transition, with appropriate joint augmentation, to a JAOC and the AOC commander should be prepared to serve as the JAOC Commander.



Ref: AFI 13-1AOCV3 (w/Chg 1, 18 May 12), fig. 2.2. JAOC Organization and Functional Teams.

See pp. 3-14 to 3-15 for a listing and discussion of joint liaisons in the AOC.

IV. Joint Liaisons in the AOC

Ref: AFI 13-1AOCV3, *Operational Procedures—Air Operations Center* (w/Chg 1, 18 May 12), pp. 81 to 83.

The specialty/support functions provide the AOC with diverse capabilities to help orchestrate theater air, space, and cyberspace operations power. Many of these capabilities are provided to the AOC from agencies external to the AOC organization. It is crucial to the success of the AOC that these capabilities are integrated into the air, space, cyberspace, and IO planning and execution process to ensure the best use of available assets. The AFFOR staff coordinates regularly with the AOC and often provides specialized expertise. Specialty/support functions are listed in the following paragraphs.

Component Liaisons

Component liaisons work for their respective component commanders and with the JFACC and staff. Each component normally provides liaison elements (e.g., BCD, SOLE, NALE, MARLE, etc.) that work within the AOC. These liaison elements consist of experienced warfare specialists who provide component planning and tasking expertise and coordination capabilities. They help integrate and coordinate their component's participation in joint air, space, and cyberspace operations. The USAF component may require other liaison augmentation to support AOC functions such as Coast Guard, space forces, DIA, NSA, CIA, USAF Intelligence, Surveillance, and Reconnaissance Agency (AFISRA), National Reconnaissance Office (NRO), and FAA in various operational and support areas.

Refer to JP 3-30, *Command and Control for Joint Operations*, for additional discussion.

Battlefield Coordination Detachment (BCD)

The BCD supports the integration of air, space, and cyberspace operations with ground maneuver. BCD personnel are integrated into AOC divisions to support planning, operations, air defense, intelligence, airlift/logistics, airspace control, and communications. In particular, the BCD coordinates ground force priorities, requests, and items of interest. One of the BCD's most important functions is to coordinate boundary line and fire support coordination line (FSCL) changes and timing. The BCD brings ground order of battle (GOB) (friendly and enemy) situational awareness and expertise into the AOC and will normally brief the ground situation/intelligence update. The BCD may also provide current ground situation inputs to AOC teams for incorporation into daily briefings and intelligence summaries.

Air and Missile Defense Commander (AAMDC)

The AAMDC is normally under the OPCON of the ARFOR commander or joint forces land component commander (JFLCC). When directed by the JFC, AAMDC assets may be placed in direct support of the JFACC/AADC as appropriate. The roles of the commanding general of the AAMDC are Senior Army ADA commander, theater Army air and missile defense coordinator (TAAMDCOORD), and deputy area air defense commander (DAADC). Coordination and liaison functions between all three are essential to effective air and missile defense operations within a given theater. The AAMDC and AOC intelligence personnel build a collaborative TAMD IPB, which serves as the basis for JTAMD strategies and plans. The AAMDC (attack operations section in coordination with the intelligence section) submits TM target nominations directly to the AOC for inclusion as JFACC nominated targets. The AAMDC also sends a robust LNO team (active defense, intelligence, and attack operations personnel) to support the JFACC, AADC, and DAADC requirements and may deploy the AAMDC TOC (Main) to the JFACC, AADC location. As the senior Army air defense element at the AADC's location, the AAMDC LNO team serves as the primary interface at the AOC for all land-based active air defense.

Naval and Amphibious Liaison Element (NALE)

NALE personnel from the maritime components support the JAOC in integrating naval air, naval fires, and amphibious operations into theater air operations and monitor and interpret the maritime battle situation for the AOC.

Marine Liaison Element (MARLE)

The MARLE represents the Commander, Marine Corps Forces (COMMARFOR) and his associated Aviation Combat Element Commander. The MARLEs will support the JFACC in integrating Marine Air-Ground Task Force (MAGTF) fires, maneuver, and Marine air into the theater campaign and supporting JAOP. This team will be well versed in the MAGTF Commander's guidance, intentions, schemes of maneuver, and direct support aviation plan.

Special Operations Liaison Element (SOLE)

The Joint Forces Special Operations Component Commander (JFSOCC) provides a SOLE to the JFACC to coordinate and integrate SOF activities in the entire battlespace. This joint SOLE is comprised of representatives from SOF aviation, intelligence, airspace, logistics, Air Force STTs, Army Special Forces, Navy Sea-Air Land Teams (SEAL) and Marine Special Operations Forces, as required. Depending upon command structure agreements, the SOLE may or may not represent coalition or allied SOF. SOLE personnel coordinate, integrate and synchronize with various AOC functional areas to ensure that all SOF targets, SOF teams, and SOF air tasks and/or missions are deconflicted, properly integrated, and coordinated during planning and execution phases. The prevention of fratricide is a critical product of the SOLE's efforts.

Specific SOLE functions include, but are not limited to, inputs into the JFACC strategy development; inputs into the ATO development; inputs into the ACO development; real-time mission support coordination with the Joint Special Operations Air Component Commander (JSOACC) with special emphasis on airspace deconfliction; operational and intelligence inputs into the targeting process; and close coordination with the RCC/JPRC.

As the JFSOCC and the JFACC share a common environment throughout the entire battlespace, it is imperative that SOF aviation and surface forces are integrated into joint air, space, and cyberspace operations planning and execution to prevent fratricide, duplication of effort, and conflict. Active SOLE participation in the development of air, space, and cyberspace operations strategy and the supporting plans to the theater campaign plan ensures that SOF efforts will, in fact, be a force multiplier for the theater campaign plan.

SOF normally pursues SOF-unique objectives, which prepare, shape or enhance broader JFC objectives, they may be tasked to operate in support of conventional objectives or require conventional support of their objectives.

Additionally, SOLE has the following responsibilities: provide inputs and guidance to the IO team; act as the focal point for raising JFACC concerns or MISO objective/tasking to the JFC for consideration, planning, and execution; provide support to the IO team MISO effort to synchronize and deconflict MISO into the air, space, and cyberspace operations campaign (e.g., leaflet drops, message broadcasts, and aircraft mission are included into the ATO, etc.).

Coalition/Allied Liaison Officers

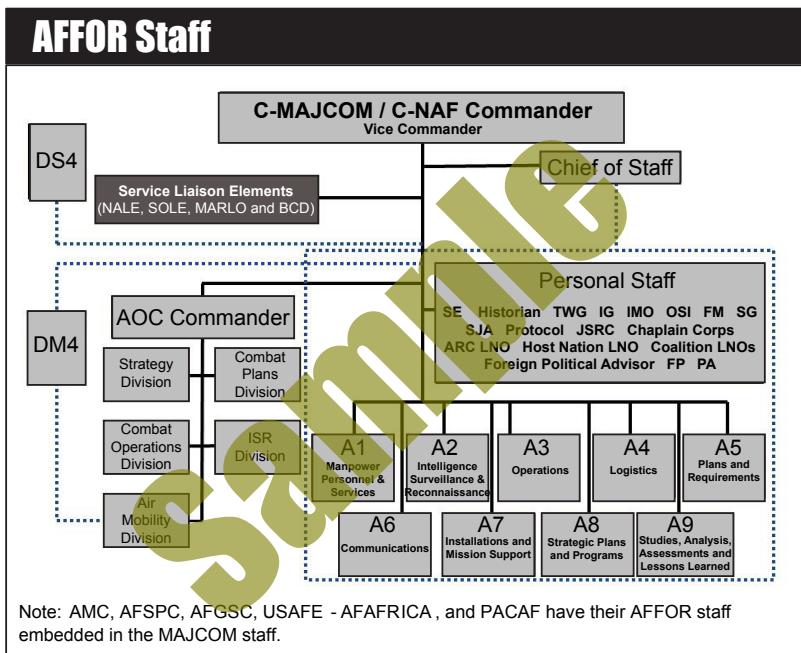
LNOs representing coalition/allied surface forces may improve AOC situational awareness regarding the disposition of friendly forces, especially when those forces do not have a mature TACS. They are also essential for unity of effort for coalition air defense operations and airspace deconfliction. When teamed with linguists, they can help overcome language barriers with remote allied/coalition forces. In force projection scenarios into an immature theater, the AOC Commander must anticipate the need for LNOs and actively seek them out via the JFC staff, in-country military group, staff country team, or direct contact with coalition forces, if necessary.

II. (AFFOR) Air Force Forces Staff

Ref: Annex 3-30, Command and Control (7 Nov 2014), app. C and AFI 13-103, AFFOR Staff Operations, Readiness and Structures (19 Aug '14).

I. Air Force Forces (AFFOR) Staff

An Air Force forces (AFFOR) staff (sometimes also called an A-Staff) supports the commander, Air Force forces (COMAFFOR) at the combatant command, subordinate unified command, or joint task force level.



Ref: AFI 13-103, AFFOR Staff Operations, Readiness and Structures (19 Aug '14), fig. 1. C-MAJCOM/C-NAF Headquarters Organization.

The AFFOR staff is the vehicle through which the COMAFFOR fulfills operational and administrative responsibilities for assigned and attached forces across the range of military operations, from steady-state operations in the engagement phase through major operations and campaigns. In the steady state, the AFFOR staff performs administrative responsibilities (organize, train, and equip), and also plans, executes, and assesses operations in support of the CCDR's theater campaign strategies and plans. The AFFOR staff is also responsible for the operational planning that occurs outside the air tasking cycle (e.g., deliberate planning). The AFFOR staff consists of functionally oriented directorates, a command section, a personal staff, and any required liaisons. The AFFOR staff issues mission type orders on behalf of the COMAFFOR to direct subordinate units to execute actions outside of the scope of the air tasking order (ATO). Examples of such orders may include setting a baseline force protection condition, directing the move of a unit to another operating base, and overseeing the execution of steady-state or security cooperation operations.

II. AFFOR Organization & Staff Directorates

Ref: Annex 3-30, *Command and Control* (7 Nov 2014), app. C.

The differing mission requirements of any given operation may dictate different task emphasis and staff arrangements. Very large or complex operations, for example, may require all staff directorates. In some cases, senior component liaison elements may not be needed; in other cases, some of the required support may be obtained through reachback. For very small or limited operations, a full AFFOR staff may not be required. As a rule of thumb, the size and span of the AFFOR staff should normally be held to the smallest number of divisions necessary to handle the demands of the operation; in some cases, the COMAFFOR may combine some leadership positions (e.g., A-3/5; A-4/7). Other operations may employ an AFFOR staff split into forward and rear elements, using reachback to maintain unity of effort. In each case, based upon regional requirements, the COMAFFOR determines the size, shape, and location of the AFFOR staff and air operations center (AOC) to best support the operation.

Command Section

The command section is normally composed of the commander (i.e., the COMAFFOR), vice commander, chief of staff, command chief master sergeant, executive assistant, and appropriate administrative support personnel. Within the command section, the chief of staff coordinates and directs the daily activities of the AFFOR staff; approves actions, orders, and plans, as authorized by the COMAFFOR; and ensures COMAFFOR decisions and concepts are implemented by directing and assigning staff responsibilities.

Personal Staff

The COMAFFOR has several staff activities that normally function outside the AFFOR staff directorates. These activities fulfill specific responsibilities usually related to providing close, personal advice or services to the commander, or assist the commander and the component staff with technical, administrative, or tactical matters. These activities may include the commander's legal advisor, political advisor (POLAD), public affairs advisor, inspector general, protocol advisor, historian, chaplain, counterintelligence and special investigations, financial management, force protection, air mobility operations (DIRMOBFOR), space operations (DIRSPACEFOR), medical, knowledge operations management, and safety. Based on the needs of the operation and the requirements of the AFFOR staff, some of these activities may be located within the AFFOR staff directorates.

Senior Component Liaisons

The senior liaison officer (LNO) from each component represents his or her respective commander to the COMAFFOR. Subordinate LNOs from each component may perform duties throughout the staff as required, providing weapon system expertise. LNOs should be knowledgeable of the capabilities and limitations of their units and Service.

Manpower and Personnel (A-1)

The director of manpower, personnel, and services is the principal staff assistant to the COMAFFOR for total force accountability, personnel policy and procedures, the establishment and documentation of manpower requirements, organizational structures, mortuary affairs, food and force beddown operations, the coordination of exchange services, and the provision of quality of life programs to enable and sustain forces assigned and attached to the COMAFFOR.

Intelligence (A-2)

The director of intelligence, surveillance, and reconnaissance (ISR) is the principal staff assistant to the COMAFFOR for policy and guidance for all Air Force ISR operational architectures, personnel, systems, and training. The A-2 provides intelligence support to forces within the assigned area of operations. The A-2 does not normally direct ISR collection assets when an ISR division is resident in the AOC; this is normally directed by ISR division chief.

III. (JFACC) Joint Force Air Component Commander

Ref: JP 3-30, Command & Control for Joint Air Operations (Feb '14), chaps. 1 to 2.

JFCs organize forces to accomplish the mission based on their vision and a concept of operations (CONOPS) developed in coordination with their component commanders and supporting organizations. JFCs provide direction and guidance to subordinate commanders and establish command relationships to enable effective spans of control, responsiveness, tactical flexibility, and protection. The JFC's air component should be organized for coordinated action (through unity of command) using the air capabilities of the joint force. Centralized control and decentralized execution are key considerations when organizing for joint air operations. While JFCs have full authority, within establishing directives, to assign missions, redirect efforts, and direct coordination among subordinate commanders, they should allow Service tactical and operational groupings to generally function as they were designed. The intent is to meet the needs of the JFC while maintaining the tactical and operational integrity of the Service organizations.

A JFC has three basic organizational options affecting C2 of joint air operations. In each case a key task includes organizing the staff, C2 system, and subordinate forces that will plan, execute, and assess joint air operations.

- A JFC may designate a JFACC
- A JFC may designate a Service component commander
- A JFC may retain C2

When designated, the JFACC is the commander within a combatant command, subordinate unified command, or joint task force (JTF) responsible for tasking joint air forces, planning and coordinating joint air operations, or accomplishing such operational missions as may be assigned. The JFACC is given the authority necessary to accomplish missions and tasks assigned by the establishing commander.

Joint air operations are performed by forces made available for joint air tasking. Joint air operations do not include those air operations that a component conducts as an integral and organic part of its own operations. Though missions vary widely within the operational environment and across the range of military operations, the framework and process for the conduct of joint air operations must be consistent.

Joint air operations are normally conducted using centralized control and decentralized execution to achieve effective control and foster initiative, responsiveness, and flexibility. In joint air operations centralized control is giving one commander the responsibility and authority for planning, directing, and coordinating a military operation or group/category of operations. **Centralized control** facilitates the integration of forces for the joint air effort and maintains the ability to focus the impact of joint air forces as needed throughout the operational area. **Decentralized execution** is the delegation of execution authority to subordinate commanders. This makes it possible to generate the required tempo of operations and to cope with the uncertainty, disorder, and fluidity of combat.

Mission Command

Mission command is the conduct of military operations through decentralized execution based upon mission-type orders and is a key component of the C2 function. Its intent is for subordinates to clearly understand the commander's intent and to foster flexibility and initiative at the tactical level to best accomplish the mission. While philosophically consistent with historical C2 of air operations, modern joint air operations and their unique aspects of speed, range, and flexibility demand a balanced approach to C2. This approach is best codified in centralized control and decentralized execution.

B. JFACC Responsibilities

Ref: JP 3-30, Command & Control for Joint Air Operations (Feb '14), pp. II-2 to II-4.

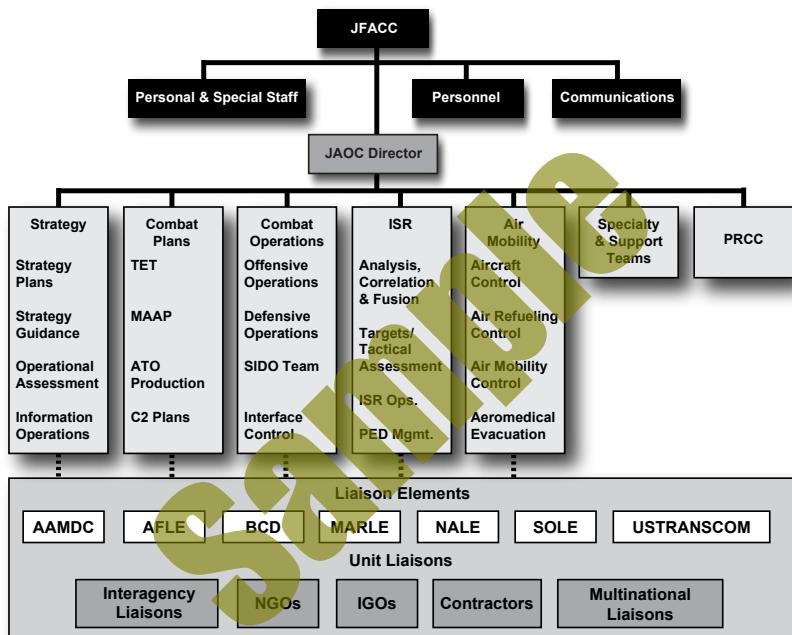
The responsibilities of the JFACC are assigned by the JFC. These include, but are not limited to:

- Develop a joint air operations plan (JAOP) to best support the JFC's CONOPS or OPLAN
- Recommend to the JFC air apportionment priorities that should be devoted to the various air operations for a given period of time, after considering objective, priority, or other criteria and consulting with other component commanders
- Allocate and task the joint air capabilities and forces made available by the Service components based on the JFC's air apportionment decision.
- Provide the JFACC's guidance in the air operations directive (AOD) for the use of joint air capabilities for a specified period that is used throughout the planning stages of the joint air tasking cycle and the execution of the ATO. The AOD may include the JFC's apportionment decision, the JFACC's intent, objectives, weight of effort, and other detailed planning guidance that includes priority of joint air support to JFC and other component operations
- Provide oversight and guidance during execution of joint air operations, to include making timely adjustments to taskings of available joint air forces. The JFACC coordinates with the JFC and affected component commanders, as appropriate, or when the situation requires changes to planned joint air operations.
- Assess the results of joint air operations and forward assessments to the JFC to support the overall assessment effort.
- Perform the duties of the airspace control authority (ACA), if designated.
- Perform the duties of the area air defense commander (AADC), if designated.
- Perform the duties of the space coordinating authority (SCA), if designated. The SCA is responsible for planning, integrating, and coordinating space operations support in the operational area and has primary responsibility for joint space operations planning, to include ascertaining space requirements within the joint force. If the individual designated to be the JFACC is also designated to be the SCA, he/she will normally designate a senior space officer who facilitates coordination, integration, and staffing activities for space operations on a daily basis.
- Perform the duties of the PR coordinator, as required.
- In concert with the above responsibilities, perform tasks within various mission areas to include, but not limited to:
 - Defensive counterair (DCA) and offensive counterair (OCA)
 - CAS
 - Airborne ISR and incident awareness and assessment
 - Air mobility operations
 - Strategic attack
 - Air interdiction

C. Typical JFACC Staff & Joint Air Operations Center Organization

Ref: JP 3-30, Command & Control for Joint Air Operations (Feb '14), pp. II-11 to II-13.

The JAOC is structured to operate as a fully integrated command center and should be staffed by members of all participating components, to include key staff positions, to fulfill the JFACC's responsibilities. A JAOC provides the capability to plan, coordinate, allocate, task, execute, monitor, and assess the activities of assigned or attached forces. Through the JAOC, the JFACC monitors execution of joint air operations and directs changes as the situation dictates.



JAOC organizations may differ. Elements that should be common to all JAOCs are the strategy division (SD), combat plans division (CPD), ISR division, air mobility division (AMD), and combat operations division (COD). Divisions, cells, or teams within the JAOC should be established as needed.

Refer to JP 3-30, Appendix E, "Joint Air Operations Center Divisions and Descriptions," for further discussion.

The JAOC director is responsible to the JFACC for integrating the planning, coordinating, allocating, tasking, executing, and assessing tasks for all joint air operations, and coordinates with the director of mobility forces (DIRMOBFOR) to meet airlift and tanker priorities with support of United States Transportation Command (USTRANSCOM) mobility forces. Planning future joint air operations and assessing the effectiveness of past operations is usually the responsibility of the SD, while the CPD is usually devoted to near-term planning and drafting of the daily ATO. Execution of the daily ATO is carried out by the COD and closely follows the action of current joint operations, shifting air missions from their scheduled times or targets, and making other adjustments as the situation requires.

Theater Air-Ground Control Systems (TACS)

Ref: Annex 3-30, *Command and Control* (7 Nov 2014), app. D.

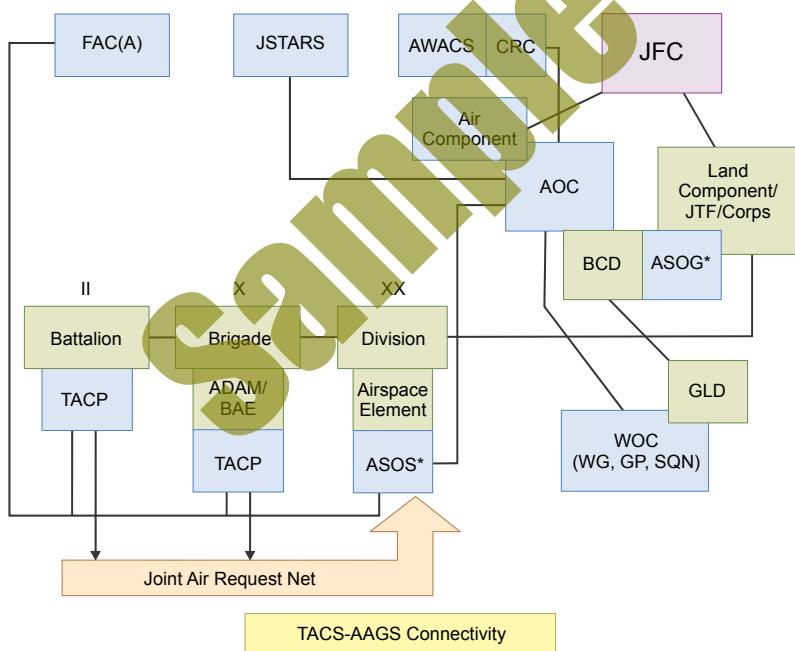
The theater air control system (TACS) is the Air Force's mechanism for commanding and controlling theater airpower. It consists of airborne and ground elements to conduct tailored command and control (C2) of airpower operations throughout the range of military operations, including counterair and counterland operations, airspace control, and coordination of space mission support not resident within theater.

When the TACS is combined with other components' C2 elements, such as the Army air-ground system, the Navy tactical air control system, and the Marine Corps air command and control system, they become the theater air-ground system (TAGS), and collectively support the JFACC.

For a description of each Service's TAGS element, refer to AFTTP 3-2.17, TAGS.

The TACS is divided into ground and airborne elements as described below.

Key Air Force and Army Components of the Theater Air Control System: Army Air-Ground System



*Exact make up and capabilities of the ASOG/ASOS tailored to match the mission assigned to the corps/division. The ASOC is normally colocated with the senior Army tactical echelon.

NOTE:
Coordination is effected between all organizations for effective/efficient operations.

Ref: JP 3-30 (Feb '14), fig. II-3. Key Air Force and Army Components of the Theater Air Control System: Army Air-Ground System.

Ground TACS Elements

Ground TACS elements include the CRCs, the ASOC, and TACPs.

- The **control and reporting center (CRC)** is subordinate to the AOC and conducts air surveillance and supports strategic attack, counterair, counterland, air refueling operations, and other airpower functions/missions as directed. Responsibility as the region/sector air defense commander may be decentralized to the CRC, which acts as the primary integration point for air defense fighters and air defense artillery (ADA) fire control in its assigned area. It also enhances the joint forces' situational awareness by disseminating the air picture over data-links. The CRC may deploy mobile radars and associated communications equipment to expand radar coverage and communications range within its assigned operating area.
- The **air support operations center (ASOC)**, which reports to the AOC, receives, coordinates, and processes air support requests from subordinate TACPs, which are transmitted through the joint air request net (JARN). ASOCs distribute allocated sorties to satisfy requests for air support and integrate those missions with the supported units' fires and maneuver. An ASOC is normally tasked to support an Army unit but can also support units from other organizations (e.g., special operations, coalition forces). It may also augment other missions requiring C2 of air assets (e.g., humanitarian efforts). The AOC is the senior element within the theater air control system (TACS). The TACS includes the AOC plus subordinate ground and airborne elements, and is directly involved in the command and control of most air missions. Collectively, the TACS has the capability to plan, direct, integrate, and control all air, space, and cyberspace forces assigned, attached, or made available for tasking; monitor the actions of both friendly and enemy forces; plan, direct, coordinate, and control air defense and airspace control; and coordinate for required space and cyberspace support.
- Tactical air control party (TACPs)** are aligned with Army maneuver elements, battalion through division level. They are primarily responsible for decentralized execution of close air support (CAS) operations. TACPs request, coordinate, and control CAS missions as required. *For more information on TACPs and ASOCs, refer to Annex 3-03, Counterland. See also pp. 4-17 to 4-32 for discussion of CAS.*

Airborne TACS Elements

Airborne elements of the TACS include AWACS, JSTARS, and the (FAC [A]).

- AWACS** is subordinate to the AOC and conducts air and maritime surveillance and supports strategic attack, counterair, counterland, countersea, air refueling operations, and other airpower functions/missions as directed. Responsibility as the region/sector air defense commander may be decentralized to AWACS, which acts as the primary integration point for air defense fighters and ADA fire control in its assigned area. It also enhances the joint forces' situational awareness by disseminating the air and maritime picture over data-links.
- JSTARS** conducts ground and maritime surveillance and supports strategic attack, counterair, counterland, countersea, and other airpower functions/missions as directed. It primarily provides dedicated support to ground commanders and attack support functions to friendly offensive and defensive air elements and may be employed as an airborne extension to the ASOC. It also enhances the joint forces' situational awareness by disseminating the ground and maritime picture over datalinks.
- The **forward air controller(airborne) [FAC(A)]** is an airborne extension of the TACP and has the authority to direct aircraft delivering ordnance to a specific target cleared by the ground commander. The FAC(A) provides additional flexibility in the operational environment by enabling rapid coordination and execution of air operations. It also enhances the TACS' situational awareness by disseminating information on the flow of aircraft on target.

To better organize operational airspace three characterizations exist:

Permissive Combat Airspace

A low risk exists for US and coalition aircraft operations within the airspace of interest. Operations can expect little to no use of adversary electronic warfare, communications jamming, anti-aircraft systems, or aircraft. Air superiority or air supremacy has been achieved.

Contested Combat Airspace

A medium risk exists to US and coalition aircraft within the airspace of interest. Expect the enemy to employ fighters, anti-aircraft systems, and electronic jamming. US and coalition aircraft can achieve localized air superiority for operations within portions of the airspace. Enemy air defense assets are neither fully integrated nor attrited.

Denied-Access Combat Airspace

A high risk exists for many, but not all, US and coalition aircraft from integrated air defense systems, radars, anti-aircraft systems, electronic warfare, and fighter aircraft. The airspace is characterized by pervasive enemy activity. Expect operations to result in high losses or denial of sustained operations until a measure of air superiority can be achieved.

II. Airspace Control Authority (ACA)

Normally, the joint force commander (JFC) designates a joint force air component commander (JFACC) as the commander for joint air operations. The JFACC role is normally filled by the commander, Air Force Forces (COMAFFOR). The JFC may also concurrently designate an airspace control authority (ACA) and area air defense commander (AADC). The ACA is “the commander designated to assume overall responsibility for the operation of the airspace control system (ACS) in the airspace control area.” The AADC, on the other hand, is the commander assigned overall responsibility for air defense with the preponderance of air defense capability and the command, control, and communications capability to plan and execute integrated air defense operations (Joint Publication [JP] 3-52, Joint Airspace Control). Because these related authorities are so integral to air operations, the COMAFFOR, as the JFACC, is normally assigned ACA and AADC responsibilities.

As the ACA, the JFACC is responsible for planning, coordinating, and developing airspace control procedures and operating the ACS. The ACA does not have the authority to approve or disapprove combat operations. Airspace control procedures within the JOA are approved by the JFC and are derived entirely from JFC authority. If the ACA and an affected component commander are unable to obtain agreement on an airspace issue, the issue should be referred to the JFC for resolution.

In most operations, the COMAFFOR is designated as the JFACC, ACA, and AADC, largely due to the Air Force’s ability to concurrently command and control (C2) these activities. In those joint operations where separate commanders are designated, close coordination is essential for unity of effort; prevention of fratricide and unintended engagements against civil and neutral aircraft; and joint air operations de-confliction (JP 3-52). Because such separate arrangements are rare, the remainder of this publication assumes the COMAFFOR has been designated as the JFACC, ACA, and AADC. This, in fact, is the preferred Air Force construct for which Airmen are trained.

See pp. 3-28 to 3-30 for related discussion of the ACA.

Airpower (Overview)

Ref: Annex 3-0, Operations & Planning (4 Nov 16), pp. 2 to 39.

Editor's Note: For the purposes of this publication (AFOPS2), the material from Annex 3-0 Operations and Planning is presented in two separate chapters, with chapter four (this chapter) focusing on airpower and chapter five focusing on strategy, effects-based approach to operations, and the common operations framework (operational design, planning, execution, and assessment).

Air Force Doctrine Annex 3-0 is the Air Force's foundational doctrine publication on strategy and operational design, planning, employment, and assessment of airpower. It presents the Air Force's most extensive explanation of the effects-based approach to operations (EBAO) and contains the Air Force's doctrinal discussion of operational design and some practical considerations for designing operations to coerce or influence adversaries. It presents doctrine on cross-domain integration and steady-state operations—emerging, but validated concepts that are integral to and fully complement EBAO. It establishes the framework for Air Force components to function and fight as part of a larger joint and multinational team. Specific guidance on particular types of Air Force operations can be found in other operational-level doctrine as well as Air Force tactics, techniques, and procedures documents. This publication conveys basic understanding of key design and planning processes and how they are interrelated.

The US' national security and national military strategies establish the ends, goals, and conditions the armed forces are tasked to attain in concert with non-military instruments of national power. Joint force commanders (JFCs), in turn, employ strategy to determine and assign military objectives, and associated tasks and effects, to obtain the ends, goals, and conditions stipulated by higher guidance in an effort to produce enduring advantage for the US, its allies, and its interests. Strategy is a prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and multinational objectives. Airmen should follow a disciplined, repeatable approach to strategy development in order to maximize airpower's contribution to overarching national aims.

Today, the United States faces many security challenges including an ongoing conflict against implacable extremists, engagement with regimes that support terrorism, and the need to support international partners. Against this backdrop, US military forces may be called upon to conduct a full range of operations in a variety of conflicts and security situations, including major operations and campaigns, irregular warfare, information operation, homeland defense, humanitarian assistance/disaster relief efforts, building partnerships with other nations, and others.

The operational environments in which airpower is employed may be characterized by simultaneous action by Air Force forces against more than one adversary at a time—including the potential for near-peer and peer competitors—who may attempt to achieve objectives against US interests by using asymmetric advantages across all instruments of power: diplomatic, informational, military, and economic. Conflicts may occur with little or no warning and they may stretch the Air Force as it works with JFCs to provide support for the joint force while simultaneously addressing Air Force-unique missions.

Airpower Overview (Doctrine Annexes)

1. Counterair Operations (Annex 3-01) See pp. 4-7 to 4-16.

The Air Force defines counterair as a mission that integrates offensive and defensive operations to attain and maintain a desired degree of control of the air and protection by neutralizing or destroying enemy aircraft and missiles, including cruise and ballistic missiles, both before and after launch.

2. Counterland Operations (Annex 3-03) See pp. 4-17 to 4-32.

Counterland operations are defined as “airpower operations against enemy land force capabilities to create effects that achieve joint force commander (JFC) objectives.”

3. Countersea Operations (Annex 3-04) See pp. 4-33 to 4-36.

Countersea operations are those operations conducted to attain and maintain a desired degree of maritime superiority by the destruction, disruption, delay, diversion, or other neutralization of threats in the maritime environment.

4. Counterspace Operations (Annex 3-14) See pp. 4-37 to 4-40.

The Air Force uses four space operations functions to clearly delineate the capabilities required for successful global joint operations and supersede the space mission areas: space situational awareness (SSA); counterspace operations; space support to operations; and space service support.

5. Air Mobility Operations (Annex 3-17) See pp. 4-41 to 4-56.

Joint doctrine defines air mobility as “the rapid movement of personnel, materiel, and forces to and from or within a theater by air.” The foundational components of air mobility operations—airlift, air refueling, air mobility support, and aeromedical evacuation—work with other combat forces to achieve national and joint force commander objectives.

6. Global Integrated Intelligence, Surveillance, and

Reconnaissance (Annex 2-0) See pp. 4-57 to 4-64.

The Air Force defines global integrated ISR as “cross-domain synchronization and integration of the planning and operation of ISR assets; sensors; processing, exploitation and dissemination systems; and, analysis and production capabilities across the globe to enable current and future operations.”

7. Strategic Attack (Annex 3-70) See pp. 4-65 to 4-70.

Strategic Attack (SA) is offensive action specifically selected to achieve national strategic objectives. These attacks seek to weaken the adversary’s ability or will to engage in conflict, and may achieve strategic objectives without necessarily having to achieve operational objectives as a precondition.

8. Nuclear Operations (Annex 3-72) See pp. 4-71 to 4-78.

The Air Force’s responsibilities in nuclear operations are to organize, train, equip, and sustain forces with the capability to support the national security goal of deterring nuclear attack on the United States, our allies, and partners.

9. Personnel Recovery (Annex 3-50) See pp. 4-79 to 4-82.

Our adversaries clearly understand there is great intelligence and propaganda value to be leveraged from captured Americans that can influence our national and political will and negatively impact our strategic objectives. For these reasons, the Air Force maintains a robust and well trained force to locate and recover personnel who have become “isolated” from friendly forces. Personnel recovery (PR) is an overarching term that describes this process, and the capability it represents.

10. Special Operations (Annex 3-05) See pp. 4-83 to 4-88.

Special operations are operations requiring unique modes of employment, tactical techniques, equipment and training often conducted in hostile, denied, or politically sensitive environments and characterized by one or more of the following: time sensitive, clandestine, low visibility, conducted with and/or through indigenous forces, requiring regional expertise, and/or a high degree of risk.

11. Cyberspace Operations (Annex 3-12) See pp. 4-89 to 4-94.

Cyberspace is a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.

12. Information Operations (Annex 3-13) See pp. 4-95 to 4-102.

The purpose of information operations (IO) is to affect adversary and potential adversary decision making with the intent to ultimately affect their behavior in ways that help achieve friendly objectives. Information operations is defined as “the integrated employment, during military operations, of information-related capabilities [IRCs] in concert with other lines of operation to influence, disrupt, corrupt, or usurp the decision making of adversaries and potential adversaries while protecting our own.”

13. Electronic Warfare (Annex 3-51) See pp. 4-103 to 4-108.

Electronic Warfare (EW) is waged to secure and maintain freedom of action in the electromagnetic spectrum (EMS). Military forces rely heavily on the EMS to sense, communicate, strike, and dominate offensively and defensively across all warfighting domains. EW is essential for protecting friendly operations and denying adversary operations within the EMS.

14. Public Affairs Operations (Annex 3-61) See pp. 4-109 to 4-112.

Air Force PA “advances Air Force priorities and achieves mission objectives through integrated planning, execution, and assessment of communication capabilities. Through strategic and responsive release of accurate and useful information, imagery, and musical products to Air Force, domestic, and international audiences, PA puts operational actions into context; facilitates the development of informed perceptions about Air Force operations; helps undermine adversarial propaganda efforts; and contributes to the achievement of national, strategic, and operational objectives”.

15. Combat Support (Annex 4-0) See pp. 8-1 to 8-4.

The Air Force defines combat support (CS) as the foundational and crosscutting capability to field, base, protect, support, and sustain Air Force forces across the range of military operations. The nation's ability to project and sustain airpower depends on effective CS.

16. Engineering Operations (Annex 3-34) See pp. 8-5 to 8-8.

Air Force civil engineer forces establish, operate, sustain, and protect installations as power projection platforms that enable Air Force and other supported commanders core capabilities through engineering and emergency response services across the full mission spectrum.

17. Medical Operations (Annex 4-02) See pp. 8-9 to 8-12.

The Air Force is increasingly called upon to deliver medical capabilities throughout the range of military operations. Diverse medical missions may consist of civil-military operations, global health engagement, or humanitarian assistance/disaster relief as part of joint or multinational operations.

18. Force Protection (Annex 3-10) See pp. 8-13 to 8-16.

Joint doctrine defines FP as “preventive measures taken to mitigate hostile actions against Department of Defense personnel (to include family members), resources, facilities, and critical information” (Joint Publication 3-0, Joint Operations). FP is a fundamental principle of all military operations as a way to ensure the survivability of a commander’s forces.

I. Applying Airpower

Airpower entails the use of military power and influence to achieve objectives at all levels by controlling and exploiting air, space, and cyberspace. It encompasses military, civil, and commercial capabilities, the industrial infrastructure, and a doctrine of employment. Airpower is an indivisible, unitary construct—one that unifies Airmen, rather than portraying them as a collection of “tribes” broken into technological or organizational “stovepipes.” Other doctrine publications deal with specific aspects of airpower or specific types of Air Force operations, but in all cases readers should remember that airpower accomplishes or contributes to achieving national objectives across all domains via operations in and through air, space, and cyberspace.

Due to speed, range, and its multidimensional perspective, airpower operates in ways that are fundamentally different from other forms of military power; thus, the various aspects of airpower are more akin to each other than to the other forms of military power. Airpower is the product, not the sum, of air, space, and cyberspace operations. Each depends on the others to such a degree that the loss of freedom of action in one may mean loss of advantage in all other domains. Airpower has the ability to create effects across an entire theater and the entire globe, while surface forces, by their nature, are constrained to divide the battlespace into discrete operating areas. Airmen view operations, including the application of force, more from a functional than a geographic perspective, and usually classify actions taken against targets (including nondestructive and nonkinetic actions) by the effects created rather than the targets’ physical locations within the battlespace.

A. Airpower as Maneuver in Warfare

The multidimensional nature of airpower provides distinct advantages. Traditionally, the physical structure of ground maneuver forces has consisted of fronts, flanks, and rears. While these concepts do not apply as readily to airpower, it can be useful to make an analogy in surface terms in order to convey the Air Force’s contribution to joint warfare. In such terms, airpower adds flanks in other dimensions that make the vertical and virtual battle as important as the horizontal battle. Using a metaphor from surface warfare, the airspace above the battlespace is like an additional flank in the third dimension, which can be exploited to achieve a relative advantage. Thus, as with surface flanks, commanders should seek to gain positions of advantage by turning an enemy’s vertical flank, while trying not to expose their own vertical flank(s). Through cross-domain effects (effects created in one or more domains through operations in another), airpower can also create virtual “flanks” or “rears” in other dimensions, such as time and cyberspace (or assist the joint force in doing so).

Integrated with surface forces, airpower can reduce the need for operations like surface probing actions through such capabilities as wide-ranging intelligence, surveillance, and reconnaissance (ISR), information exploitation, and comprehensive situational awareness and understanding. This enables freedom of action for surface forces, greatly enhancing their effectiveness and that of the entire joint force.

B. Parallel and Asymmetric Operations

Air Force capabilities are usually employed to greatest effect in parallel, asymmetric operations.

Parallel Operations

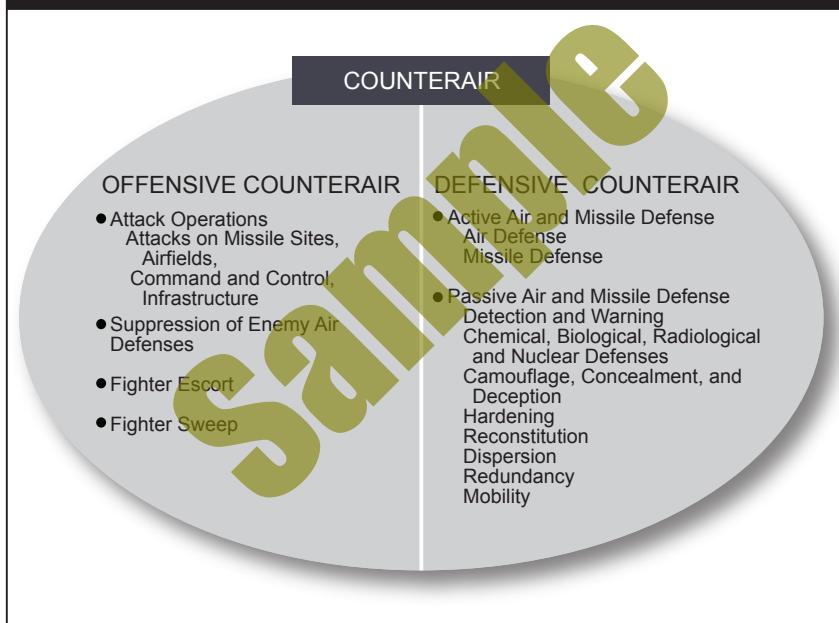
Parallel operations are those that apply pressure at many points across an enemy’s system in a short period of time to cause maximum shock and dislocation effects across that system. Sequential, or serial, operations, in contrast, are those that apply pressure in sequence, imposing one effect after another, usually over a significant period of time. Parallel operations limit an enemy’s ability to react and adapt and thus place as much stress as possible on the enemy system as a whole. For example, in Operation DESERT STORM, the Iraqi command and control structure was se-

II. Counterair Operations

Ref: Annex 3-01, Counterair Operations (27 Oct '15).

Counterair is directed at enemy forces and other target sets that directly (e.g., aircraft, surface-to-air missiles) or indirectly (e.g., airfields, fuel, command and control facilities, network links) challenge control of the air. Normally, counterair operations are classified as offensive or defensive. However, airpower's inherent flexibility allows missions and aircraft to shift from defensive to offensive (or vice versa) to adapt to changing conditions in the operational environment. Counterair operations can be conducted across the tactical, operational, and strategic levels of war by any component of the joint force. Operations are conducted over and in enemy, friendly, and neutral territory. They range from seeking out and destroying the enemy's ability to conduct airborne attacks with both aircraft and missiles, to taking measures to minimize the effectiveness of those attacks. The JFC's objectives and desired effects determine when, where, and how these operations are conducted to gain the desired degree of air control.

The Counterair Framework



A. Offensive Counterair (OCA)

The objective of offensive counterair (OCA) is to destroy, disrupt, or degrade enemy air capabilities by engaging them as close to their source as possible, ideally before they are launched against friendly forces. Otherwise, OCA operations seek out and destroy these targets as close to their launch locations as possible. These operations may range throughout enemy, friendly, and international airspace and waters and are generally conducted at the initiative of friendly forces. OCA targets may include but are not limited to: enemy air defense systems, theater missile systems, airfields, airfield support infrastructure, C2 nodes, multi-domain launch platforms, and launch platform supporting infrastructure. OCA operations enable friendly use of contested airspace and reduce the threat of airborne attacks against friendly forces.

- **Attack operations.** Attack operations are intended to destroy, disrupt, or degrade counterair targets on the ground. These missions are directed against enemy air and missile threats, their C2, and their support infrastructure (e.g., airfields, launch sites, launchers, fuel, supplies, and runways). The main goal is to prevent enemy employment of air and missile assets.
- **Suppression of enemy air defenses.** SEAD is an OCA mission designed to neutralize, destroy, or degrade enemy surface-based air defenses by destructive or disruptive means. SEAD requirements may vary according to mission requirements, system capabilities, and threat complexity. SEAD planners should coordinate with ISR operators to ensure collection and exploitation opportunities are considered prior to destroying or disrupting emitters. SEAD operations fall into three categories:
 - **Area of responsibility (AOR)/joint operating area (JOA) air defense suppression:** Operations conducted against specific enemy air defense systems to destroy, disrupt, or degrade their effectiveness. It targets high payoff air defense assets, resulting in the greatest degradation of the enemy's total system and enabling effective friendly operations.
 - **Localized suppression:** Operations normally confined to geographical areas associated with specific ground targets or friendly transit routes, contributing to local air superiority.
 - **Opportune suppression:** Usually unplanned, including aircrew self-defense and attack against targets of opportunity. The JFC or JFACC normally establishes specific ROE to permit airborne assets the ability to conduct opportune suppression.
- **Fighter escort.** Escorts are aircraft assigned to protect other aircraft during a mission (JP 1-02). Escort missions are flown over enemy territory to target and engage enemy aircraft and air defense systems. Friendly aircraft en route to or from a target area may be assigned escort aircraft to protect them from enemy air-to-air and surface-to-air threats. Typically, escort to low-observable ("stealth") aircraft requires special consideration and planning at the air operations center (AOC) level.
- **Fighter sweep.** An offensive mission by fighter aircraft to seek out and destroy enemy aircraft or targets of opportunity in a designated area.

B. Defensive Counterair (DCA)

The objective of defensive counterair (DCA) is to protect friendly forces and vital interests from enemy airborne attacks and is synonymous with air defense. DCA consists of active and passive air defense operations including all defensive measures designed to destroy attacking enemy airborne threats or to nullify or reduce the effectiveness of such threats should they escape destruction. The basic active defense criteria to detect, identify, intercept, and destroy remain the same for any airborne threat. DCA forces generally react to the initiative of the enemy and are subject to the weapons control procedures of the area air defense commander (AACD).

Several types of DCA tasks also help to provide a permissive environment for friendly air action.

- **Active air and missile defense.** Active air and missile defense is defensive action taken to destroy, nullify, or reduce the effectiveness of air and missile threats against friendly forces and assets. It includes actions to counter enemy manned and unmanned aircraft, cruise missiles, air-to-surface missiles, and ballistic missiles. These actions are closely integrated to form essential DCA capabilities, but may involve different defensive weapon systems or tactics, techniques and procedures (TTP).
- **Passive air and missile defense.** Passive defense includes all measures, other than active defense, taken to minimize the effectiveness of hostile air and missile threats against friendly forces and assets. It consists of several categories of activities.

II. Counterland Operations (AI & CAS)

Ref: Annex 3-03, Counterland Operations (17 Mar '17) and JP 3-09.3 Close Air Support (Jul '09).

Counterland operations are defined as “airpower operations against enemy land force capabilities to create effects that achieve joint force commander (JFC) objectives.” The aim of counterland operations is to dominate the surface environment using airpower. By dominating the surface environment, counterland operations can assist friendly land maneuver while denying the enemy the ability to resist. Although most frequently associated with support to friendly surface forces, counterland operations may also be conducted independent of friendly surface force objectives or in regions where no friendly land forces are present. For example, recent conflicts in the Balkans, Afghanistan, and Iraq illustrate situations where counterland operations have been used absent significant friendly land forces or with small numbers of special operations forces (SOF) providing target cueing. This independent attack of adversary land operations by airpower often provides the key to success when seizing the initiative, especially in the opening phase of an operation.

Counterland Operations



Air Interdiction (AI)



Close Air Support (CAS)

Airpower

Counterland operations provide the JFC two distinct types of operations for engaging enemy land forces. The first is air interdiction (AI), which is defined as “air operations conducted to divert, disrupt, delay, or destroy the enemy’s military surface capabilities before it can be brought to bear effectively against friendly forces, or to otherwise achieve objectives that are conducted at such distances from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required.” Air Interdiction indirectly supports land forces and directly supports JFC objectives in the absence of friendly land forces. The second distinct type of air operations is close air support (CAS) which is defined as “air action by fixed- and rotary-wing aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces.” While AI can support either the JFC or the land component, CAS directly supports land maneuver forces. Whether destroying enemy surface forces, interdicting supply routes, or providing CAS to friendly troops, counterland operations

Counterland operations can serve as the main attack and be the decisive means for achieving JFC objectives. Although often associated with support to friendly surface forces, counterland operations also include operations that directly support the JFC’s theater strategy rather than exclusively supporting a surface component. In some cases, counterland operations can provide the sole US effort against the enemy.

Counterland Operations

Ref: Annex 3-03, Counterland Operations (17 Mar '17), pp. 9-15.

The commander, Air Force forces (COMAFFOR), executes counterland operations by conducting air interdiction (AI) as the supported or supporting commander or by supporting land forces with close air support (CAS). AI and CAS missions can function under an overall theater posture of offense or defense and are typically coordinated with a ground scheme of maneuver to maximize the effect on the enemy.

I. Air Interdiction (AI) See pp. 4-20 to 4-24.

The purpose of interdiction operations is to divert, disrupt, delay, and destroy, by either lethal or nonlethal means in order to achieve objectives. Actions associated with one desired effect may also support the others. Air interdiction (AI) is defined as "air operations conducted to divert, disrupt, delay, or destroy the enemy's military potential before it can be brought to bear effectively against friendly forces, or to otherwise achieve objectives that are conducted at such distance from friendly forces that detailed integration of each air mission with the fire and movement of friendly forces is not required." 5 AI targets may include fielded enemy forces or supporting components such as operational command and control (C2) nodes, communications networks, transportation systems, supply depots, military resources, and other vital infrastructure. When conducted as part of a joint campaign, AI needs the direction of a single commander who can exploit and coordinate all the forces involved.

The commander, Air Force forces (COMAFFOR) is normally the supported commander for the joint force commander's (JFC's) overall AI effort. When designated as the supported commander, the COMAFFOR will conduct theater-wide or joint operations area (JOA-) wide AI to support the JFC's overall theater objectives. With the preponderance of AI assets and the ability to plan, task, and control joint air operations, the COMAFFOR can best plan and execute AI. The COMAFFOR recommends theater and/or JOA-wide targeting priorities and, in coordination with other component commanders, forwards the air apportionment recommendation to the JFC. The COMAFFOR plans and executes the interdiction effort in accordance with the JFC's guidance.

II. Close Air Support (CAS) See pp. 4-24 to 4-30.

Close air support (CAS) is defined as "air action by fixed- and rotary-winged aircraft against hostile targets that are in close proximity to friendly forces and that require detailed integration of each air mission with the fire and movement of those forces." CAS provides supporting fire power in offensive and defensive operations to destroy, disrupt, suppress, fix, harass, neutralize, or delay enemy targets as an element of joint fire support. The speed, range, and maneuverability of airpower allows CAS assets to attack targets that other supporting arms may not be able to engage effectively. When conditions for air operations are permissive, CAS can be conducted at any place and time friendly forces are in close proximity to enemy forces and, at times, may be the best means to exploit tactical opportunities.

Although in isolation CAS rarely achieves campaign-level objectives, at times it may be the more critical mission due to its contribution to a specific operation or battle. CAS should be planned to prepare the conditions for success or reinforce successful attacks of surface forces. CAS can halt enemy attacks, help create breakthroughs, destroy targets of opportunity, cover retreats, and guard flanks. To be most effective, CAS should be used at decisive points in a battle and should normally be massed to apply concentrated combat power and saturate defenses. Elements of the theater air control system (TACS) must be in place to enable command and control and clearance to attack in response to rapidly changing tactical circumstances. In fluid, high-intensity warfare, the need for terminal attack control, the unpredictability of the tactical situation, the risk of collateral damage and friendly fire incidents, and the proliferation of lethal ground-based air defenses make CAS especially challenging.

D. CAS Planning

Ref: Adapted from JP 3-09.3 Close Air Support (Jul '09), p. III-4 to II-12.

1. Receipt of Mission/

Prepare for Mission Analysis

As integral parts of the planning team, the action officers and ALOs should “gather the tools” and be prepared to provide pertinent information from the following to the ground force commander’s staff:

- Air order of battle (apportionment, allocation, and distribution decision)
- ATO
- ACO
- SPINS
- OPORD
- Standard operating procedure (SOP)

2. Mission Analysis

CAS planner responsibilities for mission analysis actually begin before the new mission is received. As part of the ongoing staff estimate, they must continuously monitor and track the status of fire support systems to include available air support. Specifically, during mission analysis CAS planners perform the following actions:

- Update latest products (ATO, ACO, SPINS, etc.)
- Estimate air combat capability to support the operations
- Determine capabilities and limitations of assigned personnel and equipment. (# of JTACs, systems, equipment status, communications status, etc.)
- Provide input to the ground commander’s initial guidance
- Determine specified, implied, and mission essential tasks
- Consider mission, enemy, terrain and weather, troops and support available-time available (METT-T)
- Assist in developing the mission statement
- Anticipate air power required to support the mission based on:

1. HHQ priorities of fires
2. Facts and assumptions
3. Weight of effort decisions
- Provide the following products:
 1. AO/ALO estimate
 2. Available CAS assets
 3. CAS constraints and restraints (ground alert CAS and airborne

alert CAS response times, weather limitations, ROE, etc.)

4. Warning order(s) to subordinate units

5. Verification that subordinate TACP elements understand the warning order and have the ability to support the mission

• Key Considerations. During the mission analysis step, CAS planners should be familiar with the following elements of the HHQ order:

1. CONOPS/Scheme of Maneuver.

What is the commander’s intent? Is this an offensive or defensive operation? What type of offensive or defensive operation (deliberate attack, hasty defense, etc.)? How does ROE impact CAS?

2. Concept of fires/essential fire support tasks (EFSTs).

What are the commander’s desired task and purpose for fires? How can CAS contribute? What other joint functions (C2, intelligence, fires, movement and maneuver, protection, sustainment) are affected? Have all CAS assets been properly integrated with JAAT operations?

3. JIPOE. What is the enemy order of battle? What effects will time of day, terrain, and weather have on CAS operations? What are the likely enemy avenues of approach?

4. Intelligence, Reconnaissance, and Surveillance. What ISR assets are available? Where are ISR assets positioned? How can CAS operators communicate directly/indirectly with ISR assets? What are the commander’s critical information requirements (CCIRs)? Can CAS assets satisfy CCIRs?

5. Observation Plan. How can CAS take advantage of available “eyes” on the battlefield? Are terminal attack control methods (i.e., types of CAS) considered? Where will JTACs/JFOs/FAC(A)s be required?

6. Communications Plan. How will maneuver elements, fire support, and TACP personnel communicate? Are JTACs integrated into the ground force communications plan? Are communications plans reliable and redundant?

• Preplanned Air Support Request. Once CAS planners have analyzed the mission and are familiar with CAS requirements, initial CAS requests

should be drafted and submitted. See Appendix A, "Joint Tactical Air Strike Request." Further refinements to these initial requests can be forwarded as details become available. Adherence to ATO cycle time constraints is critical.

3. COA Development

After receiving guidance, the staff develops COAs for analysis and comparison. Guidance and intent focuses staff creativity toward producing a comprehensive, flexible plan within available time constraints. During this step, CAS planners:

- **Update latest products** (ATO, ACO, SPINS, etc.)
- **Analyze relative combat power.** This is typically accomplished by weighing the individual effectiveness of air platforms against anticipated enemy surface forces to include air defense threats.
- **Generate options used to develop possible COAs.** Options should be suitable, feasible, acceptable, distinguishable, and complete.
- **Array initial forces** to determine CAS requirements
- **Develop fire support/ACMs**
- **Develop the CAS integration plan** by examining opportunities for the best use of air power including the placement of TACP assets
- The AO/ALO assists in developing **engagement areas**, target areas of interest (TAIs), triggers, objective areas, obstacle plan, and movement plan
- Prepare **COA statements and sketches** (battle graphics). This part involves brainstorming to mass the most effective combat power against the enemy (CAS, EW, ISR, and surface fire support).
- **Key Considerations.** During COA development (for each COA), CAS planners must consider:
 1. **Commander's Intent.** How does the commander intend to use CAS? What are his objectives? Does CAS facilitate the commander's ability to achieve his mission objective?
 2. **CCIRs.** What CCIR can CAS assets provide? Will TACPs, JFOs, and/or FAC(A)s be able to provide critical battlefield information? How will this information be relayed to the maneuver unit?
 3. **Enemy Situation.** Where is the enemy and how does he fight (enemy order of battle)? Where is he going? Where can I kill him? When will he be there? What can he do to kill me? How

am I going to kill him?

4. Statements and Sketches.

Once COA development has started, sketches of each COA should be made with notes for the staff to better understand what each can offer the unit. How will CAS aircraft enter/exit the operational area? Does the CAS overlay reflect artillery positioning areas and azimuths of fire (AOFs)? Does the plan promote simultaneous engagement of targets by CAS and surface fires? Has the CAS overlay been shared with all battlefield operating system elements? Where will JTACs/JFOs be positioned on the battlefield? What ACMs and FSCMs are needed to support the COA?

5. Priority of CAS Fires. Priority of fires (POF) for each COA must be identified. As part of the POF, priority of CAS fires must also be identified. The ground maneuver commander establishes which element will receive POF and priority of CAS. It is also important to make the commander and his staff aware of their unit's priority for CAS relative to other units in the operational area. Does the element with priority of CAS fires have a designated JTAC? What if priorities change or CAS is unavailable for the planned COA? How will changes in priority be communicated with forward elements and JTACs? Does the priority of CAS support the commander's intent for each COA?

- **TACP:** The TACP provides the following inputs during COA development:

1. Specific TACP portions of the following plans:

- a. Observation plan (to include target area, aircraft, and BDA)
- b. Employment plan (i.e., ACAs)
- c. Communications plan

2. Evaluation of overall TACP capabilities/limitations:

- a. Personnel
- b. Equipment

3. Consideration of the most effective TAC procedures

4. Update initial or submit new JTARs with all information currently available

5. Current geospatial products and overlays

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III. Countersea Operations

Ref: Annex 3-04, Countersea Operations (7 Nov '14).

Our nation depends on assured access to the world's waterways and coastal regions for global economic trade, as well as providing a stabilizing military presence abroad. These waterways, along with our maritime fleet, provide the means for projecting the bulk of our heavy forces forward, sustaining them over the long term, and projecting force ashore from the seas. Where airpower is the key to rapid forward presence and striking power over long distances, sea power is key to extended forward presence, maritime power projection, mass force deployment, and sustainment through sealift. Protecting sea lanes, littorals, and our maritime assets operating within them are vital to US defense posture, economic prosperity, and national security.

I. Countersea Operations

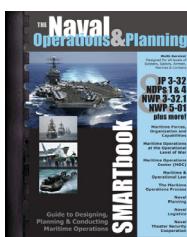
Countersea operations are those operations conducted to attain and maintain a desired degree of maritime superiority by the destruction, disruption, delay, diversion, or other neutralization of threats in the maritime environment. The main objective of countersea operations is to secure and dominate the maritime domain and prevent opponents from doing the same.

The countersea function entails Air Force operations in the maritime domain to achieve, or aid in the achievement of, superiority in that medium. This function fulfills Department of Defense (DOD) requirements for the use of Air Force forces to counter adversary air, surface, and subsurface threats, ensuring the security of vital sea and coastal areas, and enhancing the maritime scheme of maneuver. More importantly, it demonstrates the teamwork required of Service forces working together in a joint environment. Air Force forces achieve effects in the maritime domain through the integrated employment of airpower. The overarching effect of countersea operations is maritime superiority—denial of this domain to the adversary while assuring access and freedom of maneuver for US and allied maritime forces. To this end, Air Force operations can make significant contributions to maritime components in support of joint force objectives.

Airpower

II. The Maritime Domain

From a military perspective, the maritime domain is not limited to the open seas. The DOD Dictionary of Military and Associated Terms (Joint Publication [JP] 1-02) defines the maritime domain as “the oceans, seas, bays, estuaries, islands, coastal areas, and the airspace above these, including the littorals.” Littoral comprises two segments of the operational environment: 1. Seaward: the area from the open ocean to the shore, which must be controlled to support operations ashore. 2. Landward:



Refer to the Naval Operations and Planning SMARTbook for further discussion of the Maritime Domain. The Naval Operations & Planning SMARTbook covers essential Navy keystone warfighting doctrine and maritime operations at the JFMCC/CFMCC, Fleet and JTF levels -- to include maritime forces, organization and capabilities; maritime operations; maritime headquarters (MHQ) and the maritime operations center (MOC); the maritime operations process; naval planning; naval logistics; and naval theater security cooperation.

II. Space Operations Functions

Ref: Annex 3-14, Counterspace Operations (27 Aug '18), pp. 7 to 15.

A. Space Situational Awareness (SSA)

Space situational awareness (SSA) is foundational and fundamental to the conduct of all space operations functions and is especially critical to the effective conduct of counter-space operations. Joint Publication 3-14, Space Operations, defines SSA as “the requisite foundational, current, and predictive knowledge and characterization of space objects and the operational environment upon which space operations depend – including physical, virtual, information, and human dimensions – as well as all factors, activities, and events of all entities conducting, or preparing to conduct, space operations.” SSA makes it possible to understand the space domain, allowing effective command and control of counterspace missions, leading to the desired control of space. SSA is divided into four functional capabilities:

- **Detect / Track / Identify.** Detect / track / identify (D/T/ID) is the ability to search, discover, and track space objects in order to maintain custody of objects and events; distinguish objects from others; and recognize objects as belonging to certain types, missions, etc.
- **Threat Warning and Assessment.** Threat warning and assessment (TW&A) is the ability to predict and differentiate between potential or actual attacks, space weather environment effects, and space system anomalies, as well as provide timely friendly force status.
- **Characterization.** Characterization is the ability to determine strategy, tactics, intent, and activity, including characteristics and operating parameters of all space capabilities (ground, link, and space segments) and threats posed by those capabilities.
- **Data Integration and Exploitation.** DI&E is the ability to fuse, correlate and integrate multi-source data into a UDOP and enable decision-making for space operations.

B. Counterspace Operations

Counterspace* is a mission, like counterair, that integrates offensive and defensive operations to attain and maintain the desired control and protection in and through space. These operations may be conducted across the tactical, operational, and strategic levels in all domains (air, space, land, maritime, and cyberspace), and are dependent on robust space situational awareness (SSA) and timely command and control (C2). Counterspace operations include both offensive counterspace (OCS) and defensive counterspace (DCS) operations. (* *Counterspace is referred to as “space control” in Joint Publication 3-14, Space Operations.*)

- **Offensive Counterspace (OCS).** OCS operations are undertaken to negate an adversary's use of space capabilities, reducing the effectiveness of adversary forces in all domains. These operations target an adversary's space capabilities (space, link, and ground segments, or services provided by third parties), using a variety of reversible and non-reversible means. These actions may include strikes against adversary counterspace capabilities before they are used against friendly forces. OCS operations may occur in multiple domains and may result in a variety of desired effects including deception, disruption, denial, degradation, or destruction.

OCS operations may occur in multiple domains and may result in a variety of desired effects including deception, disruption, denial, degradation, or destruction.

- **Deceive.** Measures designed to mislead an adversary by manipulation, distortion, or falsification of evidence or information into a system to induce the adversary to react in a manner prejudicial to their interests.

- **Disrupt.** Measures designed to temporarily impair an adversary's use or access of a system for a period of time, usually without physical damage to the affected system.
- **Deny.** Measures designed to temporarily eliminate an adversary's use, access, or operation of a system for a period of time, usually without physical damage to the affected system.
- **Degradate.** Measures designed to permanently impair (either partially or totally) the adversary's use of a system, usually with some physical damage to the affected system.
- **Destroy.** Measures designed to permanently eliminate the adversary's use of a system, usually with physical damage to the affected system.
- **Defensive Counterspace (DCS).** DCS operations protect friendly space capabilities from attack, interference, and unintentional hazards, in order to preserve US and friendly ability to exploit space for military advantage. Space capabilities include the space segment (e.g., on-orbit satellites), ground segment (e.g., space operations centers and telemetry, tracking, and commanding stations), and the link segment (the electromagnetic spectrum).
- **Navigation Warfare (NAVWAR).** NAVWAR contributes to counterspace operations by preventing adversary use of PNT information while protecting the unimpeded use of the information by forces and preserving peaceful use of this information outside the area of operations.

C. Space Support to Operations

The space support to operations function provides capabilities to aid, protect, enhance and complement the activities of other military forces, as well as intelligence, civil, and commercial users. These capabilities improve the integration and availability of space capabilities to increase the effectiveness of military operations and achieve national and homeland security objectives. Space support to operations capabilities contribute to counterspace operations, incorporate both active and passive measures for self-protection, and benefit from defensive counterspace (DCS) actions to suppress attacks, as required, in all domains. Space support to operations capabilities include:

- Intelligence, Surveillance and Reconnaissance (ISR)
- Launch Detection
- Missile Tracking
- Environmental Monitoring
- Satellite Communications
- Positioning, Navigation, and Timing (PNT)

D. Space Service Support

Space service support capabilities ensure access to, transport through, operations in, and, as appropriate, return from space through reliable, flexible, resilient, responsive, and safe launch and satellite operations. Space service support consists of spacelift, range, and satellite operations. Space service support capabilities contribute to counterspace operations, incorporate both active and passive measures for self-protection, reconstitute capabilities lost due to enemy attack, and benefit from defensive counterspace actions to suppress attacks, as required, in all domains:

- Spacelift Operations
- Range Operations
- Satellite Operations (On-Orbit Reconstitution, Disposal of Space Vehicles, and Rendezvous and Proximity Operations (RPO))

V. Air Mobility Operations

Ref: Annex 3-17, *Air Mobility Operations* (5 Apr '16) and JP 3-17, *Air Mobility Operations* (Sept '13).

Air mobility operations support all of the geographic combatant commanders and functional combatant commanders. The foundational components of air mobility operations—airlift, air refueling, air mobility support, and aeromedical evacuation—work with other combat forces to achieve national and joint force commander objectives.

Joint doctrine defines air mobility as “the rapid movement of personnel, materiel, and forces to and from or within a theater by air.” The Department of Defense (DOD) transportation mission involves many transportation communities and assets, services, and systems owned by, contracted for, or controlled by the DOD. US Transportation Command serves as the manager of the transportation community and is supported by the Air Force’s Air Mobility Command, the Army’s Surface Deployment and Distribution Command, and the US Navy’s Military Sealift Command.

Air Mobility Operations



Airlift



Air Refueling (AR)



Air Mobility Support



Aeromedical Evacuation (AE)

See p. 4-43 for an overview and further discussion of the four types of air mobility operations.

I. Global Mobility Enterprise

The global mobility enterprise is an integrated series of nodes that support air mobility operations. The four components of the enterprise consist of Airmen, equipment, infrastructure, and command and control (C2). In a dynamic, complex, or contested environment, the enterprise requires global situational awareness through collaboration, coordinated operations, and adherence to processes and support disciplines.

Specifically, the airfields or nodes that are part of this enterprise have the four components (Airmen, equipment, infrastructure, and C2). When contingencies arise, planners identify key nodes and components. Mobility Airmen label these nodes as aerial ports of embarkation, aerial ports of debarkation/hubs, intermediate staging bases, and forward operating bases. Through mission analysis, planners adjust the nodes to drive greater velocity and thus effectiveness throughout the global mobility enterprise. Most importantly, restricting any component or failing to protect all lines of communication from physical or cyberspace attacks within the enterprise can jeopardize its ability to support air mobility operations.

III. Types of Air Mobility Operations

Ref: Annex 3-17, *Air Mobility Operations* (5 Apr '16), pp. 7 to 9.

Intertheater / Intratheater

Air mobility operations are described as either intertheater (operations between two or more geographic combatant commands) or intratheater (operations exclusively within one geographic combatant command). Differences exist between intertheater and intratheater airlift operations. Effective integration and synchronization of intertheater and intratheater air mobility operations is crucial to air mobility support to the warfighter. A combination of intertheater and intratheater air mobility operations requires close coordination and cooperation between the 618th Air Operations Center (AOC) (Tanker Airlift Control Center [TACC]) and the respective geographic AOC.

Air mobility allows forces to reach destinations quickly, thereby opening opportunities for seizing the initiative via speed and surprise, and by providing follow-on sustainment of critical materiel. The four types of air mobility operations are:

A. Airlift See pp. 4-48 to 4-49.

Airlift is “the movement of personnel and materiel via air mobility forces to support of strategic, operational, or tactical objectives.” Airlift provides rapid, flexible, and secure transportation. Because airlift is a high demand asset, it should be used carefully when satisfying warfighter requirements.

B. Air Refueling (AR) See pp. 4-50 to 4-51.

AR is defined as “the refueling of an aircraft in flight by another aircraft.”² AR extends presence, increases range, and serves as a force multiplier. AR significantly expands the options available to a commander by increasing the range, payload, persistence, and flexibility of receiver aircraft.

C. Air Mobility Support See pp. 4-52 to 4-53.

Air mobility support provides command and control (C2), aerial port, and maintenance for mobility air forces. Air mobility support is part of the global air mobility support system (GAMSS). The GAMSS consists of a limited number of permanent en route support locations plus deployable forces that deploy according to a global reach laydown strategy.

D. Aeromedical Evacuation (AE) See pp. 4-54 to 4-55.

AE provides time-sensitive en route care of regulated casualties to and between medical treatment facilities using organic and/or contracted aircraft with medical aircrew trained explicitly for that mission. AE forces can operate as far forward as aircraft are able to conduct air operations, across the full range of military operations, and in all operating environments. Specialty medical teams may be assigned to work with the AE aircrew to support patients requiring more intensive en route care. The Air Force description supplements the joint definition in JP 3-17: “AE is the movement of patients under medical supervision to and between medical treatment facilities by air transportation.”

Air mobility operations are described as either intertheater (operations between two or more geographic combatant commands) or intratheater (operations exclusively within one geographic combatant command). Differences exist between intertheater and intratheater airlift operations. Effective integration and synchronization of intertheater and intratheater air mobility operations is crucial to air mobility support to the warfighter. A combination of intertheater and intratheater air mobility operations requires close coordination and cooperation between the 618th Air Operations Center (AOC) (Tanker Airlift Control Center [TACC]) and the respective geographic AOC.

II. Planning and Direction; Collection; Processing and Exploitation; Analysis and Production; and Dissemination (PCPAD)

Ref: Annex 2-0, *Global Integrated ISR Operations* (29 Jan '15), pp. 4 to 5.

The Air Force conducts global integrated ISR operations through a five-phase process: planning and direction; collection; processing and exploitation; analysis and production; and dissemination (PCPAD). The process is not linear or cyclical, but rather represents a network of interrelated, simultaneous functions that can, at any given time, feed and be fed by other functions.

Planning and Direction

The planning and direction phase begins the process by shaping decision-making with an integrated and synchronized ISR strategy and collection plan that links global integrated ISR operations to the JFC's intelligence requirements and integrates them into the air tasking order (ATO) and its reconnaissance, surveillance, and target acquisition (RSTA) annex.

Collection

The collection phase occurs when the mission is executed and the sensors actually gather raw data on the target set. The collected data in its raw form has relatively limited intelligence utility.

Processing and Exploitation

The processing and exploitation phase increases the utility of the collected data by converting it into useable information. During the analysis and production phase analysts apply critical thinking and advanced analytical skills by fusing disparate pieces of information and draw conclusions resulting in finished intelligence.

Dissemination

Finished intelligence is crucial to facilitating informed decision-making, but only if it is received in a timely manner. Dissemination, the final phase of PCPAD, ensures the commander, planners, and operational forces receive the derived intelligence in time to make effective decisions and conduct effective operations. The Air Force's distributed operations capability enables it to conduct global integrated ISR operations and provide timely and tailored intelligence on a global level to multiple end users. The analyzed intelligence can be disseminated or stored for future use. Properly formatted and archived data makes previously collected and exploited information readily available to correlate and provide context to data.

VII. Strategic Attack (SA)

Ref: Annex 3-70, Strategic Attack (25 May '17).

Department of Defense Directive (DODD) 5100.1, Functions of the Department of Defense and Its Major Components, states that one of the functions of the Air Force is to “organize, train, equip, and provide forces to...conduct global precision attack, to include strategic attack... and prompt global strike.” Formerly, strategic attack (SA) was defined in terms of nuclear delivery systems or weapons. This is no longer true. SA is not defined in terms of weapons or delivery systems used—their type, range, speed, or destructiveness—but by its effective contribution to achieving strategic objectives.

Strategic Attack (SA) is offensive action specifically selected to achieve national strategic objectives. These attacks seek to weaken the adversary's ability or will to engage in conflict, and may achieve strategic objectives without necessarily having to achieve operational objectives as a precondition.

Strategic Attack

SA includes analysis, planning, targeting, command and control (C2), execution, and assessment in combination to support achievement of strategic objectives. An analysis of the definition clarifies SA:

“**Strategic**” refers to the highest level of an **enemy** system that, if affected, will contribute most directly to the achievement of our national security objectives. It is not limited to the use of nuclear weapons, although in some instances the weapon most appropriate for a particular set of circumstances may be nuclear. (System: “A functionally, physically, and/or behaviorally related group of regularly interacting or interdependent elements forming a unified whole.”)

“**Attack**” entails offensive action. It implies proactive and aggressive operations against an **enemy** (whether a state, a non-state actor, or other organization) and may be used preemptively and without regard to enemy military force. Attacks may employ kinetic or non-kinetic means, from nuclear and conventional destructive weapons, to forms of cyberspace power like offensive cyberspace operations, in order to create lethal and non-lethal effects.

SA is an approach to war focused on the adversary's overall system and the most effective way to target or influence that system. SA planners should examine the full spectrum of that system: political, military, economic, social, infrastructure, and information in the context of stated national security objectives. SA involves the combination of effects that most effectively and efficiently achieves those objectives at the strategic level. In the Air Force context, SA is a discrete set of military operations aimed at achieving those strategic objectives. Airpower offers the quickest and most direct means to conduct those operations.

SA involves the systematic application of lethal and non-lethal capabilities against an enemy's strategic centers of gravity (COG), to undermine the enemy's will and ability to threaten our national security interests.

The aim of SA is to help directly achieve national security objectives by generating effects that significantly influence adversary COGs. SA operations are essentially effects-based and should be planned, executed, and assessed as a unified, adaptive

Strategic Effects: Deterrence, Assurance, Dissuasion, and Defeat

Ref: Annex 3-72, Nuclear Operations (19 May '15), pp. 5 to 17.

Deterrence

Deterrence is defined as “the prevention of action by the existence of a credible threat of unacceptable counteraction and/or belief that the cost of action outweighs the perceived benefits.” Deterrence is critical to US national security efforts. Both nuclear and conventional operations contribute to the effect. Although nuclear forces are not the only factor in the deterrence equation, our nuclear capability underpins all other elements of deterrence.

Deterrence requires US nuclear operations to be visible to the target audience. To have credibility, an adversary must believe that the Air Force has the capability to act quickly, decisively and successfully. The cumulative effects of deterrence and assurance stem from the credibility of nuclear capabilities in the minds of those we seek to deter, assure, or dissuade. This credibility is attained through activities such as day-to-day training, periodic exercises, and regular inspections which demonstrate Air Force nuclear force capability and readiness.

Nuclear delivery system testing and treaty inspections are distinct messaging opportunities. Both are highly visible examples of strategic messaging. Successful capability testing and treaty inspections provide the world evidence of the credibility of the US' safe, secure, and effective nuclear deterrent.

Nuclear operations can also be used to deter conventional threats. Nuclear operations in the 21st century may be tied to more complex situations, combining both conventional and nuclear operations. Today's Air Force recognizes that many adversaries are willing to employ nuclear operations under many different circumstances.

Extended Deterrence

Historically, the United States provides for the security of its allies by threatening a nuclear response in the event of an enemy attack. This threat of retaliation serves as the foundation for what is defined as extended deterrence.

Extended deterrence is sometimes described as providing a nuclear umbrella over allies and partners. The United States pledges use of its own nuclear arsenal to allies in order to provide for their security and serves as a nonproliferation tool by obviating the need for allies and partners to develop or acquire and field their own nuclear arsenals.

In the case of the North Atlantic Treaty Organization (NATO), the continued deployment of US nuclear weapons in Europe is a strategic alliance issue. This on-going forward basing of US nuclear capabilities not only extends deterrence of adversaries on behalf of European allies, but also assures NATO partners that the Air Force is capable of helping ensure their collective national security.

According to the NATO Deterrence and Defense Posture Review, “Nuclear weapons are a core component of NATO’s overall capabilities for deterrence and defense alongside conventional and missile defense forces. As long as nuclear weapons exist, NATO will remain a nuclear alliance. Allies agree ... to develop concepts for how to ensure broadest possible participation of Allies concerned in their nuclear sharing arrangements.” For the United States’ Pacific partners, the Air Force provides a nuclear umbrella over Japan and South Korea, as well as Australia and New Zealand.

Extended deterrence and assurance of allies are two sides of the same coin. Shows of force, which are “operations designed to demonstrate US resolve that involves increased visibility of US deployed forces in an attempt to defuse a specific situation that, if allowed to continue, may be detrimental to US interests or national objectives,” shape both allied and adversary beliefs.

Assurance

Complementing extended deterrence, where the objective is to influence the decision-making of an adversary, assurance involves the easing of the fears and sensitivities of allies and partners.

US assurance of allies and partners has been conveyed through various alliances, treaties, and bilateral and multilateral agreements. For example:

- The Treaty of Mutual Cooperation and Security Between the US and Japan specifies a commitment to defense cooperation, regular consultations, and peace and security in the Far East
- The Mutual Defense Treaty Between the United States and the Republic of Korea declares the countries' shared determination to defend themselves and preserve peace and security in the Pacific area
- The North Atlantic Treaty reaffirms the goal of promoting stability, uniting efforts for collective defense, and for the preservation of peace and security among NATO partners

A key Air Force contribution to assurance is through shows of force.

If proliferation increases, it can be expected that allies and partners will demand tangible assurance from the US. This, in turn, will continue to drive demands on the force structure and capability requirements.

Dissuasion

Dissuasion, also closely related to deterrence, consists of actions taken to demonstrate to an adversary that a particular course of action is too costly, or that the benefits are too meager. The intent is thus to dissuade potential adversaries from embarking on programs or activities that could threaten our vital interests, such as developing or acquiring nuclear capabilities. Dissuasion differs from deterrence in that it is a concept aimed at precluding the adversary from developing or acquiring nuclear capabilities. Dissuasion is most often conducted using instruments of national power in concert, such as a combination of diplomatic, economic, and military measures. Air Force nuclear forces may play an important role in the latter, often by providing a credible deterrent.

Defeat

To convince an adversary to surrender or to end a war on terms favorable to the United States, the President may authorize defeat of an enemy using nuclear weapons. Defeat is an objective (and thus technically an effect) that may be achieved using nuclear weapons, by themselves or in conjunction with other forces, should the decisive and culminating nature of their effects be required to resolve a conflict. Operations seeking outright defeat of an enemy using nuclear weapons will likely use other effects of nuclear operations (any or all of the other nuclear operations effects) simultaneously to influence the decision making process of all parties involved.

Defeat may entail prevailing over the enemy's armed forces, destroying their war-making capacity, seizing territory, thwarting their strategies, or other measures in order to force a change in the enemy's behavior, policies, or government. Escalation control is a major consideration for this effect. Escalation control entails the ability to increase the enemy's cost of defiance, while denying them the opportunity to neutralize those costs. In addition, the high level of commitment required for the use of nuclear weapons by the United States is a tangible demonstration of our resolve and likely to affect our ability to defeat the will of an enemy.

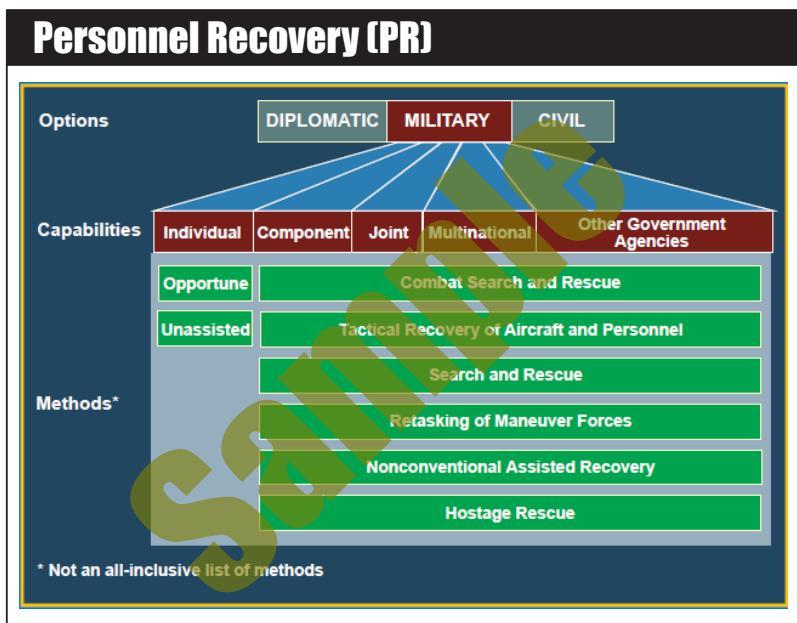
Nuclear weapons have been used in combat only twice, of course: at Hiroshima and Nagasaki, culminating World War II in the Pacific.

Refer to "Practical Design: The Coercion Continuum" in Annex 3-0, Operations and Planning, for additional discussion on effects.

IX. Personnel Recovery

Ref: Annex 3-50, Personnel Recovery (23 Oct '17).

Our adversaries clearly understand there is great intelligence and propaganda value to be leveraged from captured Americans that can influence our national and political will and negatively impact our strategic objectives. For these reasons, the Air Force maintains a robust and well trained force to locate and recover personnel who have become “isolated” from friendly forces. Personnel recovery (PR) is an overarching term that describes this process, and the capability it represents.



Ref: Annex 3-50, Personnel Recovery (23 Oct '17), p. 8. Personnel Recovery Options, Capabilities, and Methods.

PR is defined as “the sum of military, diplomatic, and civil efforts to prepare for and execute the recovery and reintegration of isolated personnel.” (Joint Publication [JP] 3-50, Personnel Recovery). Chairman of the Joint Chiefs of Staff Instruction 3270.01B, Personnel Recovery and Presidential Policy Directive 30, Hostage Recovery Activities, and Executive Order 13698, Hostage Recovery Activities, expand PR responsibilities to: prevent, plan for, and coordinate a response to isolating events to include all US Government (USG) departments and agencies.

The Air Force conducts PR using the fastest and most effective means to recover IP. Air Force PR forces deploy to recover personnel or equipment with specially outfitted aircraft/vehicles, specially trained aircrews and ground recovery teams with PR support personnel and capabilities in response to geographic combatant commander (CCDR) taskings. Traditionally the Air Force focused on the recovery of downed aircrews; however, recent experience has proven that Air Force PR forces are responsible for the recovery of many types of IP.

II. AFSOC Core Activities

Ref: Annex 3-05, Special Operations (9 Feb '17), pp. 11 to 14.

As an Air Force major command, and the Air Force component to US Special Operations Command (USSOCOM), AFSOC is responsible for providing specially tailored aviation related capabilities to conduct or support special operations core activities and other SecDef directed taskings. AFSOC refers to these capabilities as core missions. AFSOC core missions include:

Agile Combat Support (ACS)

Enables all AFSOC core missions and capabilities across the range of military operations. Protects, fields, prepares, deploys, maintains, sustains, and reconstitutes Air Force special operations personnel, weapons systems, infrastructure, and information in support of USSOCOM core activities.

Aviation Foreign Internal Defense (AvFID)

AFSOC combat aviation advisors (CAA) assess, train, advise, assist, and equip (ATAAE) partnered forces aviation assets in airpower employment, sustainment, and integration. CAA conduct special operations activities by, with, and through foreign aviation forces. CAA mission priorities are focused on mobility, ISR, and precision strike missions, with associated surface integration tasks that enable the air-to-ground integration of partnered forces.

Command and Control (C2)

C2 is the exercise of the commander's authority and direction over assigned and attached forces. Operational C2 elements consist of personnel and equipment with specialized capability to plan, direct, coordinate, and control forces to conduct joint / combined special operations.

Information Operations (IO)

IO is an integrated approach utilizing information-related capabilities during all phases of operations to influence, disrupt, corrupt, or usurp adversarial human and automated decision making while protecting our own by producing effects across the entire battlespace. The resulting information superiority allows friendly forces the ability to collect, control, exploit, and defend information without effective opposition. IO is successful by identifying and using any combination of information-related capabilities necessary to achieve the desired effects.

Intelligence, Surveillance, and Reconnaissance (ISR)

ISR synchronizes and integrates sensors, assets, and processing, exploitation and dissemination in direct support of current and future SOF operations. It consists of manned and remotely piloted aircraft and Distributed Common Ground Systems that deliver actionable intelligence to the special operations forces (SOF) operator. ISR produces detailed, specialized products tailored to mission, customer, and pace of operation that gives SOF a decisive advantage against our adversaries.

Precision Strike (PS)

PS provides the joint force commander and the SOF operator with specialized capabilities to find, fix, track, target, engage and assess (F2T2EA) applicable targets. F2T2EA can use a single weapon system or a combination of systems to fulfill elements of the kill chain. PS missions include close air support, air interdiction, and armed reconnaissance. Attributes associated with PS include persistence, robust communications, high situational awareness, precise target identification, lethality, and survivability (as required for the environment).

Specialized Air Mobility (SAM)

SAM missions include both specialized mobility and refueling. Specialized mobility is the rapid global infiltration, exfiltration, and resupply of personnel, equipment, and material using specialized systems and tactics. Specialized refueling is the rapid, global refueling using specialized systems and tactics, thereby increasing mission flexibility and aircraft range. This is done via in-flight refueling either as a tanker or receiver and can additionally be conducted on the ground through a forward arming and refueling point (FARP). These missions may be clandestine, covert, low visibility, or overt and through hostile, denied, or politically sensitive airspace using manned or unmanned platforms with a single aircraft or part of a larger force package. SAM aircraft operate across the range of military operations in all environmental regions (e.g. arctic, desert, littoral, mountainous, sea, tropical, etc.), day and night, and during adverse weather conditions to include transient exposure to chemical, biological, radiological, and nuclear effects.

Special Tactics (ST)

ST uses highly specialized, combat proven capabilities to integrate, synchronize, and control air assets to achieve tactical, operational, and strategic objectives. ST is comprised of the total force consisting of combat controllers (CCT), pararescue (PJ), special operations weather teams (SOWT), tactical air control party (TACP), special operations surgical team (SOST), and specialized combat mission support. ST capabilities consist of air traffic control; assault zone assessment, establishment and control; terminal attack control; fire support; operational preparation of the environment; special reconnaissance; command and control communications; full spectrum personnel and equipment recovery; humanitarian relief; and battlefield trauma care. ST supports and optimizes airpower effects. Agile ST forces enable projection and integration of SOF power across domains, geographic boundaries, and operational environments in support of the ST core capabilities Global Access, Precision Strike, and Personnel Recovery requirements. Through an integrated warfighting approach, ST is uniquely capable of delivering airpower against hard problem sets that are not otherwise within operational reach of the joint force.

Special Operations Relationship to Irregular Warfare

Adaptive adversaries such as terrorists, insurgents, criminal networks, and rogue states, resort to irregular forms of warfare as effective ways to challenge US forces. Irregular warfare (IW) conflicts are a violent struggle among state and non-state actors for legitimacy and influence over the relevant population(s).

Since many irregular threats are not purely military problems, many of the responses required are not purely military either. Due to the complex nature of these threats, such conflicts may not end with decisive military victory. They are more likely to require long-term involvement to remedy, reduce, manage, or mitigate the conflict. To prevent, deter, disrupt, and defeat irregular threats, US forces should seek to work in concert with other government agencies and multinational partners, and, where appropriate, the partnered actors to understand the situation in depth, plan and act in concert, and continually assess and adapt their approach in response to the dynamic and complex nature of the problem. Because of inherent capabilities, characteristics, and specialized training, SOF are ideally suited to participate in US efforts to counter IW adversaries and threats.

Refer to Annex 3-2, Irregular Warfare, for more information on IW.

XI. Cyberspace Operations

Ref: Annex 3-12, *Cyberspace Operations* (30 Nov '11).

Cyberspace is a global domain within the information environment consisting of the interdependent network of information technology infrastructures, including the Internet, telecommunications networks, computer systems, and embedded processors and controllers.

The employment of cyberspace capabilities where the primary purpose is to achieve military objectives or effects in or through cyberspace.

Cyberspace Superiority

Cyberspace superiority is the operational advantage in, through, and from cyberspace to conduct operations at a given time and in a given domain without prohibitive interference.

Cyberspace superiority may be localized in time and space, or it may be broad and enduring. The concept of cyberspace superiority hinges on the idea of preventing prohibitive interference to joint forces from opposing forces, which would prevent joint forces from creating their desired effects. "Supremacy" prevents effective interference, which does not mean that no interference exists, but that any attempted interference can be countered or should be so negligible as to have little or no effect on operations. While "supremacy" is most desirable, it may not be operationally feasible. Cyberspace superiority, even local or mission-specific cyberspace superiority, may provide sufficient freedom of action to create desired effects. Therefore, commanders should determine the minimum level of control required to accomplish their mission and assign the appropriate level of effort.

I. The Cyberspace Domain

Cyberspace is a domain. Cyberspace operations are not synonymous with information operations (IO). IO is a set of operations that can be performed in cyberspace and other domains. Operations in cyberspace can directly support IO and non-cyber based IO can affect cyberspace operations.

Cyberspace is a man-made domain, and is therefore unlike the natural domains of air, land, maritime, and space. It requires continued attention from humans to persist and encompass the features of specificity, global scope, and emphasis on the electromagnetic spectrum. Cyberspace nodes physically reside in all domains. Activities in cyberspace can enable freedom of action for activities in the other domains, and activities in the other domains can create effects in and through cyberspace.

Even though networks in cyberspace are interdependent, parts of these networks are isolated. Isolation in cyberspace exists via protocols, firewalls, encryption, and physical separation from other networks. For instance, classified networks such as the US



Refer to CYBER: *The Cyberspace Operations SMARTbook (in development)*. U.S. armed forces operate in an increasingly network-based world. The proliferation of information technologies is changing the way humans interact with each other and their environment, including interactions during military operations. This broad and rapidly changing operational environment requires that today's armed forces must operate in cyberspace and leverage an electromagnetic spectrum that is increasingly competitive, congested, and contested.

IO Definitions and Descriptions

Ref: Annex 3-13, *Information Operations* (28 Apr '16), pp. 3 to 4.

Commander's Communication Synchronization

Commander's communication synchronization (CCS) is the Department of Defense's primary approach to implementing United States Government (USG) strategic communication guidance as it applies to military operations. The CCS is the joint force commander's (JFC's) approach for integrating all IRCs, in concert with other lines of effort and operation. It synchronizes themes, messages, images, and actions to support the JFC's objectives. Commander's intent should be reflected in every staff product. Air Force component commanders should similarly conduct their own commander's communication synchronization program. This component level communication synchronization coordinates themes, messages, images, and actions to support the commander, Air Force forces' objectives.

Information Environment

The information environment is defined as "the aggregate of individuals, organizations, and systems that collect, process, disseminate, or act on information." The information environment is comprised of the physical, informational, and cognitive dimensions. IO primarily focuses on affecting the cognitive dimension, where human decision making occurs, through the physical and information dimensions.

Information-Related Capabilities (IRCs)

IRCs are defined as "tools, techniques, or activities using data, information, or knowledge to create effects and operationally desirable conditions within the physical, informational, and cognitive dimensions of the information environment." IRCs create both lethal and nonlethal effects. When IRCs are employed with the primary purpose of affecting the cognitive dimension, it is typically considered IO. IRCs may also include activities such as counterpropaganda, engagements, and shows-of-force, as well as techniques like having the host nation designated as the lead for night raids or not using dogs to search houses. IRCs can be employed individually or in combination to create lethal and non-lethal effects.

Informational Dimension

The informational dimension encompasses where and how information is collected, processed, stored, disseminated, and protected. It is the dimension where the command and control (C2) of military forces is exercised and where the commander's intent is conveyed.

Physical Dimension

The physical dimension is composed of C2 systems, key decision makers, and supporting infrastructure that enable individuals and organizations to create effects. The physical dimension includes, but is not limited to, human beings, C2 facilities, newspapers, books, microwave towers, computer processing units, laptops, smart phones, tablet computers, and any other objects that are subject to empirical measurement. The physical dimension is not confined solely to military or nation-based systems and processes; it is a defused network connected across national, economic, and geographical boundaries."

Cognitive Dimension

The cognitive dimension encompasses the minds of those who transmit, receive and respond to, or act on information. These elements are influenced by many factors, including individual and cultural beliefs, norms, vulnerabilities, motivations, emotions, experiences, morals, education, mental health, identities, and ideologies.

Target Audience

A target audience is defined as "an individual or group selected for influence."

ment each other and do not detract from or interfere with any IO-related/messaging objectives. It includes informing and attempting to affect behavior and decision making as it applies to all relevant non-US audiences. IO should not be confused with integrating non-lethal capabilities. IO planners should be aware of capabilities for creating both lethal and non-lethal effects, as well as plans to ensure any cognitive effects they have will enhance and not detract from IO-related/messaging objectives. IO planners work with all other planners and IRC liaisons, using standard planning and execution steps of the joint operation planning process for air, air tasking cycle, and targeting cycle to accomplish commander's objectives. IO-specific by-products include items such as synchronization matrices, coordinated narratives and themes, and target audience analysis. There is no separate IO plan.

The targeting of a select audience's decision-making process is not new for Airmen. In addition to the requisite understanding of the information content and connectivity used by targeted decision makers, the Air Force has developed an analysis capability called behavioral influence analysis (BIA). BIA provides an understanding of the decision makers' behavior to include culture, organization, and individual psychology (e.g., perceptual patterns, cognitive style, reasoning and judgment, and decision selection processes). It is this knowledge, coupled with an Airman's ability to strike information-related targets that is the essence of Air Force IO. The integrated employment of capabilities to affect information content and connectivity of an adversary provides military advantage to friendly forces.

Air Force IO also includes the integrated planning, employment, monitoring, and assessment of themes, messages, and actions (verbal, visual, and symbolic) as part of the commander's communication synchronization (CCS) at the component level. The CCS will include pertinent portions of the joint force commander's or combatant commander's communication strategy, which may include communication synchronization themes and messages as well as any relevant component commander's themes and messages. At the air component level, Air Force IO planners should ensure these themes, messages, and actions (e.g., IRCs) are integrated across all lines of operation.

III. Information-Related Capabilities (IRCs)

In 2011, the definition of information operations (IO) was revised to eliminate references to specific capabilities and describe those generically as information-related capabilities (IRCs). As a result, the Air Force no longer distinguishes and categorizes IO capabilities with terms like "core capabilities," "influence operations," or "integrated control enablers." The Air Force now references tools, techniques, and activities when used to affect the information environment.

The distinction of IO's role as an integrating function merits emphasis. IO is not a capability in and of itself. IO does not "own" individual capabilities but rather plans and integrates the use of IRCs, tools, techniques, and activities in order to create a desired effect—to affect adversary, neutral, and friendly decision making, which contributes towards a specified set of behaviors. IRCs can be employed by themselves or in combination to conduct or support a wide range of missions. For example, IO planners should help ensure electronic attack (EA), offensive space control, air attacks, and cyberspace operations are coordinated and deconflicted from the perspective of cognitive/behavioral effects. The coordination process should also strive to resolve conflict between actions and messages. Individually, IRCs have wider application than IO employment. What unites capabilities as IRCs is a common IO battlespace—the information environment—whether those capabilities operate in it or affect it. Numerous Air Force capabilities have potential to be employed for IO purposes.

See following pages (pp. 4-100 to 4-102) for an overview and further discussion.

I. Electronic Warfare Divisions

Ref: AFDD3-13.1, *Electronic Warfare* (Sept '10), pp. 7 to 9.

EW consist of three divisions: electronic attack (EA), electronic warfare support (ES), and electronic protection (EP). All three contribute to the success of air, space, and cyber-space operations. Capabilities inherent to the EW divisions can be used for both offensive and defensive purposes and are coordinated through electromagnetic battle management (EMBM).

Electronic Warfare Divisions



A Electronic Attack (EA)



B Electronic Warfare Support (ES)



C Electronic Protection (EP)

A. Electronic Attack (EA)

EA is the division of EW involving the use of electromagnetic (EM), directed energy (DE), or antiradiation weapons to attack personnel, facilities, or equipment with the intent of degrading, neutralizing, or destroying enemy operational capability. EA prevents or reduces an enemy's use of the electromagnetic spectrum (EMS). It can be accomplished through detection, denial, disruption, deception, and destruction. EA includes lethal attack with assets like high-speed antiradiation missiles (HARMs); active applications such as decoys (flares or chaff), EM jamming, and expendable miniature jamming decoys; and employs EM or DE weapons (lasers, radio frequency weapons, particle beams, etc.).

EM jamming and the suppression of enemy air defenses (SEAD) are applications of EA:

Electromagnetic Jamming

EM jamming is the deliberate radiation, reradiation, or reflection of EM energy for the purpose of preventing or reducing an enemy's effective use of the EMS, with the intent of degrading or neutralizing the enemy's combat capability. Early Air Force EW efforts were primarily directed toward electronically jamming hostile radars to hide the number and location of friendly aircraft and to degrade the accuracy of radar-controlled weapons. Currently, jamming enemy sensor systems can limit enemy access to information on friendly force movements and composition and cause confusion. Jamming can degrade the enemy's decision making and implementation process when applied against command and control systems. An adversary heavily dependent on centralized control and execution for force employment presents an opportunity for EA.

Suppression of Enemy Air Defenses (SEAD)

SEAD is that activity which neutralizes, destroys, or temporarily degrades surface-based enemy air defenses by destructive and/or disruptive means. The goal of SEAD operations is to provide a favorable situation in which friendly tactical forces can perform their missions effectively without interference from enemy air defenses. In Air Force doctrine, SEAD is not part of EW, but it is a broad term that may include the use of EW. In Air Force doctrine, SEAD is part of the counterair framework and directly contributes to

offensive counterair and obtaining air superiority. This may involve using EM radiation to neutralize, degrade, disrupt, delay, or destroy elements of an enemy's integrated air defense system (IADS). During hostilities, enemy IADS will probably challenge friendly air operations. EW systems tasked to perform SEAD may be employed to locate and degrade, disrupt, neutralize, or destroy airborne and ground-based emitters. Typically, SEAD targets include radars for early warning/ground-controlled intercept (EW/GCI), acquisition (ACQ), surface-to-air missiles (SAMs), and antiaircraft artillery (AAA). Many Air Force functions can be enhanced with the employment of SEAD operations.

B. Electronic Warfare Support (ES)

ES responds to taskings to search for, intercept, identify, and locate sources of intentional and unintentional radiated electromagnetic energy for the purpose of threat recognition. Commanders, aircrews, and operators use ES to provide near-real-time information to supplement information from other intelligence sources. Additionally, ES information can be correlated with other intelligence, surveillance, and reconnaissance (ISR) information to provide a more accurate picture of the electromagnetic operational environment and therefore a better understanding of the battlespace. This information can be developed into an electronic order of battle for situational awareness and may be used to develop new countermeasures. The relationship between ES and signals intelligence (SIGINT), which includes electronic intelligence (ELINT) and communications intelligence (COMINT), is closely related because they share common functions of search, interception, identification, location, and exploitation of electromagnetic radiation. The distinction lies in the type and use of information, and who has tasking authority. ES resources are tasked by or under direct control of operational commanders. The operational commander may have authority to task national SIGINT assets to provide ES or may have direct operational control over tactical resources capable of providing ES. In either case, ES is distinguished by the fact that the operational commander determines aspects of resource configuration required to provide ES that meets immediate operational requirements. SIGINT is tasked by national authorities. The passive nature of ES allows it to be effectively employed during peacetime.

Refer to *Joint Publication 3-13.1, Electronic Warfare, and Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 3210.03C, Joint Electronic Warfare Policy*, for a more in-depth discussion of the relationship and distinctions between ES and SIGINT.

C. Electronic Protection (EP)

EP includes the actions taken to protect personnel, facilities, and equipment from any effects of friendly, neutral, or enemy use of the EMS, as well as naturally occurring phenomena that degrade, neutralize, or destroy friendly combat capability. Examples of EP include frequency agility, changing pulse repetition frequency, emission control (EMCON), and low observable technologies. Integration of EP and other security measures can prevent enemy detection, denial, disruption, deception, or destruction. Friendly force reliance on advanced technology demands comprehensive EP safeguards and considerations. Proper frequency management is a key element in preventing adverse effects (i.e., jamming friendly forces) by friendly forces. Much of the success of EP occurs during the design and acquisition of equipment. EMCON and low observable technologies are passive applications of EP.

III. Public Affairs (PA) Activities

Ref: Annex 3-61, *Public Affairs Operations* (28 Jul '17), pp. 11-14.

Public Affairs (PA) operations begin at home, before the first Airman deploys, and continue long after the last Airman is redeployed. PA operations focus on 10 synergistic activities to achieve the desired effects of its core competencies:

PA Functional Management

PA functional management ensures the PA office and assigned personnel are resourced, trained, equipped, and ready to accomplish the mission in garrison or deployed.

Communication Planning

Communication planning is important to the creation of strategic, operational, and tactical effects in PA operations. PA operators must gain awareness of the aspects of the total information environment (IE) affecting their location or operation, and should have the means to evaluate and analyze aspects of the IE.

Security and Policy Review

While adhering to the policy of "maximum disclosure, minimum delay," PA ensures information intended for public release neither adversely affects national security nor threatens the safety, security, or privacy of Air Force personnel.

Media Operations

Working proactively with the media increases trust and two-way communication, and is often one of the most rapid and credible means of delivering the commander's message.

Community Engagement

Community engagement encompasses activities of interest to the general public, businesses, academia, veterans, service organizations, military-related associations, think tanks, and other community entities.

Environmental

PA supports environmental program objectives and requirements by facilitating public notification and involvement and communicating the Air Force's commitment to environmental excellence.

Visual Information

Visual products, such as photo, video, and graphics, are essential to effective communication and document the Air Force's visual history, through the accessioning process, for future generations.

Band Operations

Air Force bands provide a wide spectrum of musical support for events that enhance the morale, motivation, and esprit de corps of our Airmen, foster public trust and support, aid recruiting initiatives, and promote our national interests at home and abroad.

Contingency Operations and Wartime Readiness

PA forces are foremost a deployable combat capability, fully trained and prepared to meet the needs of the joint warfighter inside and outside the wire.

Command Information

PA provides effective and efficient communication tools to link Airmen with their leaders. Command information helps Airmen and their families understand their purpose, role, and value to the Air Force. A free flow of information to Airmen and families creates awareness of and support for the mission, increases their effectiveness as Air Force ambassadors, reduces the spread of rumors and misinformation, and provides avenues for feedback.

Operations & Planning (Overview)

Ref: Annex 3-0, Operations & Planning (4 Nov 16), pp. 40 to 41.

Editor's Note: For the purposes of this publication (AFOPS2), the material from Annex 3-0 Operations and Planning is presented in two separate chapters, with chapter four focusing on airpower and chapter five (this chapter) focusing on strategy, effects-based approach to operations, and the common operations framework (operational design, planning, execution, and assessment).

Air Force Doctrine Annex 3-0 is the Air Force's foundational doctrine publication on strategy and operational design, planning, employment, and assessment of airpower. It presents the Air Force's most extensive explanation of the effects-based approach to operations (EBAO) and contains the Air Force's doctrinal discussion of operational design and some practical considerations for designing operations to coerce or influence adversaries. It presents doctrine on cross-domain integration and steady-state operations—emerging, but validated concepts that are integral to and fully complement EBAO. It establishes the framework for Air Force components to function and fight as part of a larger joint and multinational team. Specific guidance on particular types of Air Force operations can be found in other operational-level doctrine as well as Air Force tactics, techniques, and procedures documents. This publication conveys basic understanding of key design and planning processes and how they are interrelated.

The US' national security and national military strategies establish the ends, goals, and conditions the armed forces are tasked to attain in concert with non-military instruments of national power. Joint force commanders (JFCs), in turn, employ strategy to determine and assign military objectives, and associated tasks and effects, to obtain the ends, goals, and conditions stipulated by higher guidance in an effort to produce enduring advantage for the US, its allies, and its interests. Strategy is a prudent idea or set of ideas for employing the instruments of national power in a synchronized and integrated fashion to achieve theater, national, and multinational objectives. Airmen should follow a disciplined, repeatable approach to strategy development in order to maximize airpower's contribution to overarching national aims.

Today, the United States faces many security challenges including an ongoing conflict against implacable extremists, engagement with regimes that support terrorism, and the need to support international partners. Against this backdrop, US military forces may be called upon to conduct a full range of operations in a variety of conflicts and security situations, including major operations and campaigns, irregular warfare , information operation, homeland defense, humanitarian assistance/disaster relief efforts, building partnerships with other nations, and others.

The operational environments in which airpower is employed may be characterized by simultaneous action by Air Force forces against more than one adversary at a time—including the potential for near-peer and peer competitors—who may attempt to achieve objectives against US interests by using asymmetric advantages across all instruments of power: diplomatic, informational, military, and economic. Conflicts may occur with little or no warning and they may stretch the Air Force as it works with JFCs to provide support for the joint force while simultaneously addressing Air Force-unique missions.

Nonetheless, operations in recent decades have shown that there is significant common ground between steady-state and contingency conditions, and there are considerable advantages to designing coherent and comprehensive strategies for shaping the actual steady-state environment. Potential contingencies and major operations are then considered branches to combatant commanders' overarching theater or global campaign plans. Contingency planning and steady-state planning employ a common logical approach and process.

Common Framework for Operations



Operational Design (pp. 5-7 to 5-14)



Planning (pp. 5-15 to 5-26)



Execution (pp. 5-27 to 5-30)



Assessment (pp. 5-31 to 5-40)

Ref: Annex 3-0, *Operations & Planning* (4 Nov 16), p. 40.

A common framework of processes helps to foster coherence in Air Force strategy creation by:

- Creating explicit linkages to national objectives and desired end states.
- Encouraging continuity in thinking used to design and plan operations, regardless of where they occur in the ROMO, whether during steady-state or contingency operations.
- Providing a common method for commanders and staff elements to use in designing and planning contingencies as logical follow-ons to ongoing operations.
- Encouraging logical linkages between resources needed for ongoing operations and those to be flowed in to support emerging contingencies.
- Fundamentals of assessment, including discussions on assessing strategy in general, assessment criteria, assessment measures and indicators, and assessment interpretation.

The common framework for operations is broken into the following general considerations:

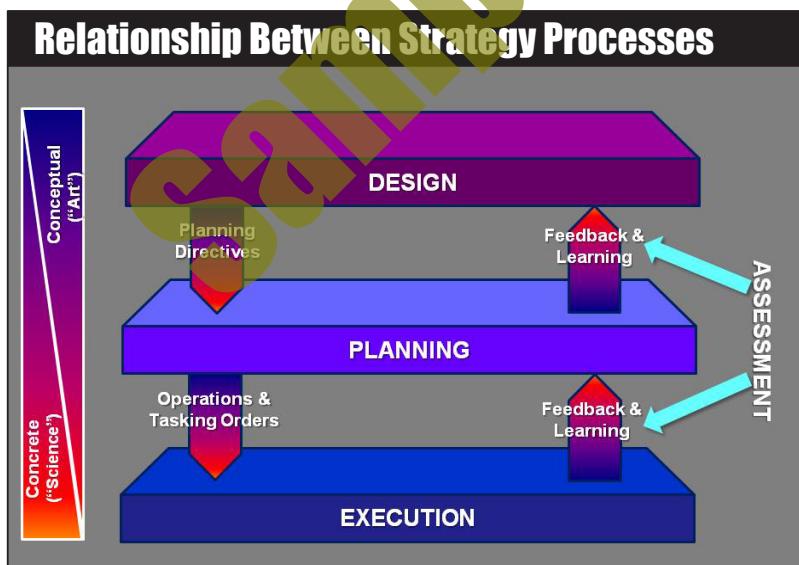
- **Operational Design.** Fundamentals of operational design, including discussion of the elements and methods of operational design, the coercion continuum as a practical design construct, and additional considerations specific to airpower. (See pp. 5-7 to 5-14.)
- **Planning.** General planning considerations, including discussions on Air Force planning in the context of broader joint planning and the effects-based approach to planning. (See pp. 5-15 to 5-26.)
- **Execution.** General execution considerations. (See pp. 5-27 to 5-30.)
- **Assessment.** Fundamentals of assessment, including discussions on assessing strategy in general, assessment criteria, assessment measures and indicators, and assessment interpretation. (See pp. 5-31 to 5-40.)

I. Operational Design

Ref: Annex 3-0, Operations & Planning (4 Nov 16), pp. 42 to 60.

I. Operational Design Fundamentals

As an element of strategy, operational design is defined as “the conception and construction of the framework that underpins a campaign or major operation plan, and its subsequent execution” (Joint Publication [JP] 5-0, Joint Operation Planning). Operational design helps establish a logically consistent structure from which to understand an operation’s aims and, broadly, the methods and means to be used in obtaining them. In other terms, design provides a necessary “front end” to the formal planning processes described in JP 5-0 and elsewhere in Annex 3-0. The “process” of determining the overall focus of an operation—of deciding on the end state, objectives, desired effects, and so on, has been largely a matter of art throughout most of military history. Understanding certain aspects of problem solving can make portions of the commander’s art more systematic, although it will never make them “scientific”—in the sense of making them prescriptive and predictable. Approaching operational design deliberately, however, can provide a foundation that facilitates decision-making by creating a structure linking decision analysis to emerging opportunities. Creating such a linkage can substantially reduce the risks associated with an operation and increase the utility of a plan following first contact with an adversary.



Ref: Annex 3-0, Operations & Planning (4 Nov 16), p. 42. Relationship Between Strategy Processes.

Design consists of three closely interrelated activities, which collectively allow commanders and their staffs to understand and visualize an operation’s purpose. These activities are framing the operational environment, framing the problem, and developing the operational approach. Design helps formulate an operational approach

II. Planning

Ref: Annex 3-0, Operations & Planning (4 Nov 16), pp. 61 to 77.

I. Air Force Planning in the Context of Joint Planning

Joint operation planning is an integrated process for orderly and coordinated problem solving and decision-making across the spectrum of conflict. In its peacetime application, the process allows the thorough and fully coordinated development of plans for operations during steady-state conditions as well as contingencies. During crises, the process is shortened as needed to support the dynamic requirements of changing events. During execution, the process adapts to accommodate changing factors in the operational environment and maximize the flexibility of operations. For today's commanders, plans are useful as necessary points of departure—planning as a process is still the most important.

Joint operation planning is conducted at every echelon of command, during peace-time as well as conflict, and across the range of military operations. Joint operation planning is accomplished through the adaptive planning and execution (APEX) system, which is “the Department of Defense- (DOD-)level system of joint policies, processes, procedures, and reporting structures, supported by communications and information technology, that is used by the joint planning and execution community to monitor, plan, and execute mobilization, deployment, employment, sustainment, redeployment, and demobilization activities associated with joint operations” (JP 5-0, Joint Operation Planning). The APEX system facilitates iterative dialogue and collaborative planning between the many echelons of command, including between the commander, Air Force forces (COMAFFOR), who usually acts as the joint force air component commander (JFACC), and the joint force commander (JFC) and other components. This helps ensure that the military instrument of national power (IOP) is employed in accordance with national priorities, and that plans are continuously reviewed and adapted to accommodate changes in strategic guidance, resources, the actions of adversaries and other actors, and the operational environment. Joint operation planning also identifies capabilities outside the DOD, and provides the means of integrating military actions with those of other IOPs and multinational partners in time, space, and purpose to create all effects necessary to achieve objectives required to attain the desired end state.

The APEX System formally integrates the activities of the entire joint planning and execution community (JPEC), which facilitates seamless transition from operational design and planning efforts to execution in times of crisis. APEX, and the joint operation planning and execution system (JOPES) technology that underpins it, provides for planning that is integrated from the national level down to theater and component levels.

See chap. six for detailed discussion of planning for joint air operations planning -- including the joint air estimate, joint operation planning process for air (JOPPA), joint targeting, and the joint air tasking cycle.

Contingency & Crisis Action Planning

Ref: AFI 10-401, AF Operations Planning & Execution (w/Chg 4, 13 Mar '12), pp. 49 to 50.

DCAPEs, Force Modules, and UTCs

Air Force planners, regardless of organization, will use Deliberate and Crisis Action Planning and Execution Segments (DCAPES), force modules, and unit type codes (UTCs) during the planning process. DCAPES is the Air Force feeder to JOPES. DCAPES use is directed because it provides a variety of capabilities to Air Force planners and agencies not found in JOPES that are necessary for management and oversight of Air Force planning and execution. Force modules and UTCs are the building blocks of AEWs, AEGs, and AESs -the way the Air Force presents and sources capabilities to the JPEC.

Air Force Instruction 10-401 (w/Chg 4, 13 March 2012).

Planning, whether legacy or Adaptive has contingency and crisis action components.

1. Contingency Planning (formerly “Deliberate Planning”)

Combatant commanders, their components, and supporting commands accomplish contingency planning during peacetime conditions. Planners use scenarios and threats identified in national guidance, such as the JSCP, along with the combatant commander’s evaluation of their AOR, to develop a series of plans that span a wide range of operations. This formal process develops responses to potential crises, determines forces required to achieve objectives, prepares deployment plans, and continually evaluates selected courses of action (COAs). This process results in a series of formal plans within each theater that contain lists of apportioned forces and their time-phased deployment schedules. The process for contingency planning is cyclic and continual and is almost identical whether the resulting operation plan is a fully developed OPLAN, CONPLAN, or FUNCPLAN. Operations plans remain in effect until canceled or super ceded by another approved plan. While in effect, they are continuously maintained and updated.

2. Crisis Action Planning (CAP)

Crisis action planning is driven by current events in real time and normally occurs in emergencies and in the context of time-sensitive situations. Planners base their efforts on the actual circumstances that exist when crisis action planning occurs. Detailed guidance and instructions are located in JOPES Volumes I-III. Ideally, an existing contingency plan addresses the crisis situation. If there is not a contingency plan that can be used or modified to respond to the crisis, planners must start from scratch. Each MAJCOM must establish complementary procedures and must ensure adequate procedures exist for subordinate command and agency use. These procedures must be periodically exercised during joint and unilateral command post exercises and field training exercises to ensure the required capability is available. The JPEC’s Global Force Management (GFM) process developed policy and procedures in support of Commander, U.S. Joint Forces Command (CDRUSJFCOM) as the DOD primary joint force provider (JFP). Commander, Air Combat Command (COMACC), as the Air Force component commander to USJFCOM, is the Air Force’s primary Service force provider. MAJCOM and AEFC roles in sourcing crisis requirements will mature under GFM. The GFMB and CDRUSJFCOM will establish complementary procedures to determine sourcing recommendations and issues related to risk to sourcing other requirements, sustainability assessment and issues identified by other combatant commanders and JFCOM Service components. The AEFC and each MAJCOM must establish complementary procedures. MAJCOMs must ensure adequate procedures exist for subordinate command and agency use.

Crisis Action Planning (CAP) Orders

Ref: AF1 10-401, Air Force Operations Planning & Execution (Apr '07), pp. 53 to 54.

The Warning Order (WARNORD)

The CJCS Warning Order initiates COA development and applies to the supported command and supporting commands. It is normally published by the CJCS during Phase II planning. The WARNORD establishes command relationships (designating supported and supporting commanders) and provides the mission, objectives, and known constraints. It establishes a tentative C-day and L-hour. It may apportion capabilities for planning purposes or task the combatant commander to develop a list of forces required to confront the crisis. A warning order does not authorize movement of forces unless specifically stated. If the crisis is progressing rapidly, a planning order or alert order may be issued instead. When a WARNORD is issued, the Air Force component headquarters commander prepares a TPFDD in DCAPES for the Air Force portion of the supported commander's TPFDD in JOPES in accordance with CJCSM 3122.01A and CJCSM 3122.02B. The AEFC sources for Air Force requirements.

The Planning Order (PLANORD)

The CJCS can send a PLANORD to the supported commander and JPEC to direct execution planning before a COA is formally approved by the SecDef and President of the United States (POTUS). If the PLANORD is used in lieu of a WARNORD, the PLANORD will include a COA, provide combat forces and strategic lift for planning purposes, and establish a tentative C-day and L-hour. The PLANORD will not be used to deploy forces or increase readiness unless approved by the SecDef. When a PLANORD is issued, the Air Force component headquarters commander prepares a TPFDD in DCAPES for the Air Force portion of the supported commander's JOPES TPFDD in accordance with CJCSM 3122.01A and CJCSM 3122.02B. The AEFC sources Air Force requirements.

The Alert Order (ALERTORD)

The SecDef approves and transmits an ALERTORD to the supported commander and JPEC announcing the selected COA. This order will describe the COA sufficiently to allow the supported commander and JPEC to begin or continue the detailed planning necessary to deploy forces. If the ALERTORD is used in lieu of a WARNORD, the PLANORD will include a COA, provide combat forces and strategic lift for planning purposes, and establish a tentative C-day and L-hour. In a time-sensitive crisis, an Execute Order may be issued in lieu of an ALERTORD.

The Execute Order (EXORD)

This order is issued by the authority and direction of the Sec-Def and directs the deployment and/or employment of forces. If the EXORD was preceded by a detailed Alert Order or PLANORD, then the EXORD simply directs the deployment and employment of forces. If nature of the crisis results in an EXORD being the only order dispatched, then the EXORD must include all the information normally contained in the warning, alert, and planning orders.

The Prepare to Deploy Order (PTDO), Deployment Order (DEPORD) and Redeployment Order

Issued by the SecDef, these orders are used to prepare forces to deploy or deploy forces without approving the execution of a plan or OPORD. Prior to issuance, JFCOM develops a draft DEPORD with recommended sourcing solutions. The Joint Staff coordinates the draft DEPORD with agencies and OSD then forwards the proposed DEPORD to SecDef for approval. When a PTDO or DEPORD is issued, the AEFC, through ACC, sources Air Force requirements. Upon receipt of the CJCS Orders, the HAF Crisis Action Team (AFCAT) (or Air Force Operations Group (AFOG) if the CAT is not stood up) will transmit an order to all U.S. Air Force components and commands.

the air operations center's (AOC's) contribution to JOPES is dependent upon the COMAFFOR's staff. Specifics concerning the products of the deliberate and crisis action planning processes can be found in the JOPES/APEX manuals.

Absorbing lessons learned and adapting to them appropriately is critical to operational success. Observations should be captured after every operation in the form of lessons learned. Events should be documented in detail to provide information that improves planning and execution of future actions.

IV. The Relationship Between Operational Design and Planning

In many respects, operational design constitutes a necessary "front end" of planning, since the commander should frame the problem he or she seeks to solve and determine its scope and parameters. It logically forms the first steps of campaign, deliberate, crisis action, and other operational planning. It makes sense to determine an operation's overall end state before detailed steady-state or employment planning begins (or, for that matter, before many aspects of force deployment and sustainment planning begin). In other respects, design and planning are complementary and even overlap: Design may begin before initiation of the JOPP or JOPPA, but some portions of the mission analysis stage of the JOPP and JOPPA may provide insights needed to properly frame an operational problem. Design often begins with step 1 of the JOPP ("Initiation"), but certain formal products of contingency planning (such as warning and planning orders) may be issued after design efforts have begun but before more detailed planning has started. Design often also continues after completion of initial JOPP and JOPPA planning. There is no clear demarcation between when design ends and planning begins (or vice versa), especially during the "first round" of design and planning. Strategists often also identify possible branches and sequels at various points based on planning assumptions. In doing so, they must often make assumptions in the absence of facts in order to allow planning to continue. The need for many assumptions is typical of designing and planning for ill-structured problems.

Later, during plan execution and assessment, operational design may be conducted in concert with planning to adapt to emerging situations or behaviors. In this part of the process, commanders and strategists determine whether to implement pre-planned branches or sequels, or even initiate complete re-design of an operation.

Lines of Effort

It is very helpful during design and planning to have a tool that depicts the relationship of effects to decisive points (DPs), centers of gravity (COGs), objectives, and other events and concepts, using the logic of purpose–cause and effect. Such a tool is usually arranged in proper time sequence to help commanders and strategists visualize how operations evolve and interact over time. Lines of Effort (LOE) provide just such a tool. Commanders and strategists may use LOEs to link multiple actions and effects on nodes and DPs with COGs and objectives to enhance effects-based planning efforts.

V. An Effects-Based Approach to Planning

The effects-based approach to operations (EBAO) informs every aspect of how the Air Force designs, plans, executes, assesses, and adapts operations. The effects-based approach applies as well to steady-state planning (such as campaign support plans and country plans) as it does for planning the employment of forces (as in the joint air operations plan).

See following pages (pp. 5-23 to 5-25) for further discussion of EBAO to include an overview of effects (direct, indirect, intended and unintended), objectives and actions.

Effects, Objectives & Actions (EBAO)

Ref: Annex 3-0, Operations & Planning (4 Nov 16), pp. 66 to 68.

Effects

“Effect” refers to “the physical or behavioral state of a system that results from an action, a set of actions, or another effect.” Effects are elements of a causal chain that consists of tasks, actions, effects, objectives, and the end state(s), along with the causal linkages that conceptually join them to each other. “Tasks” refer to an action or actions that have been assigned to someone to be performed. Actions are the results of assigned tasks. Actions produce specific direct effects, those effects produce other, indirect effects that influence the adversary and other actors within the operational environment, and this chain of cause and effect creates a mechanism through which objectives and ultimately the end state are achieved. The end state is a set of conditions that needs to be achieved to resolve a situation or conflict on satisfactory terms, as defined by appropriate authority.

Objectives

Objectives at one level may be seen as effects at other, higher levels. Effects, however, comprise all of the results of actions, whether desired or undesired, intended or unintended, immediate or ultimate. From a military planning perspective, operations should be planned “from the top down,” starting with the desired military end state, determining subordinate objectives needed to bring about that end state, then deriving the effects and causal linkages needed to accomplish the objectives, and finally determining the actions and resources necessary to create those effects. The end state should explain the operation’s ultimate purpose—the outcome that is sought. The objectives and effects should explain what results are required to attain that outcome. The task and their resultant actions should explain the steps needed to achieve the required results.

Perspective is important here. What may seem like an action to the operational-level warfighter may seem like an objective to warfighters at tactical units. Conversely, what may be an objective for a component commander may seem like an action to the President of the United States.

Planners should maintain awareness of the “big picture”—how the component’s effects and objectives support the joint force commander’s (JFC’s) effects and objectives. This is especially important during execution, where it is easy to get caught up in the details of daily processes and lose sight of the end state. For example, “gain and maintain air superiority to X degree in and over area Y for Z period” may be an objective for the joint force air component commander (JFACC), but will likely be one of the effects the JFC directs the JFACC to deliver (often stated as an execution task) in support of the notional objective “defeat enemy A’s offensive into region B.” In turn, the JFACC’s objective may seem like an action to the President, who has given the JFC the desired effect of “defeating A’s offensive” in order to accomplish his national strategic objective of restoring stability and maintaining political order in the applicable global region.

Actions

An action is performance of an activity to create desired effects. In general, there are two broad categories of actions that are relevant at the tactical and operational levels: Kinetic and nonkinetic. Examples of kinetic actions include the use of explosive munitions and directed energy weapons. Examples of nonkinetic actions include use of cyberspace weapons, an information operations radio broadcast to encourage enemy surrender, and employment of electronic warfare capabilities.

III. Execution

Ref: Annex 3-0, Operations & Planning (4 Nov 16), p. 78 and Volume 3, Command (22 Nov 16), pp. 33 to 35.

Plans describe the ways and means through which given ends (objectives and end states) can be achieved. Plans are carried out through a process called “execution,” which involves putting into effect any courses of action, orders, or subordinate plans needed to achieve the ends specified by the governing plan. Execution takes place within the timeframe specified in the governing plan and usually encompasses some mechanism through which forces are tasked or ordered to carry out specific missions. Assessment of ongoing operations usually takes place during execution.

The process of tasking forces and generating orders for specific missions itself entails cycles of planning, execution, and assessment. Generally speaking, planning refers to activities intended to govern future operations and execution refers to actions taking place inside the timeframe spanning from whenever an order is given to carry out the governing plan to the point when the commander has decided that the operation can be terminated. Execution encompasses the commander’s “battle rhythm”—the deliberate cycle of command, staff, and unit activities intended to integrate and synchronize current and future operations. The tasking cycles that govern execution vary greatly between steady-state conditions (one or two fiscal years) and contingency or crisis operations (days or hours).

I. Executing Operations

Execution of operations is an integral part of the overarching effects-based approach construct. Many Air Force operations are executed by means of a tasking cycle. The cycle is used with some modifications for tasking operations in the air, space, and cyberspace and is the heart of the Air Force battle rhythm.

Once execution begins, the commander continues to guide and influence operations through the air operations directive (AOD) (and, in some cases, equivalent space and cyberspace operations directives).

The Tasking Cycle

Many Air Force operations are executed by means of a tasking cycle. The tasking cycle creates a daily articulation of the overall airpower strategy and planning efforts. The tasking cycle is the means Airmen use to accomplish deliberate and dynamic targeting, among other requirements.

The tasking cycle develops the products needed to build and execute an air tasking order (ATO) and related products, and accomplish assessment.

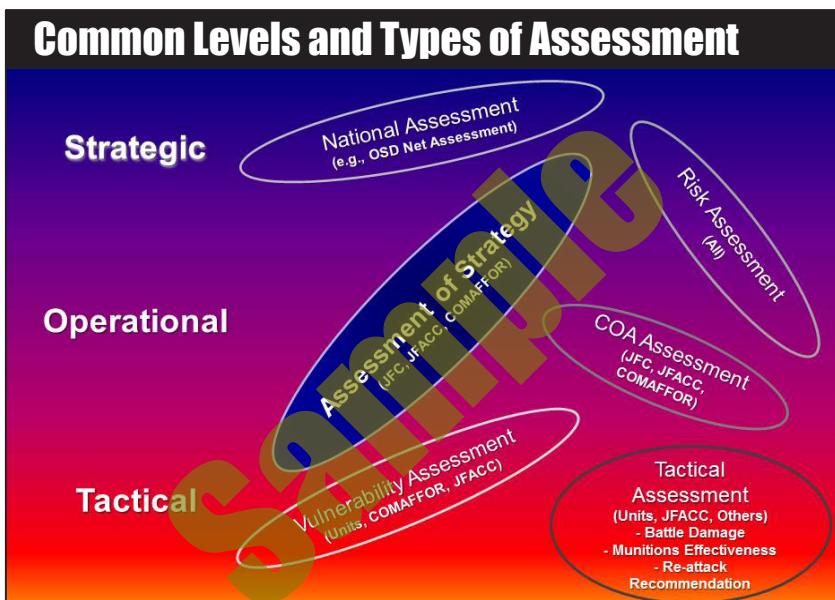
Although it is presented below as six separate, sequential stages, in reality the tasking process is bi-directional, iterative, multidimensional, and sometimes executed in parallel. It is built on a foundation based on thorough joint intelligence preparation of the operational environment (JIPOE). The cycle typically consists of the following stages performed at various levels of command (illustrated in the figure on the following page, Typical Tasking Cycle).

See following pages (pp. 5-28 to 5-29) for an overview of the tasking cycle. See pp. 6-23 to 6-28 for detailed discussion of the joint air tasking cycle.

I. Levels of Assessment

Ref: Annex 3-0, Operations & Planning (4 Nov 16), pp. 80 to 82.

Assessors perform many types of assessment across the strategic, operational, and tactical levels to inform a wide array of decisions. The figure, "Common Levels and Types of Assessment" displays some common types of assessment and, broadly, the levels where each would most likely be applied (the depiction is not all-inclusive). The figure also shows the level of commander who commonly directs a given type of assessment (e.g., the joint force commander [JFC] and joint force air component commander [JFACC]). At all levels—but especially at the operational level—the commander, Air Force forces (COMAFFOR), JFACC, and respective staffs should observe how the JFC takes information "on board" and craft assessment products that convey the Airman's perspective without seeming "air-centric" or presenting a biased view.



Ref: Annex 3-0, Operations & Planning (4 Nov 16), p. 80. Common Levels and Types of Assessment.

A. Tactical-Level Assessment

Tactical-level assessment is generally performed at the unit or joint force component level and typically measures physical, empirical achievement of direct effects. Combat assessment (CA) is an umbrella term covering battle damage assessment (BDA), munitions effectiveness assessment (MEA), and recommendations for re-attack (RR).

BDA is the estimate composed of physical and functional damage assessment, as well as target system assessment, resulting from the application of lethal or nonlethal military force. BDA consists of three phases. Phase I BDA consists of reporting physical damage (kinetic) or other changes (nonkinetic) to the target and, if possible, evaluating the physical damage or change to the target quantitatively or qualitatively. Phase II BDA measures what effect the weapon had on that individual target and to what extent it can perform its intended function. Phase III BDA then measures the effect of striking a particular target on the overall target system (e.g., what effect does taking out a command and control [C2] node have on the overall combat capability of an integrated air defense

system? This might relate to the overall effect of gaining and maintaining air superiority). MEA evaluates whether the selected weapon or munition functioned as intended. MEA is fed back into the planning process to validate or adjust weaponeering and platform selections. RR and future targeting recommendations merge the picture of what was done (BDA) with how it was done (MEA), comparing the result with predetermined measures of effectiveness, to determine the degree of success in achieving objectives and to formulate required follow-on actions, or indicate readiness to move on to new tasks.

Another assessment consideration at the tactical level is estimated damage assessment (EDA). EDA is a type of physical damage assessment; it anticipates damage using the probability of weapon effectiveness to support estimated assessments and allows commanders to accept risk in the absence of other information.

Tactical-level assessment should also be accomplished following tactical employment of nonkinetic actions and non-offensive capabilities. Examples include military information support operations (MISO; e.g., Commando Solo missions), public affairs (PA; e.g., media engagements), cyberspace operations (e.g., temporary utility outages), operations security (OPSEC; e.g., signature management), etc.

See pp. 7-53 to 7-58 for related discussion of tactical-level assessment (combat assessment) as related to targeting from Annex 3-60.

B. Operational-Level Assessment

Operational-level assessment is the component's evaluation of whether its objectives—at the tactical and operational levels—are being achieved. Operational assessment addresses effects, operational execution, environmental influences, and attainment of success indicators for the objectives to help the COMAFFOR/JFACC decide how to adapt the component's portion of the joint force strategy. Assessment at this level begins to evaluate complex indirect effects, track progress toward operational and strategic objectives, and make recommendations for strategy adjustments and future action extending beyond tactical re-attack. Assessment at this level often entails evaluation of course of action (COA) success, assessment of the progress of overall strategy, and joint force vulnerability assessment. Operational assessment should also include evaluation of changes to key parameters of adversary force performance, changes in adversary capabilities, and what the adversary is doing to limit the effects of friendly actions and to overcome friendly strategy. These are commonly performed by joint force component commanders and the JFC and their staffs. Operational-level assessment evaluates a wide range of data: Quantitative and qualitative, objective and subjective, observed and inferred. Some measures can be expressed empirically (with quantitative measures); others, like psychological effects, may have to be expressed in qualitative or subjective terms. Both rely on extensive data and analysis from federated intelligence partners, including other US government agencies and multinational partners.

C. Strategic-Level Assessment

Strategic-level assessment addresses issues at the joint force ("theater strategic," as in bringing a particular conflict to a favorable conclusion) and national levels (enduring security concerns and interests). It involves a wide array of methodologies, participants, and inputs. The President and Secretary of Defense rely on progress reports produced by the combatant commander or other relevant JFC, so assessment at their levels often shapes the nation's, or even the world's, perception of progress in an operation. This places a unique burden on assessors, planners, strategists, and commanders to be accurate, meaningful, and to complete their analysis and communicate results clearly and logically.

The time frames considered by the various assessment types may vary widely, from rather short intervals at the tactical level to longer time horizons at the strategic level, even reaching well beyond the end of an operation, as lessons learned are determined and absorbed. The relationship among the various assessment types is not linear, with outputs from one type often feeding multiple other types and levels.

Planning for Joint Air Operations

Ref: JP 3-30, *Command and Control of Joint Air Operations* (Feb '14), exec. summary.

The JFC's estimate of the operational environment and articulation of the objectives needed to accomplish the mission form the basis for determining components' objectives. The JFACC uses the JFC's mission, commander's estimate and objectives, commander's intent, CONOPS, and the components' objectives to develop a course of action (COA). When the JFC approves the JFACC's COA, it becomes the basis for more detailed joint air operations planning—expressing what, where, and how joint air operations will affect the adversary or current situation.

The Joint Air Estimate

The joint air estimate is described as a process of reasoning by which the air component commander considers all the circumstances affecting the military situation and decides on a COA to be taken to accomplish the mission. The joint air estimate reflects the JFACC's analysis of the various COAs that may be used to accomplish the assigned mission(s) and contains the recommendation for the best COA.

See pp. 6-3 to 6-4.

The Joint Operation Planning Process for Air (JOPPA)

The JFACC is responsible for planning joint air operations and uses the joint operation planning process for air (JOPPA) to develop a JAOP that guides employment of the air capabilities and forces made available to accomplish missions assigned by the JFC. JOPPA follows the joint operation planning process found in *Joint Publication 5-0, Joint Operation Planning*, with specific details for joint air operations. JOPPA drives the production of the JAOP and supporting plans and orders.

See pp. 6-5 to 6-18.

Joint Targeting

The JFC will normally delegate the authority to conduct execution planning, coordination, and deconfliction associated with joint air targeting to the JFACC and will ensure that this process is a joint effort. Targets scheduled for attack by component air capabilities and forces should be included on an ATO for deconfliction and coordination.

See pp. 6-19 to 6-22.

The Joint Air Tasking Cycle

The joint air tasking cycle process provides an iterative, cyclic process for the planning, apportionment, allocation, coordination, and tasking of joint air missions and sorties within the guidance of the JFC. The joint air tasking cycle is synchronized with the JFC's battle rhythm. The full joint air tasking cycle, from JFC guidance to the start of ATO execution, is dependent on the JFC's and JFACC's procedures. The precise timeframes should be specified in the JFC's operation plan or the JFACC's JAOP.

See pp. 6-23 to 6-28.

Joint Air Estimate of the Situation Template

Ref: JP 3-30, Command and Control of Joint Air Operations (Feb '14), app. B.

A. Mission.

State the assigned or deduced mission and its purpose.

- JFC's mission statement (from the JFC's estimate), or other overarching guidance if the latter is unavailable
- JFACC's mission statement. Include additional language indicating how overarching guidance will be supported, as required

B. Situation and Courses of Action.

1. Commanders' Intent

- JFC's intent statement, if available (or other overarching guidance stipulating the end state, as required)
- JFACC's intent statement

2. Objectives.

Explicitly state air component objectives and the effects required to support their achievement. Include as much detail as required to ensure that each objective is clear, decisive, attainable, and measurable.

3. Summary of the Results of JIPOE.

Include a brief summary of the major factors pertaining to the characteristics of the operating environment and the relative capabilities of all actors within it that may have a significant impact on alternative air COAs.

4. Adversary Capability.

Highlight, if applicable, the adversary capabilities and psychological characteristics that can seriously affect the accomplishment of the mission, giving information that would be useful in evaluating the various air COAs. This section should describe, at a minimum, the enemy's most likely and most dangerous potential COAs.

5. Force Protection Requirements.

Describe potential threats to friendly forces, including such things as the threat of terrorist action prior to, during, and after the mission that can significantly affect accomplishment of the mission.

6. Own Courses of Action.

List air COAs that offer suitable, feasible, and acceptable means of accomplishing the mission. If specific air COAs were prescribed in the WARNING ORDER, they must be included. For each air COA:

- Combat forces required. List capabilities needed, and, if applicable, specific units or platforms. For each, list the following, if known:
 1. Force provider
 2. Destination
 3. Required delivery date(s)
 4. Coordinated deployment estimate
 5. Employment estimate
 6. Strategic lift requirements, if appropriate
- ISR forces required. List capabilities needed, and, if applicable, specific units or capabilities
- Support forces required. List capabilities needed, and, if applicable, specific units or capabilities

C. Analysis of Opposing Courses of Action.

Highlight adversary capabilities and intent (where known) that may have significant impact on friendly COAs.

D. Comparison of Own Courses of Action.

For submission to the JFC, include only the final statement of conclusions and provide a brief rationale for the favored air COA. Discuss the relative advantages and disadvantages of the alternative air COAs if this will assist the JFC in arriving at a decision.

E. Recommended Course of Action.

State the JFACC's recommended COA.

Joint Air Operations Planning Overview

Ref: JP 3-30, Command and Control of Joint Air Operations (Feb '14), pp. III-2 to III-3.

The JFACC's role is to plan joint air operations. In doing so, the JFACC provides focus and guidance to the JAOC staff. The amount of direct involvement depends on the time available, preferences, and the experience and accessibility of the staff. The JFACC uses the entire staff during planning to explore the full range of adversary and friendly COAs and to analyze and compare friendly air capabilities with the adversary threat. The JFACC must ensure that planning occurs in a collaborative manner with other components. Joint air planners should meet on a regular basis with the JFC's planners and with planners from other joint force components to integrate operations across the joint force. Planning is a continuous process and only ends with mission accomplishment.

Joint Air Operations Planning

Joint Force Mission

JFC Estimate

Objectives and Comprehensive AOR and JOA Perspective

JFACC/JFC Staff Estimate of the Situation

JFACC and/or JFC Staff Recommended COA
JFC Approves COA

Joint Air Operations Plan

Supporting Plan

Area Air Defense Plan - Airspace Control Plan

JFACC's Daily
Guidance

Master Air Attack Plan and Supporting Orders

Air Operations Directive- Air Tasking Order

Airspace Control Order

Ref: JP 3-30, Command and Control of Joint Air Operations, fig. III-1, p. III-2.

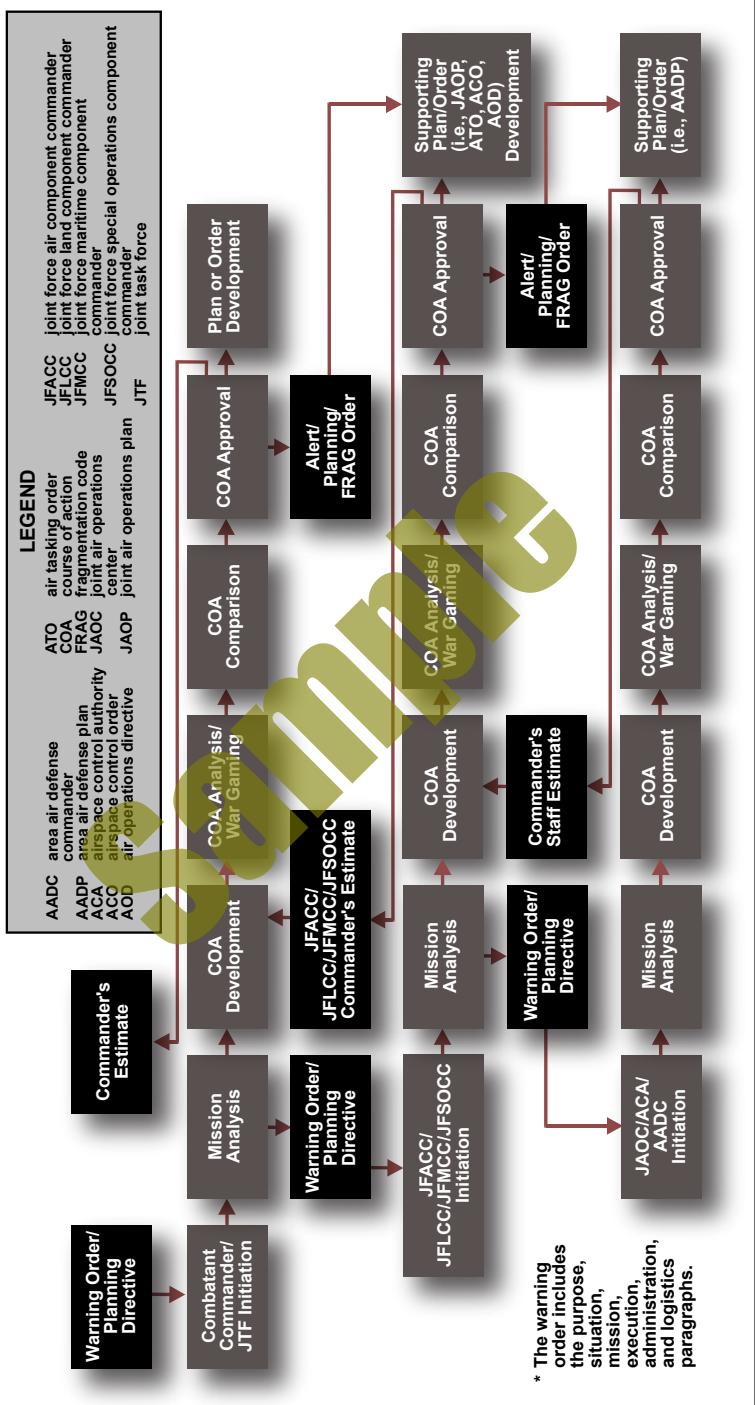
The Joint Air Operations Plan (JAOP)

The JAOP is the JFACC's plan for integrating and coordinating joint air operations and encompasses air capabilities and forces supported by, and in support of, other joint force components. The JFACC's planners must anticipate the need to make changes to plans (e.g., sequels or branches) in a dynamic and time-constrained environment. Planners should include representatives from all components providing air capabilities or forces to enable their effective integration.

See pp. 6-16 to 6-18 for a sample joint air operations plan (JAOP) format.

Joint Air Operations Planning Process

Ref. Adapted from JP 3-30, Command and Control of Joint Air Operations (Jan '10), fig. III-13, p. III-25 (not provided in Feb '14 edition).



Step 1. Initiation

Planning is usually initiated by direction of a JFC, but the JFACC may initiate planning in anticipation of a planning requirement not directed by higher authority, but within the JFACC's authority. Joint air operations should be coordinated with space and cyberspace operations. Military air options are normally developed in combination with the other military and nonmilitary options so the JFC can appropriately respond to a given situation.

The JFACC and staff perform an assessment of the initiating directive to determine how much time is available until mission execution, the current status of intelligence products and staff estimates, and other relevant factors that influence the planning situation. The JFC and JFACC typically provide initial guidance that may specify time constraints, outline initial coordination requirements, authorize movement of key capabilities within the commanders' authority, and direct other actions as necessary. The JFACC may produce an initial commander's intent during this step.

See facing page to see a sample JFACC mission statement and commander's intent.

Step 2. Mission Analysis

Mission analysis is critical to ensure thorough understanding of the task and subsequent planning. It results in the JFACC's final mission statement that describes the joint air component's essential tasks. It should include the "who, what, when, where, and why" for the joint air operation, but seldom specifies "how." At the end of mission analysis, the JFACC should issue his intent for the overall joint air operation, that is, the JFACC's contribution to the JFC's military end state. The JFACC's intent should express the end state to be produced by joint air operations and the purpose for producing them. It should also include the JFACC's assessment of where and how much risk is acceptable during the operation. While the commander's intent for the overall operation is needed at the end of mission analysis, the JAOP will eventually contain the commander's intent for each phase of the operation, and the AODs will contain the JFACC's intent for a specific ATO or period of time. Hence the commander's intent articulates a desired set of conditions for a given point in time and the purpose those conditions will support.

See facing page to see a sample JFACC mission statement and commander's intent.

Anticipation, prior preparation, and a trained staff are critical to timely mission analysis. Staff estimates generated during mission analysis are continually revisited and updated during the course of planning, execution, and assessment.

Mission analysis includes developing a list of critical facts and assumptions.

Facts

Facts are statements of known data concerning the situation.

Assumptions

Assumptions are suppositions on the current situation or a presupposition on the future course of events, either or both assumed to be true in the absence of positive proof, necessary to enable the commander in the process of planning to complete an estimate of the situation and make a decision on the COA. Assumptions may also become commander's critical information requirements or drive the development of branch plans to mitigate the risks of a wrong assumption. Assumptions must be continually reviewed to ensure validity. Once an assumption is proven correct, it becomes a fact; or if proven incorrect, a new fact or assumption is determined. They are necessary to enable commanders to complete estimates of the situation, influence commander's critical information requirements, drive branch planning, and make decisions on COAs.

Sample Joint Air Operations Plan (JAOP)

Ref: JP 3-30, *Command and Control of Joint Air Operations* (Feb '14), app. C.

Continued from previous page

- e. **Civil Affairs.** Use as required.
- f. **Meteorological and Oceanographic.** Explain factors like climate and terrain, and how they will likely affect air operations.
- g. **Geospatial Information.** Explain common geospatial reference system requirements and plans here.
- h. **Medical Services.** Use as required.

5. COMMAND AND CONTROL

a. Command

- (1) Command Relationships. Specify command relationships for all organizations relevant to the JFACC operations. Be as specific as possible
- (2) Memoranda of Understanding. As applicable
- (3) Command Headquarters. Designation and location of all air-capable command headquarters
- (4) Continuity of Operations. Any general considerations unique to the operation
- (5) Command Posts. List the designations and locations of each major headquarters
- (6) Succession to Command. Designate, in order of succession, the commanders responsible for assuming command of the operation in specific applicable circumstances

b. C2 and Communications Systems.

General overview of C2 and communication systems required to support air operations.

6. ANNEXES

JAOP annexes should be written for a functional domain-specific audience and contain technical details necessary for C2 of all air organizations and capabilities across the joint force. They should contain any details not considered appropriate for the relevant section of the main plan.

- A. Task Organization
- B. Intelligence
- C. Operations
- D. Logistics
- E. Personnel
- F. Public Affairs
- G. Civil Affairs
- H. Meteorological and Oceanographic Operations
- I. Force Protection
- J. Command Relationships
- K. Joint Communications System
- L. Environmental Considerations
- M. Geospatial Information and Services
- N. Space Operations
- P. Host-Nation Support
- Q. Medical Services
- S. Special Technical Operations
- V. Interagency Coordination

(Signed) (Commander)

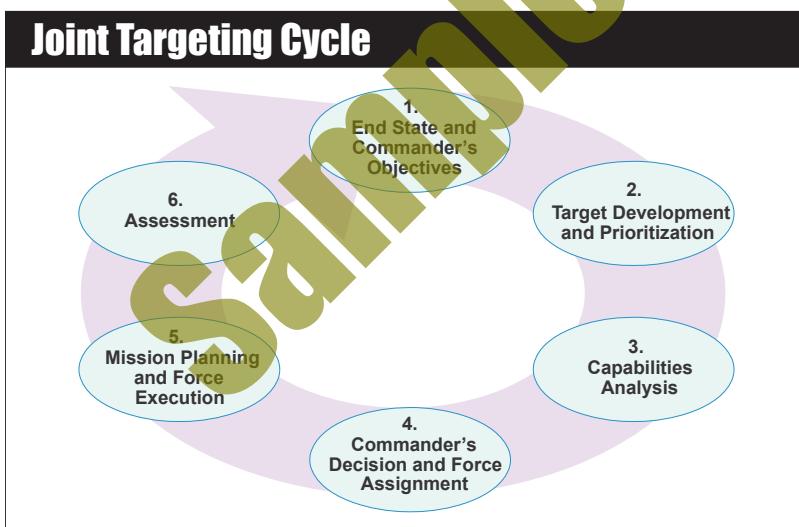
DISTRIBUTION:
SECURITY CLASSIFICATION.

III. Joint Targeting

Ref: JP 3-30, *Command and Control of Joint Air Operations* (Feb '14), chap. III.

Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. Targeting is both a joint- and component-level function to create specific desired effects that achieve the JFC's objectives. Targeting selects targets that, when attacked, can create those effects, and selects and tasks the means to engage those targets. Targeting is complicated by the requirement to deconflict unnecessary duplication of target nominations by different forces or different echelons within the same force and to integrate the attack of those targets with other components of the joint force. An effective and efficient target development process coupled with the joint air tasking cycle is essential for the JFACC to plan and execute joint air operations. The joint targeting process should integrate the intelligence databases, analytical capabilities, and data collection efforts of national agencies, combatant commands, subordinate joint forces, and component commands.

I. Joint Targeting Cycle



Ref: JP 3-60, *Joint Targeting* (Jan '13), fig. II-2. Joint Targeting Cycle.

The joint targeting cycle is an iterative process that is not time-constrained, and steps may occur concurrently, but it provides a helpful framework to describe the steps that must be satisfied to successfully conduct joint targeting. The deliberate and dynamic nature of the joint targeting process is adaptable through all phases of the air tasking cycle. As the situation changes and opportunities arise, steps of the joint targeting process can be accomplished quickly to create the commander's desired effects. There are six phases to the joint targeting cycle: end state and commander's objectives, target development and prioritization, capabilities analysis, commander's decision and force assignment, mission planning and force execution, and assessment.

See chap. 7, *Targeting*, for further discussion from Annex 3-60. See pp. 7-6 to 7-7 for an overview of the targeting cycle.

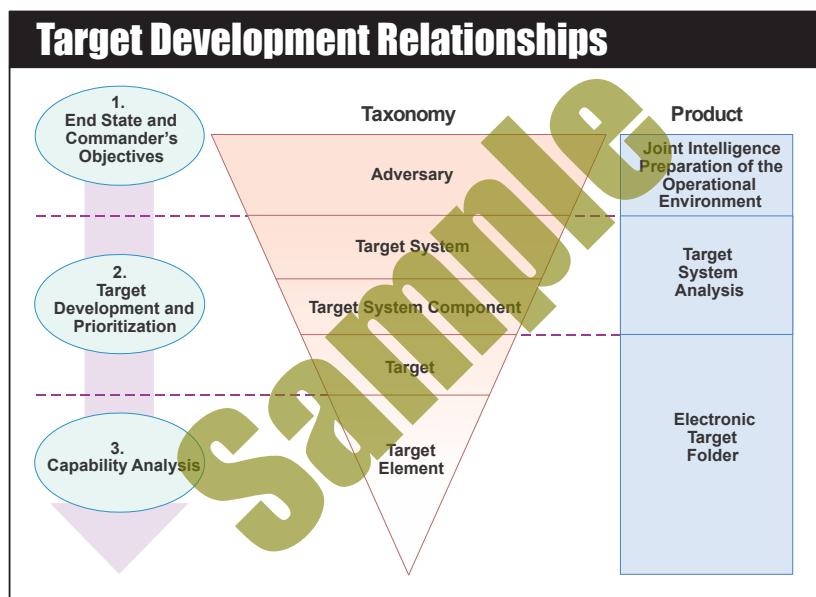
V. Target Development and Prioritization

Ref: JP 3-60, Joint Targeting (Jan '13), pp. II-5 to II-6.

Target development is the analysis, assessment, and documentation processes to identify and characterize potential targets that, when successfully engaged, support the achievement of the commander's objectives. A fully developed target must comply with national and command guidance, law of war, and the applicable ROE to be engaged. Phase 2 is comprised of three steps:

- (a) Target system analysis;
- (b) Entity-level target development; and
- (c) Target list management (TLM).

Target developers systematically examine the enemy to the entities to the elements utilizing the targeting taxonomy, which hierarchically orders the adversary, its capabilities, and the targets which enable the capabilities into a clarifying framework.



Ref: JP 3-60, Joint Targeting (Jan '13), fig. II-3. Target Development Relationships.

Target systems are typically a broad set of interrelated functionally associated components that generally produce a common output or have a shared mission. Target development always approaches adversary capabilities from a target systems perspective. This includes physical, logical, and complex social systems, and the interaction among them. While a single target may be significant because of its own characteristics, the target's real importance lies in its relationship to other targets within an operational system. A target system is most often considered as a collection of assets directed to perform a specific function or series of functions. While target systems are intra-dependent to perform a specific function, they are also interdependent in support of adversary capabilities. System-level target development links these multiple target systems and their components to reflect both their intra- and interdependency that, in aggregate, contribute to the adversary capabilities. JIPOE helps target developers prioritize an adversary's target systems based on how much each contributes to the adversary's ability to wage war.

IV. The Joint Air Tasking Cycle

Ref: JP 3-30, *Command and Control of Joint Air Operations* (Feb '14), chap. III.

The joint air tasking cycle provides for the effective and efficient employment of joint air capabilities and forces made available. This process provides an iterative, cyclic process for the planning, apportionment, allocation, coordination, and tasking of joint air missions and sorties within the guidance of the JFC. The cycle accommodates changing tactical situations or JFC guidance as well as requests for support from other component commanders. The joint air tasking cycle is an analytical, systematic cycle that focuses joint air efforts on accomplishing operational requirements. Much of the day-to-day tasking cycle is conducted through an interrelated series of information exchanges and active involvement in plan development, target development, air execution, and assessment (through designated component LNOs and/or messages), which provide a means of requesting and scheduling joint air missions. A timely ATO is critical—other joint force components conduct their planning and operations based on a prompt, executable ATO and are dependent on its information.

The Joint Air Tasking Cycle

- 1 Objectives, Effects, and Guidance**
- 2 Target Development**
- 3 Weaponeering and Allocation**
- 4 ATO Production and Dissemination**
- 5 Execution Planning and Force Execution**
- 6 Assessment**

Ref: JP 3-30, *Command and Control for Joint Air Operations*, chap. III.

The joint air tasking cycle begins with the JFC's objectives, incorporates guidance received during JFC and component coordination, and culminates with assessment of previous actions. The ATO articulates the tasking for joint air operations for a specific execution timeframe, normally 24 hours. The joint air tasking cycle is synchronized with the JFC's battle rhythm. The JAOC normally establishes a 72- to 96-hour ATO planning cycle. The battle rhythm or daily operations cycle (schedule of events) articulates briefings, meetings, and report requirements. It provides suspense for targeting, AIRSUPREQs, friendly order of battle updates, etc., to produce the air battle plan (ABP) that includes the ATO message and other products. The battle rhythm is essential to ensure information is available when and where required to provide products necessary for the synchronization of joint air operations with the JFC's CONOPS and supporting other components' operations. Nonetheless, airpower must be responsive to a dynamic operational environment and the joint air

I. Targeting Fundamentals

Ref: Annex 3-60, *Targeting* (14 Feb '17), pp. 1-30.

Targeting is the process of selecting and prioritizing targets and matching the appropriate response to them, considering operational requirements and capabilities. This process is systematic, comprehensive, and continuous. Combined with a clear understanding of operational requirements, capabilities, and limitations, the targeting process identifies, selects, and exploits critical vulnerabilities of target systems and their associated targets to achieve the commanders' objectives and desired end state. Targeting is a command function requiring commander oversight and involvement to ensure proper execution. It is not the exclusive province of one type of specialty or division, such as intelligence or operations, but blends the expertise of many disciplines.

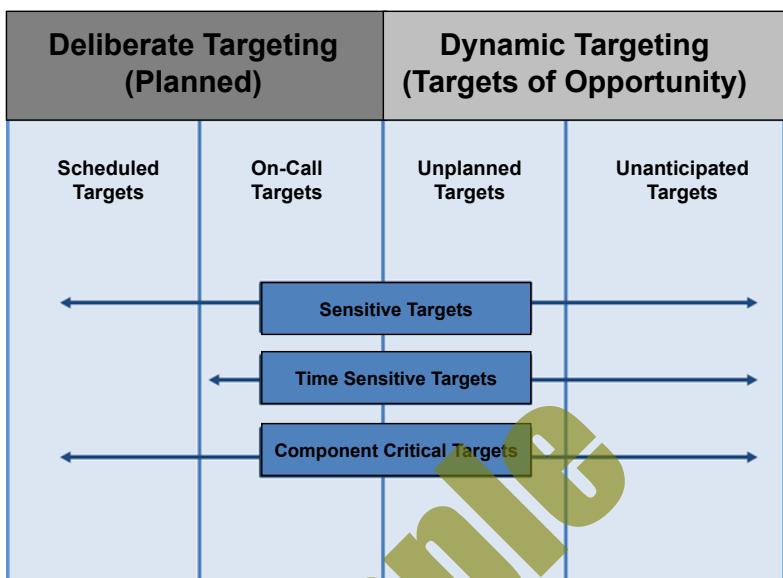
Targeting helps translate strategy into discrete actions against targets by linking ends, ways, means, and risks. It is a central component of Air Force operational art and design in the application of airpower to create lethal and nonlethal effects. Strategy allows commanders to choose the best ways to attain desired outcomes. Strategy forms the plans and guidance that can be used to task specific airpower capabilities through the tasking process. The processes of planning, tasking, targeting, and assessing effects provide a logical progression that forms the basis of decision-making and ensures consistency with the commander's objectives and the end state.

Too often targeting is tied just to the delivery of kinetic capabilities and the tasking cycle. However, achieving JFC objectives can be accomplished by creating lethal and nonlethal effects, using a variety of kinetic and non-kinetic capabilities. To optimize military action, targeting should integrate the full spectrum of capabilities beginning at the onset of planning. In addition, targeting should occur in peacetime well before hostilities and continue through post-hostilities. Targeting occurs at all levels of conflict (strategic, operational, and tactical), for all phases of operations (Phase 0 through Phase 5), across all domains, and across the range of military operations. Airmen tie the targeting process to creating specific desired effects that achieve objectives. Additionally, Airmen recognize that targeting is a systematic process of analyzing adversaries and enemies to determine critical vulnerabilities against which national capabilities can be applied to create specific desired effects that achieve objectives, taking into account operational requirements and capabilities.

A target is an entity or object considered for possible engagement or other actions. Joint doctrine describes entities as facilities, individuals, equipment, virtual, and organizations. Targets are identified for possible action to support the commander's objectives, guidance, and intent. It is a fundamental tenet of targeting that no potential target derives its importance or criticality merely by virtue of the fact that it exists, or even that it is a crucial element within a target system and other interdependent target systems. Any potential target derives importance, and thus criticality, only by virtue of the extent to which it enables enemy capabilities and actions that must be affected in order to achieve the commander's objectives. Military actions employed may produce lethal or nonlethal effects. Multiple actions may be taken against a single target, and actions may often be taken against multiple targets to achieve a single effect.

II. Types Of Targeting

There are two categories of targeting: deliberate and dynamic. It is a mistake to associate deliberate targeting with fixed targets and dynamic targeting with mobile targets.



A. Deliberate Targeting

Deliberate targeting applies when there is sufficient time to add the target to an air tasking order (ATO) or other plan. Deliberate targeting includes targets planned for attack by on-call resources. The air tasking cycle is sufficiently flexible to allow for most mobile targets to be planned and attacked with deliberate targeting.

B. Dynamic Targeting

Dynamic targeting includes targets that are either identified too late, or not selected in time to be included in deliberate targeting, but when detected or located, meet criteria specific to achieving objectives. When plans change and planned targets must be adjusted, dynamic targeting can also manage those changes.

Sensitive and Time Sensitive Targets

Two subsets of targets that require special consideration are sensitive and time sensitive. **Sensitive targets** are targets where the commander has estimated the physical and collateral effects on civilian and/or noncombatant persons, property, and environments occurring incidental to military operations, exceed established national-level notification thresholds. Sensitive targets are not always associated with collateral damage. They may also include those targets that exceed national-level rules of engagement (ROE) thresholds, or where the combatant commander (CCDR) determines the effects from striking the target may have adverse political ramifications. **Time-sensitive targets (TSTs)** are joint force commander (JFC) validated targets or sets of targets requiring immediate response because they are highly lucrative, fleeting targets of opportunity or they pose (or will soon pose) a danger to friendly forces. These targets present one of the biggest targeting challenges.

Targeting Considerations during JOPPA

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 35 to 37.

Targeting During Formal Planning

Targeting supports every form of employment planning for joint operations. Joint operation planning employs an integrated process for orderly and coordinated problem solving and decision-making of JFC's desired objectives. In its peacetime application, the process is highly structured to support the thorough and fully coordinated development of contingency plans. In crisis, the process is shortened as needed to support the dynamic requirements of changing events. In wartime, the process adapts to accommodate greater decentralization of joint operation planning activities.

The JAOP is created through the seven step JOPPA and is normally developed in support of the JFC's plan or order. Almost all targeting support to pre-conflict planning is accomplished through the JOPPA.

See pp. 6-5 to 6-18 for an overview and complete discussion of the Joint Operations Planning Process for Air (JOPPA). The discussion below only highlights certain targeting considerations during specific steps of JOPPA.

Initiation

The commander, Air Force forces (COMAFFOR) and staff performs an assessment of the initiating directive to determine time available until mission execution, current status of intelligence products, and other factors relevant to the specific planning situation.

Mission Analysis

During this stage, joint intelligence preparation of the operational environment (JIPOE) begins. In order to fully support an effects-based campaign, the intelligence community should conduct robust JIPOE to inform planning. JIPOE provides a comprehensive framework for Intelligence, surveillance, and reconnaissance (ISR) support to planning and COA selection. Consequently, JIPOE should assist commanders in anticipating enemy intent and enable them in pre-empting enemy actions. The JIPOE process continues throughout planning by examining adversary and friendly capabilities, adversary intent, and the operational environment. Enemy and friendly centers of gravity (COG) are also identified during this initial stage of the JOPPA. As mission analysis is refined through later stages of the JOPPA, enemy COGs are analyzed, yielding critical vulnerabilities or other key system nodes. These are further examined through target system or nodal analysis to yield target sets, targets, critical elements, and aimpoints, as well as commander's critical information requirements (CCIRs) to support JIPOE and tactical assessment. Such analysis carries a considerable information-flow cost. In order to properly identify collection and exploitation requirements for targeting, target system analysis (TSA) and/or targeting effects studies should begin well in advance of operations and should continue throughout them. It should begin during the initial stages of JIPOE and draw upon as much ongoing peacetime intelligence/targeting material as is available for the theater or area of operations. While space, cyberspace, and information operations should already be fully integrated into mission analysis, JIPOE, TSAs and target development should also ensure integration of specialized analysis in support of space, cyberspace, and information operations.

COA Development

JPOE is refined during this stage and includes detailed analysis of COGs identified during mission analysis. COG analysis is important to targeting efforts because it identifies the enemy's sources of power and will to fight and tries to discover how and where those sources of power are vulnerable, where critical nodes within them are, and how they can be exploited by the full capabilities of the joint force (e.g., air, space, cyberspace, information operations, etc.). Critical vulnerabilities can be difficult to pick from critical requirements or to translate those vulnerabilities into explicit target sets. Techniques for translating vulnerabilities into targets can be used as the foundation for development of COAs or a selected COA may be directed by the JFC.

Plan or Order Development

This step and its ultimate product, the JAOP, describe how the air component may support the JFC's operational plan. The JAOP identifies objectives, desired effects, targets, and assessment measures in as much detail as available time and intelligence allow. Objectives and the end state are derived from commander's guidance, strategy development and planning. Targeting efforts should always aim toward achieving these objectives and the end state. During JAOP development, deliberate targeting is used to develop targets and target sets included in the JAOP and its attachments. Even if targeting information developed during planning is not included in the JAOP or its attachments, JAOP development may require considerable targeting effort in order to validate selected COAs, CONOPS, and other elements of the plan. Commanders and planners should know, at least approximately, how much effort and what resources are required to achieve the operation's desired effects. This knowledge can be gained by conducting some (at least notional) deliberate targeting systems analysis using existing TSA products, functional system products (i.e., power, roads, communications, chemical, etc.), targeting databases, and/or assessment of the total number of potential targets within the modern integrated database (MIDB) binned into functional categories (e.g., airfields, air defense, ballistic missile, WMD, C4I, etc.) before the conflict begins. Target selection should be based upon desired effects against enemy COGs, which in turn should be based upon the objectives for the conflict.

The JAOP should be effects-based, including lethal and/or nonlethal effects, as appropriate. It is the air component's main source of guidance. Targeting efforts play a major role in building an effects-based JAOP by relating effects to particular targets and target systems and helping validate whether planned resources can achieve those effects.

The JAOP should provide broad guidelines for prioritizing targets/target systems, as well as making clear which categories or sets are most important to the campaign. The JAOP should also provide guidance on the sequencing of targeting actions or effects, which is not the same thing as priority. Although parallel effects are generally best, sometimes some targets should be attacked first to enable effects against other targets. The JAOP, as well as subsequently published special instructions (SPINS), AOD, and ATOs, should clearly articulate the commander's rules of engagement (ROE) that ensure operations comply with the law of war (LOW).

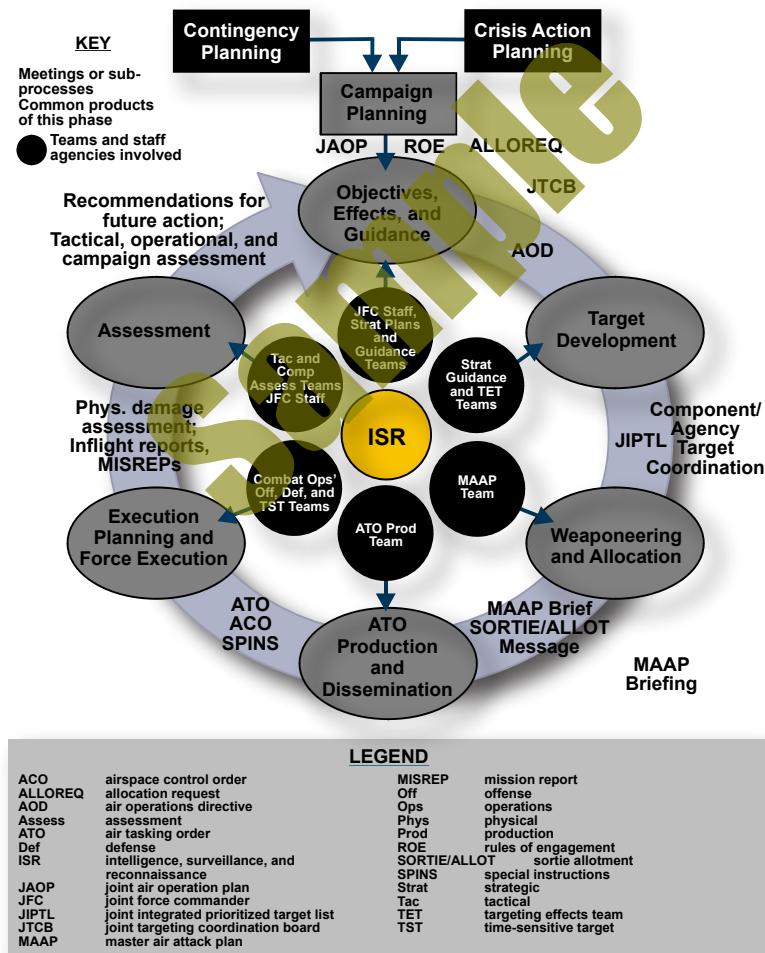
Finally, the JAOP should establish guidelines for dynamic, especially time-sensitive, targeting. Dynamic targeting is one of the most labor-intensive and intellectually demanding challenges the air component faces. Anticipating as much of the challenge as possible and spelling out guidance and priorities in the JAOP may ease the burden on commanders and air operations center (AOC) combat operations division (COD) personnel once the daily battle rhythm begins. This may prevent mistakes from being made during employment or may at least mitigate their impact. Planners should address as broad a scope as possible in as much detail as time and planning resources allow. This should include robust ROE and related legal considerations.

The Air Tasking Cycle

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 38 to 41.

A principal purpose of the air tasking cycle is to produce orders and supporting documentation to place a flexible array of capabilities in a position to create desired effects in support of the commander's intent. This cycle is driven by the tyranny of time and distance. It takes time for ground crew to prepare aircraft for flight, for aircrew to plan missions, and for aircrew to fly to the immediate theater of operations from distant airfields. Likewise, commanders should have enough visibility on future operations to ensure sufficient assets and crews are available to prepare for and perform tasked missions. These requirements drive the execution of a periodic, repeatable tasking process to allow commanders to plan for upcoming operations. The ATO execution period (usually 24 hours in duration) and the preceding process during which the ATO is developed (usually 72-96 hours in duration) are a direct consequence of these physical constraints.

See pp. 6-23 to 6-28 for detailed discussion of the Joint Air Tasking Cycle from JP 3-30.



II. Dynamic Targeting Phases (F2T2EA)

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 47 to 49.

Dynamic targeting consists of six distinct phases: find, fix, track, target, engage, and assess (F2T2EA). These are the same phases used to prosecute joint TSTs, as explained in the Multi-Service Tactics, Techniques, and Procedures for Dynamic Targeting (AFTTP 3-2.3). This method referred to as F2T2EA or colloquially as the “kill chain.”

F - Find

The find phase involves detection of an emerging target, which various aspects of its characterization will result in it being binned into one of the dynamic targeting categories listed above. The find phase requires clearly designated guidance from commanders, especially concerning target priorities, and the focused ISR collection plan based on JIPOE, to include named areas of interest and target areas of interest. Following this collection plan leads to detections, some of which may be emerging targets, that meet sufficient criteria (established by the AOC with commander's guidance) to be considered and developed as a target. The time sensitivity and importance of this target may be initially undetermined. Emerging targets usually require further ISR and analysis to develop and confirm.

Commanders should not task sensors without an idea of what they may collect. They should anticipate results, not request unfocused detection. The result of the find phase is a potential target that is nominated for further investigation and development in the fix phase.

F - Fix

The fix phase positively identifies an emerging target as worthy of engagement and determines its position and other data with sufficient fidelity to permit engagement. When the emerging target is detected, sensors are focused upon it to confirm its identity and precise location. This may require implementing a sensor network or diverting ISR assets from other uses to examine it. The COMAFFOR may have to make the decision on whether diversion of ISR resources from the established collection plan is merited, but this decision can often be made by COD personnel. Data correlation and fusion confirms, identifies, and locates the target, resulting in its classification in one of the four target categories listed above. Target location and other information should be refined enough to permit engagement in accordance with ROE. An estimation of the target's window of vulnerability frames the timeliness required for prosecution and may affect the prioritization of assets and the associated risk assessment.

If a target is detected by the aircraft or system that may engage it (for example, by an armed remotely piloted aircraft, or platform with an advanced targeting pod), this may result in the find and fix phases being completed near-simultaneously, without the need for additional ISR assets. It may also result in the target and engage phases being completed without a lengthy coordination and approval process. Battle management systems [i.e., airborne warning and control system (AWACS) and joint surveillance target attack radar system (JSTARS) aircraft] can often fix target locations precisely enough to permit engagement without the need for further ISR collection. Growth in sensor technology has permitted “non-traditional” sources of ISR to supplement the find, fix, and track phases. Integrating data from platforms other than those traditionally dedicated to intelligence collection, to include information gleaned from weapons systems or even munitions themselves, helps to build a common operating picture that commanders can use to shorten the F2T2EA cycle.

T - Track

The track phase takes a confirmed target and its location, maintaining a continuous track. Sensors should be coordinated to maintain situational awareness and track continuity on targets. Windows of vulnerability should be updated when warranted. This phase may require re-prioritization of ISR assets, just as the fix phase may, in order to maintain situational awareness. If track continuity is lost, it may be necessary to re-accomplish the fix phase—and possibly the find phase as well. The track phase results in track continuity and refining the target identification. This is maintained by appropriate sensors or sensor combinations, a sensor prioritization scheme (if required), and updates on the target's window of vulnerability (if required). The process may also be run partially "in reverse" in cases where an emerging target is detected and engaged. Once it becomes clear that it is a valid target, the sensors detecting it can examine recorded data to track the target back to its point of origin, such as a base camp. This could potentially identify threats or more lucrative targets. Such point of origin hunting has proven especially useful during stability and counterinsurgency operations such as those in Iraq and Afghanistan.

T - Target

The target phase takes an identified, classified, located, and prioritized target; determines the desired effect and targeting solution against it; and obtains required approval to engage. During this phase, COD personnel should review target restrictions, including collateral damage, ROE, LOW, the no strike list (NSL), the restricted target list (RTL), and fire support coordination measures (FSCM). In essence, the targeting and operational members of the COD must accomplish all facets of the "target validation" process. This phase also accomplishes effects validation, weaponeering/capabilities analysis, and collateral damage estimation (CDE) analysis. COD personnel match available strike and sensor assets against desired effects, then formulate engagement options. They also submit assessment requirements.

The selection of assets for a specific target may be based on many factors, such as the location and operational status of ISR and strike assets, support asset availability, weather conditions, ROE, target range, the number and type of missions in progress, available fuel and munitions, the adversary threat, and the accuracy of targeting acquisition data. This can be the longest phase due to the large number of requirements that should be satisfied. In many cases, however, dynamic targeting can be accelerated if target phase actions can be initiated and/or completed in parallel with other phases.

E - Engage

In this phase, identification of the target as hostile is confirmed and engagement is ordered and transmitted to the pilot, aircrew, or operator of the selected weapon system. The engagement orders should be sent to, received by, and understood by the operator of the weapons system. The engagement should be monitored and managed by the engaging component (for the air component, by the AOC). The desired result of this phase is successful action against the target.

A - Assess

In this phase, predetermined assessment requests are measured against actions and desired effects on the target. ISR assets collect information about the engagement according to the collection plan (as modified during dynamic targeting) and attempt to determine whether desired effects and objectives were achieved. In cases of the most fleeting targets, quick assessment may be required in order to make expeditious re-attack recommendations.

Target Development Phase Products

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 68 to 69.

Joint Integrated Prioritized Target List (JIPTL)

The JIPCL is a prioritized list of intelligence collection and exploitation requirements needed to support indications and warning, analysis, and future target development efforts and to measure whether desired effects and objectives are being achieved. Requirements and priorities are derived from the recommendations of components in conjunction with their proposed operations supporting the JFC's objectives and guidance. An approved JIPCL is a product of answering information gaps as well as the collection and exploitation requirements stage of target development. The ISRD has primary responsibility within the AOC for the JIPCL, although considerable consultation with the SD OAT is required.

Joint Integrated Prioritized Collection List (JIPCL)

The JIPCL is a prioritized list of intelligence collection and exploitation requirements needed to support indications and warning, analysis, and future target development efforts and to measure whether desired effects and objectives are being achieved. Requirements and priorities are derived from the recommendations of components in conjunction with their proposed operations supporting the CFC's objectives and guidance. An approved JIPCL may be a product of answering information gaps as well as the collection and exploitation requirements stage of target development. The ISRD has primary responsibility within the CAOC for the JIPCL, although considerable consultation with the SD OAT is required.

No Strike List (NSL)

The NSL is a list of objects or entities characterized as protected from the effects of military operations under international law and/or rules of engagement. Attacking these may violate LOW—interfere with friendly relations with indigenous personnel or governments or breach ROE. Combatant commanders (CCDRs) and JFCs determine which targets are included on the NSL based upon inputs from components, supporting unified commands, or higher authorities. Targets on this list require national-level approval to strike. Targets on the NSL can only be moved to the RTL or JIPTL with national-level approval.

Restricted Target List (RTL)

The RTL is a list of targets that have specific restrictions imposed upon them. Some actions on restricted targets are prohibited until coordinated and approved by the establishing headquarters. Targets are restricted because certain types of actions against them may have negative political, cultural, or propaganda implications, or may interfere with projected friendly operations. The RTL is nominated by elements of the joint force and approved by the JFC. This list also includes restricted targets directed by higher authorities. Actions taken by an opponent may remove a target from the RTL.

Target System Analysis

Target System Analysis which provides an all-source examination of potential target systems to determine relevance to stated objectives, military importance, and priority of attack.

Electronic Target Folders (ETF)

Electronic target folders (ETF) developed to intermediate level. Depending on the level of intermediate development, ETFs will contain data on the target characterization, significance, location, type, function, expectation, elements, collateral damage considerations, intelligence gain/loss, and facility graphics (see CJCSI 3370 for complete details on ETF content at basic and intermediate levels to include graphics types).

Air Tasking Order (ATO) Phase Products

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 76 to 77.

Air Tasking Order (ATO)

The ATO is a medium used to task and disseminate to components, subordinate units, and command and control agencies projected sorties, capabilities and/or forces to targets and specific missions. It normally provides specific instructions to include call signs, targets, controlling agencies, etc., as well as general instructions. The ATO may subsume the ACO and SPINS or published as separate orders.

Special Instructions (SPINS)

SPINS are a set of instructions that provide information not otherwise available in the ATO, but are necessary for its implementation. This may include such information as commander's guidance (often including the AOD itself), the C2 battle management plan, combat search and rescue procedures, the communications plan, and general instructions for inter- and intratheater airlift.

Rules of Engagement (ROE)

ROE are directives issued by competent military authority that delineate the circumstances and limitations under which United States forces will initiate and/or continue combat engagement with other forces encountered. They should be published separately, versus being buried in the SPINS or another document.

Airspace Coordination Order (ACO)

The ACO provides direction to integrate, coordinate, and deconflict the use of airspace within the operational area. (Note: this does not imply any level of command authority over air assets.)

Reconnaissance, Surveillance, and Target Acquisition (RSTA) Annex

The reconnaissance, surveillance, and target acquisition (RSTA) annex is produced during this stage by the ISRD. The RSTA annex is the ISR supplement to the ATO. It contains detailed tasking of intelligence collection sensors and processing, exploitation, and dissemination (PED) nodes and provides specific guidance to tasked ISR assets, including ISR platforms, sensors, and PED.

The **finalized JIPTL cutline** associated with the ATO is fed back into the target development process for situational awareness on status of targets to be serviced in order to accurately produce the follow-on JIPTL.

As the ATO is finalized, the targeting staff will continue to update and/or refine targeting products in accordance with the coordination activities in developing the MAAP. Guidance may preclude a particular weaponeering solution or risk assessment may require combined kinetic and non-kinetic solutions to create the desired effect(s). These refinements will be documented within the ETF and specific products modified (e.g., JDPI, CDE, etc.) accordingly.

E. Execution Planning and Force Execution

Purpose of the Phase

Execution planning includes the preparation necessary for combat units to accomplish the decentralized execution of the ATO. Force execution refers to the 24-hour period an ATO is executed by combat units, which generally includes 12 hours immediately prior to the start of a given day's execution period. The AOC aids both, preparing input for, supporting, and monitoring execution. The COMAFFOR, as the Air Force's warfighting commander, directs execution of Air Force capabilities. If a JFACC is appointed, that commander directs execution of air component capabilities and forces made available for joint or combined operations. It is normal, of course, for the COMAFFOR to also be the JFACC. Inherent in this is the authority to redirect joint or combined air assets made available for tasking. Under the Air Force tenet of centralized control and decentralized execution, unit commanders are given the freedom and flexibility to plan missions and delivery tactics as long as they fall within timing requirements, ROE, and intent of effects. The COMAFFOR coordinates redirection of sorties that were previously allocated for support of component operations with affected component commanders. For targeting, this is the application of all previous steps of targeting and monitoring the execution in preparation for assessment. During execution, the AOC is the central agency for revising the tasking of air forces, the JSPOC is the central agency for revising the tasking of Air Force space forces, and the 624th OC is the central agency for revising the tasking of Air Force cyberspace forces. They are also responsible for coordinating and deconflicting any changes with appropriate agencies or components. These operations centers may or may not have authority to re-direct use of other capabilities supporting theater efforts, depending upon the asset.

Due to operational environment dynamics, the COMAFFOR may be required to make changes to planned operations during execution. The AOC should be flexible and responsive to changes required during execution of the ATO. Forces not allocated for joint or combined operations, but included on the ATO for coordination purposes, can be redirected only with the approval of the respective component or allied commanders. During execution, the COMAFFOR is also responsible for retargeting air assets to respond to emerging targets or changing priorities. The COMAFFOR may delegate the authority to re-direct missions made available for higher priority targets to C2 mission commanders as necessary. The AOC should be notified of all redirected missions. This can have significant impact on the ISR and collection planning efforts and require significant oversight by targeting personnel within the AOC.

The COD supervises the detailed execution of the ATO. Targeteers monitor ATO execution and recommend alternate targets when necessary. Normally, targeting changes are needed due to adverse weather, assessment requirements, or modification of priorities. The ability to quickly recommend good alternate targets is very important to the flexibility of airpower. Combat operations targeteers should be aware of all significant information on the current ATO to include targets, desired effects and objectives, guidance, and ROEs, and weaponeering and collateral damage estimates.

The rational use of force relies on the capability to achieve positive identification (PID) and geolocation of adversary entities as a precursor to taking action against them. Conducting CID of all operational environment entities is thus a critical enabling capability in any use, or potential use, of military force. Identifying adversary or enemy entities is essential, of course, but so is identifying friendly and neutral entities. Friendly force tracking (FFT) is a core function of combat identification (CID). FFT is the process of fixing, observing, and reporting the location and movement of friendly forces. The purpose of FFT is to provide commander's enhanced situational awareness and to reduce friendly fire incidents.

II. Measures and Indicators

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 82 to 83.

At all levels of assessment, planners should choose criteria that describe or establish when actions have been accomplished, desired effects created, and objectives achieved. These criteria are called "measures and indicators." There are two common types of measures:

Measures of Performance (MOP)

A criterion used to assess friendly actions that are tied to measuring task accomplishment. An example of this would be five offensive cyberspace operations performed, 100 combat sorties flown, and 98% ordnance delivered effectively.

Measures of Effect (MOE)

A criterion used to assess changes in system behavior, capability, or operational environment that is tied to measuring the attainment of an end state, achievement of an objective, or creation of an effect. An example would be to prevent the enemy's weapons factory from delivering weapons to the enemy for at least 48 hours.

Measures and Indicators

Measures and indicators are selected MOEs and MOPs established during planning. When selecting assessment measures, planners should identify the essential elements of information required to collect against them and provide guidance in the collection plan and JIPCL if special ISR resources are needed. These measures should be refined or amended during the tasking cycle, as the tactical situation or the status of the target changes. Selection of assessment measures is an iterative, ongoing effort.

To be useful as a gauge of effectiveness, a measure, whether a MOP or MOE, should be meaningful, reliable, and either observable or capable of being reliably inferred. Meaningful means it should be tied, explicitly and logically, to objectives at all levels. Reliable means it should accurately express the intended effect. If quantitative measures are used, they should be relevant. It is not sufficient to choose, for example, "fifty percent of enemy armor attrited" as an MOE without understanding why that measure is relevant to objectives. Observable means that existing ISR collection methods can measure it with the required precision to detect the intended change.

MOEs and MOPs may be quantitative or qualitative. Sometimes subjective measures, independent of other empirical measures, determine whether indirect effects and the objectives they lead to are being accomplished. Qualitative means primarily that judgment should be made in the absence of meaningful quantitative measures. Military personnel tend to be less comfortable with these rather than with more empirical, quantitative, measures, since they are generally trained to regard their profession as more of a science than an art, but often the numbers themselves involved in quantitative measures can deceive. Seemingly "scientific" quantitative measures are often poorer representations of what should happen in the operational environment than more qualitative measures, like "enemy armor units A, B, and C not offering larger than platoon sized resistance to forces closing on Phase Line X until at least day Y." Such a measure may be much more relevant to the friendly scheme of maneuver, be easier to collect against, and be easier for commanders to act upon. It is often easier, especially at the higher levels of assessment, to choose qualitative measures that are logically tied to objectives. Quantitative measures, on the other hand, can, through their very seeming certainty, take on a life of their own, leading to actions that do not contribute to accomplishing objectives or the end state.

Combat Assessment (CA)

Ref: Annex 3-60, Targeting (14 Feb '17), pp. 85 to 87.

CA determines the results of weapons engagement (with both lethal and nonlethal capabilities), and thus is an important component of joint fires and the joint targeting process. To conduct CA, it is important to fully understand the linkages between the targets and the JFC's objectives, guidance, and desired effects. CA includes the three related elements: battle damage assessment, munitions effectiveness assessment, and reattack recommendations or future targeting.

Battle Damage Assessment (BDA)

The purpose of battle damage assessment (BDA) is to compare post-execution results with the projected results generated during target development. Comprehensive BDA requires a coordinated and integrated effort between joint force intelligence and operations functions. Traditionally, BDA is a phased process. It begins with aimpoint-level evaluations of primary damage mechanisms and effect upon the targeted elements of a given target type (facility, individual, virtual, equipment, or organization). These assessments are aggregated and form the basis of system-level assessments. BDA is defined in three phases:

- **Phase 1 BDA:** This is the Initial Target Assessment reporting on physical damage assessment (PDA) and/or change assessment with initial functional damage assessment (FDA) of the target. This BDA level phase is often derived from single source reporting. Typical timelines associated with this phase are 1-2 hours after information becomes available (e.g. sortie debrief, WSV review, Initial Imagery Report). It also provides initial inputs for a Retrike Recommendation.
- **Phase 2 BDA:** This is the Supplemental Target Assessment report on the physical, change assessment, and functional damage assessment of the target. This report is a detailed Physical Damage Assessment (PDA), Functional Damage Assessment FDA, and change assessment normally based on multi-source reporting. Phase 2 BDA reporting is provided when there is a significant change to the Phase 1 reporting to include the multi-source verification and change to the confidence level of the initial reporting.
- **Phase 3 BDA:** This is the Target System Assessment (TSA) and represents the aggregate of previous phase reporting. This assessment is normally produced by national-level intelligence agencies working closely with the Joint Task Force assessment teams (J2, J3, & J5). It represents an in-depth target system functional damage assessment with respect to a target system (collection of related facilities/entities) and provides commanders with high level assessments that help determine future weights of effort for future planning and execution. Reporting for this phase is normally provided 24 hours after information becomes available.

For additional information on the BDA process, refer to Defense Intelligence Agency (DIA) publications DI-2820-4-03, Battle Damage Assessment Quick Guide; DI 2800-2-YR, Critical Elements of Selected Generic Installations (Critical Elements Handbook); and JP 3-60, Appendix D, The Targeting Assessment Process.

Munitions Effectiveness Assessment (MEA)

MEA evaluates whether the selected weapon or munition functioned as intended. It examines the munitions' known parameters, the delivery tactics used, and the interaction between the munition and the delivery platform. MEA is fed back into the planning process to validate or adjust weaponeering and platform selections. It is also the form of assessment with the highest potential return on investment in terms of weapons and tactics development, because the data it generates is fed into the JMEM revision process, resulting in more accurate future capability analysis. MEA is combined operations and intelligence function.

I. Combat Support

Ref: Annex 4-0, *Combat Support* (21 Dec '15).

The Air Force defines combat support (CS) as the foundational and crosscutting capability to field, base, protect, support, and sustain Air Force forces across the range of military operations. The nation's ability to project and sustain airpower depends on effective CS.

A Readied Force	CORE EFFECTS	An Employed Force
A Prepared Operational Environment		A Sustained Force
A Positioned Force		A Reconstituted Force
Readying the Force		Employing the Force
Preparing the Operational Environment		Sustaining and Recovering the Force
Positioning the Force		Reconstituting the Force
Field Forces	CORE PROCESSES	Protect Forces
Base Forces		Generate the Mission
Posture Responsive Forces		Support the Mission, Forces, and Infrastructure
FUNCTIONAL COMMUNITIES	CORE CAPABILITIES	Sustain the Mission, Forces, and Infrastructure
Acquisition AFOSI Airfield Operations Analyses, Assessments, and Lessons Learned Chaplain Corps Civil Engineer Communications/Information Contracting	Distribution Force Support Financial Mgmt/Comptroller Health Services Historian Judge Advocate Logistics Planning Maintenance Materiel Management	Munitions Mgmt Postal Services Public Affairs Safety Science/Technology Security Forces Test and Evaluation Weather Services

CS enables airpower through the integration of its functional communities to provide the core effects, core processes, and core capabilities required to execute the Air Force mission. The integration of these functional communities ensures Air Force forces are ready, postured, equipped, employed, and sustained at the right place and time to support the joint force.



Refer to SMFLS4: *Sustainment & Multifunctional Logistics SMARTbook (Guide to Logistics, Personnel Services, & Health Services Support)*. Includes ATP 4-94 Theater Sustainment Command (Jun '13), ATP 4-93 Sustainment Brigade (Aug '13), ATP 4-90 Brigade Support Battalion (Aug '14), Sustainment Planning, JP 4-0 Joint Logistics (Oct '13), ATP 3-35 Army Deployment and Redeployment (Mar '15), and more than a dozen new/updated Army sustainment references.

II. Engineer Functions

Ref: Annex 3-34, *Engineer Operations* (15 Aug '17), pp, 6 to 7.

In joint and Air Force operations, engineering functions are categories of related engineering capabilities and activities that are grouped together to help commanders integrate, synchronize, and direct engineering operations. These functions fall into three basic groups: general engineering, combat engineering, and geospatial engineering:

Engineer Functions



General Engineering



Combat Engineering



Geospatial Engineering

A. General Engineering

General engineering consists of those engineer capabilities and activities that provide infrastructure and modify, maintain, or protect the physical environment. Examples include construction, repair, maintenance, and operation of infrastructure, facilities, lines of communication, and bases; airfield damage repair (ADR), terrain modification and repair, and selected explosive hazard activities. General engineering provides the means to develop installations to project airpower. It can occur under combat conditions but differs from combat engineering in that it is not in support of maneuver of forces. General engineering focuses on rapidly responding to establish, sustain, and recover airbases, conducting ADR as needed. These types of activities are usually required during initial stages of major operations when base infrastructure is unavailable or inadequate to support the commander, Air Force forces (COMAFFOR) in achieving the joint force commander's objectives. Engineering tasks are time consuming, requiring centralized planning and control to effectively manage limited resources. Commanders may employ a combination of military engineers, civil service, contractors, multinational engineers, and host nation personnel to fulfill engineering requirements. Although the nature of some tasks or the threat of violence in an operational area may require military engineers, once the area begins to stabilize the tasks can be performed using multiple available resources. For more detailed information on general engineering capabilities, see Appendix B.

B. Combat Engineering

Combat engineering is defined as those engineering capabilities and activities that provide close support to the maneuver of land combat forces. It consists of mobility, countermobility, and survivability operations. The primary difference between combat engineering and general engineering is combat engineering's requirement for close support to land combat forces and its focus on mobility/maneuver versus supporting base and mission operations from fixed locations. This should not be confused with "engineering under combat conditions."

Although Air Force civil engineers are not specifically organized, trained, and equipped to conduct combat engineering, their inherent skills are used to conduct tasks to sup-

III. Air Force Medical Forces Objectives

Ref: Annex 4-02, Medical Operations (29 Sept '15), pp. 11 to 17.

Sustain a Healthy and Fit Force

To sustain a healthy and fit force is the first of four objectives of Air Force medical operations. A fit and healthy force increases the Air Force's capability to withstand the physical and mental rigors associated with combat and other military operations. The ability to remain healthy and fit despite exposure to numerous health threats is a force multiplier at home station and in deployed settings.

Fit and healthy Airmen can deploy on short notice and operate effectively in austere environments. Early identification and intervention of health conditions that could otherwise prohibit Airmen from being fully ready to deploy, increases the commander, Air Force forces' (COMAFFOR's) ability to mass forces.

Prevent Illness and Injury

To prevent illness and injury is the second of four objectives of Air Force medical operations. Illness and injury prevention is the framework by which Air Force leaders and individuals optimize health readiness and protect Airmen. The force health protection goal is to prevent illness and injury from the physical and mental stress caused by environmental, occupational, operational, and warfare, to include chemical, biological, radiological, and nuclear (CBRN) threats. Air Force medical personnel recognize and prepare for emerging man-made and natural threats. They make reasonable efforts to identify and protect our forces from emerging infectious diseases, as well as potential genomic/proteonomic, directed energy, and other new technologies. Casualty prevention is a continuous process conducted throughout pre-deployment, deployment, and post-deployment phases. Illness and injury prevention requires the full commitment of commanders, leaders, and individuals.

Restore Health

To restore health is the third of four objectives of Air Force medical operations. Medical forces use combined processes to rapidly restore each Airman to a combat ready status or arrange for the appropriate rehabilitative services. Restoring health requires a continuum of medical capabilities that includes first responders, forward resuscitative care (FRC), en route care, theater hospitalization, and definitive care.

Optimize Human Performance

To optimize human performance is the last of four objectives of Air Force medical operations. Personnel are the most important and valuable resource for the Air Force. Accordingly, Air Force Medical Service (AFMS) focuses on human performance in addition to health care as a primary means of supporting the COMAFFOR. Given the prerequisite need for health, addressing human performance requires achievement of the AFMS effects of "a healthy and fit force" and "prevent illness and injury"—two key objectives of force health protection.

The AFMS becomes a force multiplier by focusing on human performance in addition to health care as the primary means of supporting Air Force and joint forces. Air Force medical personnel work to sustain the performance of Airmen, whether in the face of enemy conflict, environmental threats and stressors, or advancing age. Any activity that supports or encourages improvement in physical, mental, or emotional health and fitness contributes to sustaining human performance. Additionally, Air Force medical personnel develop risk mitigation approaches. They employ approved countermeasures to help Airmen maintain performance (or minimize performance degradations) during warfare or upon exposure to environmental threats such as climatic extremes, g-forces, fatigue, weapons effects, prolonged mental or physical stress, witnessing or participating in violent acts, etc.

IV. Force Protection

Ref: Annex 3-10, Force Protection (17 Apr '17).

The 21st Century has, thus far, been characterized by a significant shift in Air Force responsibilities and an increased exposure of its resources to worldwide threats.

This point is underscored by the terrorist attacks of 11 September 2001 and ongoing operations worldwide. Today, potential opponents are less predictable, leveraging the increased availability of both high and low technology weapons, including weapons of mass destruction. The Air Force's ability to project US airpower requires protection from these threats at home, in transit, and abroad.

Due to the increased lethality of international and domestic threats, it is imperative the Air Force take strong measures to protect our personnel and installations around the world. How the Air Force protects its forces is critical to global engagement. An air expeditionary task force poised to respond to global taskings within hours should establish the capability to fully protect its forces.

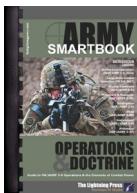
Force Protection Defined

Joint doctrine defines FP as “[p]reventive measures taken to mitigate hostile actions against Department of Defense personnel (to include family members), resources, facilities, and critical information” (Joint Publication 3-0, Joint Operations). FP is a fundamental principle of all military operations as a way to ensure the survivability of a commander’s forces.

A comparison of the joint definition with the North Atlantic Treaty Organization (NATO), definition is instructive. NATO doctrine explains that “[t]he operational environment may have no discernable ‘front-lines’ or ‘rear area’ and an adversary may be expected to target Allied vulnerabilities anywhere with a wide range of capabilities.” Consequently, NATO defines FP as “[m]easures and means to minimize the vulnerability of personnel, facilities, materiel, operations, and activities from threats and hazards in order to preserve freedom of action and operational effectiveness thereby contributing to mission success.”

Commanders at all levels should have an effective force protection program. Commanders are responsible for protecting their people and the warfighting resources necessary to perform any military operation. We are obligated by the moral necessity of protecting our Airmen to ensure force protection (FP) is a part of Air Force culture. Understanding and using FP doctrine will help ensure the successful protection of our people and resources.

FP supports **combat support**, and its supporting capability of “Protect the Force.” Protecting Air Force personnel and resources is critical to the Service’s ability to perform its mission.



Protection is the preservation of the effectiveness and survivability of mission-related military and nonmilitary personnel, equipment, facilities, information, and infrastructure deployed or located within or outside the boundaries of a given operational area (JP 3-0). Refer to AODS6: The Army Operations & Doctrine SMARTbook for an entire chapter on protection to include the protection warfighting function, protection supporting tasks, and protection planning.



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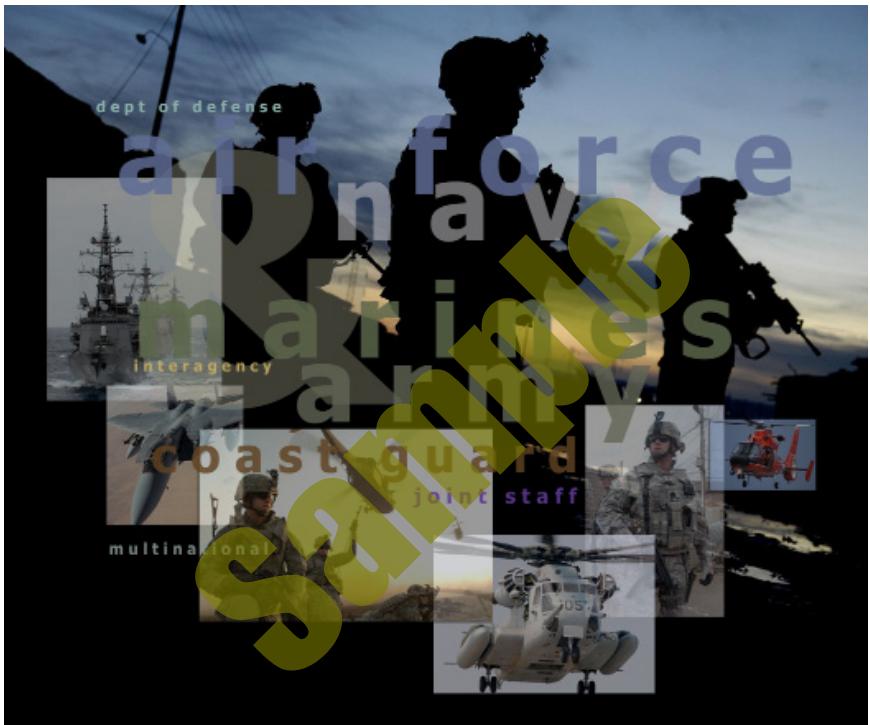
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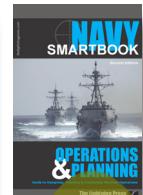
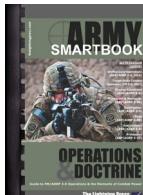


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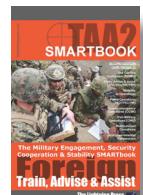
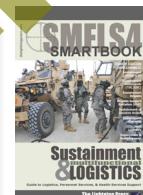
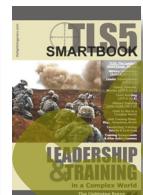
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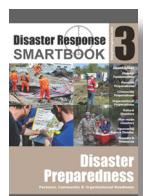
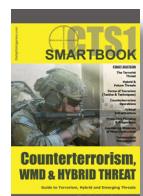
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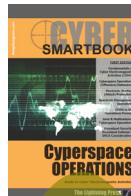


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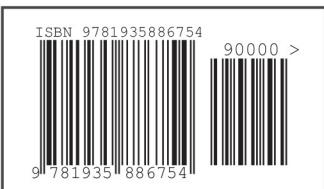
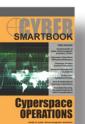
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