
VOLUME
I
BASIC DOCTRINE

FOREWORD

The Air Force provides the United States with airpower. To achieve this, our Air Force doctrine provides Airmen with the historically proven best practices learned through experience. This document is the Air Force's premier statement of leadership principles and beliefs.

Doctrine is authoritative, not directive, and requires judgment in its application. These foundational basics allow us to respond more quickly to operations in today's changing world environment, freeing commanders and planners to think about larger issues such as strategy, operational art, and objectives. The ideas presented here should enable Airmen to better describe what the Air Force can provide to the joint effort.

The success of our Air Force in meeting the challenges of this rapidly changing world depends on understanding our doctrine. I encourage you to read it, discuss it, and apply it.

The principal audience for this publication consists of all Airmen, both uniformed and civilian.

MARK A. WELSH III
General, USAF
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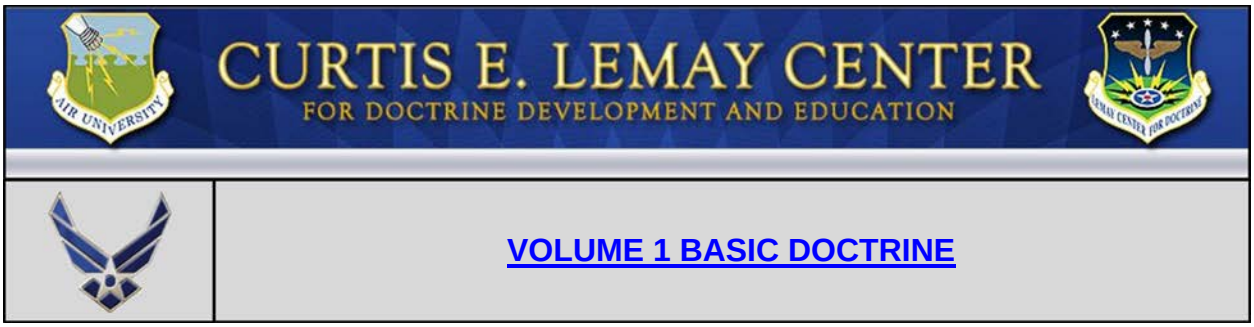
LEGEND

- **Green underlined text** denotes a link to glossary terms (definitions and acronyms).
- Blue underlined text denotes a link to another source document for additional discussion.



CATALOG OF DOCTRINE TOPICS

INTRODUCTION

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At the very heart of warfare lies doctrine. It represents the central beliefs for waging war in order to achieve victory. Doctrine is of the mind, a network of faith and knowledge reinforced by experience which lays the pattern for the utilization of men, equipment, and tactics. It is the building material for strategy. It is fundamental to sound judgment.

— General Curtis E. LeMay

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** 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** 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** 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.

- The proliferation of inexpensive technology enabled by globalization is greatly enhancing the ability of both state and non-state actors to challenge not only US military power and interests, but also international support for the United States, domestic US resolve, and the US economy and homeland security. In some cases, small numbers of sophisticated systems employed by non-state actors may deter US intervention.

- US advantages derived from space and cyberspace will decline relative to select potential adversaries who will approach parity with the Unites States in terms of their command and control and situational awareness capabilities. These and other adversaries will also be increasingly able to degrade US strengths in these areas.

- As an adversary's capabilities are brought to bear, portions of the operational environment can change from permissive to contested or highly contested.

- Strategic planners may need to rethink existing assumptions and force structures and develop new concepts that integrate nuclear, conventional, IW, and non-kinetic capabilities.

- There may be regions where many states possess nuclear weapons. These states may have conflicting doctrines and beliefs regarding their use. What may deter one actor may not deter another, and may even result in unintended negative consequences in other areas. Also, traditional deterrence models may not necessarily apply to rogue states and apply even less to non-state actors.

- ✪ The Cold War notion of controlling escalation may no longer be sufficient.

In summary, the United States will likely remain the world's single largest military power, but its relative advantage may shrink. Additionally, increasingly contested areas may reduce access, not only to the global commons, but to forward operating bases. The Air Force will likely face states and entities that have lower bars to entry to areas that can challenge existing US strengths. The need for IW capabilities will likely also continue, while strategic leverage such as effective deterrence may become more difficult and complex.

Against this backdrop, **doctrine should be flexible enough to adapt and evolve to situations as they arise**. Air Force doctrine should continually strive to provide a better, more relevant baseline for ongoing and future operations.

This volume is arranged around the following fundamental topics.

- ✪ Doctrine – Because this Volume is the Air Force's senior doctrine statement, this discussion presents a primer on what is and is not doctrine, and the uses, sources, and types of doctrine.
- ✪ Airpower – This section presents the fundamentals that guide the application of airpower; its historical foundations; the resulting "airmindedness" mindset; and the Airman's perspective.
- ✪ The Range of Military Operations – a primer on the operational environment in which Airmen perform their missions.
- ✪ The Principles of Joint Operations – a discussion of the broad principles that commanders generally consider in the conduct of operations.
- ✪ The Tenets of Airpower – While the principles of joint operations provide general guidance on the application of military forces, the tenets of airpower provide more refined considerations for the employment of air, space, and cyberspace capabilities.

A note on terminology in Air Force doctrine: The Air Force prefers—and in fact, plans and trains—to employ in the joint fight through a commander, Air Force forces (COMAFFOR) who is normally also multi-hatted as joint force air component commander (JFACC), area air defense commander, airspace control authority, space coordinating authority, and electronic warfare control authority; when involved in multinational operations, the JFACC may become a combined force air component commander (CFACC). **To simplify nomenclature, Air Force doctrine simply uses the term "COMAFFOR," with the presumption that the COMAFFOR may also be designated with multiple hats.** Similarly, Air Force doctrine recognizes that the AOC, in joint or combined operations is correctly known as a joint AOC (JAOC) or combined AOC (CAOC). However, doctrine simply uses the term "AOC."

Air Force doctrine is compatible with existing joint doctrine, but expands and elaborates upon it, because joint doctrine does not explicitly describe the philosophical

underpinnings of any one Service, nor does it describe how a Service organizes to support a joint force commander. These are Service, not joint, prerogatives. The ideas presented here should enable Airmen to better describe what the Air Force can provide to the joint effort. This document should influence creation of corresponding joint and North Atlantic Treaty Organization doctrine, and may inform the doctrine of other Services as well.

The principal audience for this doctrine consists of all Airmen, both uniformed and civilian.

CHAPTER ONE: DOCTRINE

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There is no end to the number of people who will line up to make flippant remarks that the doctrine is too long, too short, has too many pictures, is too academic, is not academic enough…. The acid test is do we read it, do we understand it, and do we use it, and DOES IT WORK? … "all else is rubbish" to borrow from Baron von Richthofen. Our doctrine does not mirror the Navy's, nor the Marine's, nor the Army's… it is aerospace doctrine… our best practices… and we should not be bashful about how we write it or what it says.

— From briefing notes by then-Brigadier General Ronald Keys to a doctrine symposium, 1997

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*). This definition is explained in more detail below.

✪ *"… 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.

> *We have identified danger, physical exertion, intelligence, and friction as the elements that coalesce to form the atmosphere of war, and turn it into a medium that impedes activity. In their restrictive effects they can be grouped into a single concept of general friction. Is there any lubricant that will reduce this abrasion? Only one: combat experience.*
>
> — Carl von Clausewitz, *On War*

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.

Further discussion on doctrine includes the following:

- ✪ A review of the differences between policy, strategy, and doctrine. Although distinctly different, there is significant interplay among them.

- An overview of the uses of doctrine.
- Discussion on sources of doctrine: the interplay among theory, experience, and technology.
- Discussion on the levels of doctrine: basic, operational, and tactical.
- Discussion of the types of doctrine: Service, joint, and multinational.
- A discussion on the interrelationships between doctrine, operating concepts, and vision.

POLICY, STRATEGY, AND DOCTRINE

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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 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 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 presents considerations on how to accomplish military goals and objectives.** It is a storehouse of analyzed experience

Although air officers have not been prolific writers, they have expressed their beliefs freely…. In fact, one may almost say that the Air Force has developed an oral rather than a written tradition.

— Frank Futrell, *Ideas, Concepts, Doctrine: Basic Thinking in the United States Air Force. 1907 - 1960*

and wisdom. Military doctrine is authoritative, but unlike policy, is not directive.

In practice, as leaders develop strategies for particular contingencies, political, economic, or social considerations may dictate strategic and operational approaches that modify or depart from accepted doctrine. As an example, doctrine may support long-range, air-to-air engagements beyond visual range, or high altitude interdiction of surface targets, both using long-range sensors; ROE, however, may require visual identification of all targets before firing due to political concerns over fratricide or collateral damage. If policy seriously affects the application of doctrine, military commanders should describe for political leaders the military consequences of those adaptations. However, because war is “an instrument of policy,” military commanders should ensure that policy governs the employment of military power and thus tailor their operations accordingly.

USES OF DOCTRINE

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One way to explore good doctrine is to use a “compare and contrast” model to walk through some key issues. This technique also amplifies the point that doctrine should be written broadly, allowing decision makers latitude in interpretation and flexibility in application, yet be specific enough to provide informed guidance. This technique also illustrates the use of doctrine in explaining contentious issues and how doctrine can be used to think more effectively about the best means to integrate various aspects of military power and organization. In the following discussion, there may be overlap among some of the principles expressed; this is desirable in that often there are different aspects or nuances to a particular issue. In doctrine, language is important. Finally, the following discussion presents an Air Force perspective; not all Services may entirely agree with these points.

Doctrine is about ***warfighting***, not ***physics***. This principle specifically addresses the perceived differences between operations in air, space, and cyberspace. Air, space, and cyberspace are separate domains requiring exploitation of different sets of physical laws to operate in, but are linked by the effects they can produce together. To achieve a common purpose, air, space, and cyberspace capabilities need to be integrated. Therefore, Air Force doctrine focuses on the best means to obtain warfighting effects regardless of the medium in which a platform operates. As an example, Airmen should be concerned with the best means of employing intelligence, surveillance, and reconnaissance (ISR) capabilities, not whether a particular ISR platform is airborne or in orbit. This is requisite to achieving true integration across any given collection of forces.

Doctrine is about ***effects***, not ***platforms***. This focuses on the desired outcome of a particular action, not on the system or weapon itself that provides the effect. For example, doctrine states that Airmen should seek to achieve air superiority, but doctrine does not focus on which platforms should be used to achieve that effect. A parallel example of this is seen in the recognition that bombers are not “strategic,” nor are fighters “tactical.” Similarly, it does not matter if an F-16 or a B-52 accomplishes a given task, or whether a particular platform is manned or unmanned, or whether a C-17 or a C-130 delivers a certain load; the outcome of the mission, the effect achieved, is what’s important. Thus, Air Force doctrine does not explicitly tie specific weapon systems to specific tasks or effects.

Doctrine is about ***using mediums***, not ***owning mediums***. This illustrates the importance of properly using a medium to obtain the best warfighting effects, not of carving up the battlespace based on Service or functional parochialism. Focusing on

using a medium is a vital first step to integration of efforts. "Ownership" arguments eventually lead to suboptimal (and usually at best tactical) application of efforts at the expense of the larger, total effort.

Doctrine is about ***organization***, not ***organizations***. Modern warfare demands that disparate parts of different Services, different nations, and even differing functions within a single Service be brought together intelligently to achieve unity of command and unity of effort. However, merely placing different organizations together in an area of operations is insufficient to meet these demands. A single, cohesive organization is required with clearly defined lines of command and commanders with requisite authorities at appropriate levels. Doctrine explains why certain organizational structures are preferred over others and describes effective command relationships and command authorities; this facilitates the rapid standup of joint and Service organizations during rapidly evolving situations. Ultimately, doctrine is not about whether one particular element of a joint force is more decisive than another, nor about positing that element as the centerpiece of joint operations; it's the total, tailored joint force that's decisive. Getting to that effective joint force requires smart organization and a thorough understanding of Service and joint doctrine.

Doctrine is about ***synergy***, not ***segregation***. True integration of effort cannot be achieved by merely carving up the operational environment. While segregation may have some benefit and may appear the simplest way, from a command and control viewpoint, to manage elements of a diverse joint force, it may actually suboptimize the overall effort. It guarantees that the whole will never be greater than the sum of its parts. For example, Airmen should have access to the entire theater of operations to maximize their ability to achieve joint force commander objectives; they should not be restricted from any area due to unnecessarily restrictive fire control measures. Also, segregating the battlespace into smaller areas of operation may create competition for scarce, high-demand, low-density capabilities and reduce combat effectiveness.

Doctrine is about ***integration***, not just ***synchronization***. Synchronization is defined as "the arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time" (JP 1-02). Integration, by comparison, is defined as "the arrangement of military forces and their actions to create a force that operates by engaging as a whole" (JP 1-02). Synchronization is, in essence, deconfliction in time and space between different units. It is a useful means to plan and execute operations and to prevent fratricide. However, it doesn't scale up to the operational level and hence is not the best means for achieving the maximum potential of a joint force. Synchronization emphasizes timing, while integration considers priority and effect to be both efficient and effective with scarce resources. Synchronization is bottom-up; integration, on the other hand, starts at the top with a single cohesive plan and works downward. Synchronization is an additive "sum of the parts" model, while integration may produce geometric results.

Doctrine is about ***the right force***, not just ***equal shares of the force***. This addresses the proper mix of Service components within a joint force. Some believe that a joint

force requires equal parts of all the Services. This is an incorrect view. As one senior Air Force officer said, “joint warfighting is not like Little League baseball, where everybody gets a chance to play.” Any given joint force should be tailored appropriately for the task at hand. Some operations will be land-centric, others air-centric, others maritime-, cyberspace-, or information-centric. The composition of the joint force and the tasks assigned its various elements should reflect the needs of the situation.

SOURCES OF DOCTRINE

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Doctrine should be based on critical analysis and the lessons of operations rather than driven by rapidly changing policies, promising technologies, individual personalities, budget battles, and politically trendy catch-phrases. **Doctrine should not be written to backwards-justify a policy position or codify a uniquely-tailored organization.** As such, doctrine reflects what has worked best with full consideration of what has worked poorly. In those instances in which experience is lacking or difficult to acquire, doctrine may be developed through analysis of exercises, wargames, and experiments. The military experience of other nations and non-defense organizations should also be considered.

It should be emphasized that doctrine development is never complete. Any given doctrine document is a snapshot in time—a reflection of the thinking at the time of its creation. Innovation has always been a key part of sound doctrinal development and continues to play a central role. Doctrine should evolve as new experiences and advances in technology point the way to the operations of the future.

Three constantly evolving variables affect doctrine: theory, experience, and technology. Sound doctrine strikes a balance among all three.

- Theory may be an excellent starting point, but doctrine based solely on theory may not survive contact with reality. An

[Doctrine] reflects an official recognition of what has usually worked best from observation of numerous trials. These may be reports of actual combat operations, or they may be limited to tests, exercises, and maneuvers. Only when necessary will doctrine consist of extrapolations beyond actual experience of some sort, for example, in the use of nuclear weapons where the nature of the weapon normally precludes the gathering of experience in any but the most limited sense.

— Maj Gen I.B. Holley,
Technology and Military Doctrine

example of this is the Army Air Corps' advocacy of daylight precision bombing; bombers initially had neither the necessary precision nor the survivability required to implement the theory. On the other hand, theory can support technological investment and experimentation, as in the German Wehrmacht's decision in the interwar years to pursue air-ground integration. A good grasp of operational art can provide the flexibility to adapt new theories within real-world situations, and prevent doctrine from becoming dogma.

- While experience plays a major role in doctrine formulation, too great a reliance on past experience leaves one open to always fighting the last war. Experience must be tempered with current realities to develop future plans. New technology can provide solutions to long-standing problems, as the advent of mobile, mechanized forces and aviation overcame the stalemate of trench warfare. Theories of war, sufficiently taught, should be open to reinterpretation in light of current circumstance. The US military experienced this in its recent formulation of doctrine for irregular warfare.

- Technology constantly evolves, but by itself is not a panacea. While technology alone may be good at providing single-point solutions, technology should be acquired with due consideration for operational art and design, taking into consideration theory and experience; sound reasoning must accompany realistic projections of what capabilities will actually be available to warfighters. Discussion in the 1990s of the "Revolution in Military Affairs" pointed to a similar interplay of ideas involving technology, organization, and doctrine, and held that all three were necessary to achieve a "revolution." Thus, technology should not be acquired in isolation.

LEVELS OF DOCTRINE

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As implemented in the Air Force, doctrine affects operations at three levels: basic, operational, and tactical. These levels speak to the intellectual content of the doctrinal concepts, not to the architectural structure of doctrine publications.

- **Basic doctrine** states the most fundamental and enduring beliefs that describe and guide the proper use, presentation, and organization of forces in military action. It describes the "elemental properties" of airpower and provides the Airman's perspective. Because of its fundamental and enduring character, basic doctrine provides broad and continuing guidance on how Air Force forces are organized, employed, equipped, and sustained. Because it expresses broad, enduring fundamentals, basic doctrine changes relatively slowly compared to the other levels of doctrine. As the foundation of all doctrine, basic doctrine also sets the tone and vision for doctrine development for the future. Air Force Doctrine Volume 1 is the Air Force's basic doctrine publication.

- **Operational doctrine** contained in doctrine annexes describe more detailed organization of forces and applies the principles of basic doctrine to military actions. Operational doctrine guides the proper organization and employment of air, space, and cyberspace forces in the context of distinct objectives, force capabilities, broad functional areas, and operational environments. Operational doctrine provides the focus for developing the missions and tasks to be executed through tactical doctrine. Doctrine at this level changes a bit more rapidly than basic doctrine, but usually only after deliberate internal Service debate.

- **Tactical doctrine** describes the proper employment of specific Air Force assets, individually or in concert with other assets, to accomplish detailed objectives. Tactical doctrine considers particular objectives (stopping the advance of an armored column) and conditions (threats, weather, and terrain) and describes how Air Force assets are employed to accomplish the tactical objective (B-1 bombers dropping anti-armor cluster munitions). Air Force tactical doctrine is codified as tactics, techniques, and procedures (TTP) in Air Force TTP (AFTTP) -3 series manuals. Because tactical doctrine is closely associated with the employment of technology and emerging tactics, change will likely occur more rapidly than other levels of doctrine. Also, due to their sensitive nature, many TTPs are classified.

TYPES OF DOCTRINE

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There are three types of doctrine: Service, joint, and multinational.

- **Service doctrine** outlines Service capabilities and guides the application of Service forces.
- **Joint doctrine**, as it applies to airpower in joint operations, describes the best way to integrate and employ air, space, and cyberspace capabilities with land, maritime, and special operations forces in military action.
- **Multinational doctrine**, as it applies to airpower, describes the best way to integrate and employ US air forces with the forces of allies in coalition warfare. It establishes principles, organization, and fundamental procedures agreed upon between or among allied forces. When developed as a result of a treaty, as in North Atlantic Treaty Organization (NATO) doctrine, multinational doctrine is directive.

DOCTRINE, OPERATING CONCEPTS, AND VISION

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The doctrinal maxims of this document are based on experience, hard-won with the blood of Airmen, and tempered by advances in technology. If properly employed, doctrine can lead to great success, and if ignored, can lead (and has led) to disaster. Therein lies the challenge: doctrine should convey the lessons of the past to guide current operations, but should still be flexible enough to adapt to change. Yet while forming that baseline for current operations, doctrine also provides a baseline for future thinking. One way to put this relationship into perspective is to understand the different uses of vision, operating concepts, and doctrine.

If placed along a continuum, doctrine, operating concepts, and vision provide a model for thinking about future technology, operating constructs, and doctrine in a coherent temporal framework.

- **Doctrine is focused on near-term operational issues and describes the proper employment of current capabilities and current organizations.** Doctrine addresses how best to employ, how to organize, and how to command today's capabilities. Doctrine is examined and validated during training, exercises, contingency operations, and times of war. Exercises, wargaming, and experiments allow us to test emerging doctrinal concepts and better align predicted capabilities with sound operational practices. Experience during conflict refines doctrine in real time. Encounters with unpredictable adversaries often highlight doctrinal gaps and provide fresh perspectives on historic and future challenges.

- **Operating concepts generally look out from five to fifteen years, and postulate reasonable operating scenarios that, through a combination of analysis and the use of descriptive examples, examine a range of issues such as employment, operating environment, command and control, support, organization, and planning considerations.** As new technologies mature to the point where their performance can be reasonably bounded as a new, separate system or part of another system, they can be

> *A hiatus exists between inventors who know what they could invent, if they only knew what was wanted, and the soldiers who know, or ought to know, what they want, and would ask for it if they only knew how much science could do for them.*
>
> — Winston Churchill, *The Great War*

examined within the framework of an operating concept. Depending on their purpose, operating concepts can speak to the present, near future, or distant future. Operating concepts define the parameters of envisioned capabilities. Experiments, wargames, and historical study, when honestly and rigorously conducted, are useful methods for evaluating new operating concepts and providing a basis for doctrinal considerations.

- **Vision statements describe key operating constructs and desired operational capabilities well in the future,** usually fifteen years out and beyond. Vision serves to focus technology investments toward achieving these capabilities. Emerging concepts and technologies are best investigated through experimentation and wargaming techniques. As future concepts are envisioned, it is important to also examine doctrine to support these potential capabilities. Vision provides the basis for wargaming, and the results of wargaming may point to doctrinal considerations requiring further examination.

Using doctrine, operating concepts, and vision, the Air Force can look toward the future and consider the long-term impacts of advanced technologies such as directed energy weapons, new unmanned systems, new space capabilities, and conceptual advancements. As this framework builds from the general (long term) to the specific (near term), Airmen can investigate a wide range of doctrine, organization, training, materiel, logistics, personnel, and facilities issues at the appropriate point during technology development, concept exploration, and systems acquisition.

CHAPTER TWO: AIRPOWER

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The other services have air arms—magnificent air arms—but their air arms must fit within their services, each with a fundamentally different focus. So those air arms, when in competition with the primary focus of their services, will often end up on the short end, where the priorities for resources may lead to shortfalls or decisions that are suboptimum. It is therefore important to understand that the core competencies of [airpower] are optional for the other services. They can elect to play or not play in that arena. But if the nation is to remain capable and competent in air and space [sic]*, someone must pay attention across the whole spectrum; that is why there is a US Air Force.*

— General Ronald R. Fogleman, USAF, retired

This section introduces the fundamentals that guide the application of airpower. It is written primarily for members of the US Air Force, but it is also applicable to anyone with the appellation of "airman," including those of other Services and nations who share the Air Force Airman's perspective articulated in this document. Accordingly, the following discussion of airpower is intentionally not Service-specific; aspects of airpower are used across the joint force and by coalition partners. However, Airmen have a special appreciation for airpower's broader potential. Unlike our counterparts in the other Services, Airmen do not view or study airpower as an auxiliary or complementary capability subordinate to some other branch of our Service necessary to accomplishing assigned functions or tasks. Instead, we view our expertise in the application of airpower as the main reason for the existence of an Air Force. The Air Force does not view or use airpower organically to support Service component objectives; the Air Force employs airpower to achieve the joint force commander's objectives and to complement the other components of the joint force.

Other related discussion includes the following material:

- ✪ The definition of airpower, along with amplifying discussion.

- An overview of the foundations of airpower.
- A discussion of "airmindedness," a term coined by General "Hap" Arnold to describe an Airman's particular expertise and distinctive point of view.
- An appreciation of airpower results in the Airman's perspective.

AIRPOWER

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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. For example, a remotely piloted aircraft operating from a ground station in the continental US (CONUS) relies on space and cyberspace capabilities to support operations overseas. While all Services rely more and more on such integration, cross-domain integration is fundamental to how Airmen employ airpower to complement the joint force.

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.[1] 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.

Airpower

Air Force doctrine presents airpower as a unitary construct. The Air Force acknowledges the importance of the space and cyberspace domains. However, **Air Force doctrine should address what unifies Airmen.** Thus, in the Air Force's senior doctrine product, it is appropriate to use concepts and language that bind Airmen together instead of presenting the Air Force as a collection of tribes broken out in technological stovepipes according to the domains of air, space, and cyberspace. Other subordinate doctrine products delve into the differences and interdependencies of the core functions and missions conducted within and across the air, space, and cyberspace domains, and within the context of more specific types of operations. Where appropriate, this product will also mention air, space, and cyberspace forces or capabilities.

The evolution of contemporary airpower stems from the Airman's original vision of combat from a distance, bypassing the force-on-force clash of surface combat. Originally manifest in long-range aircraft delivering kinetic weapons, airpower has evolved over time to include many long-range supporting capabilities, notably the conduct of networked information-related operations. This evolution has accelerated as Airmen conduct a greater percentage of operations not just over-the-horizon but globally, expanding operations first through space and now also in cyberspace. Just as airpower grew from its initial use as an adjunct to surface

[1] JP 3-30, *Command and Control for Joint Air Operations*, formally defines the air domain as "the atmosphere, beginning at the Earth's surface, extending to the altitude where its effects upon operations become negligible." The description offered above is used to more easily illustrate the difference between the air and space domains using parallel language.

operations, space and cyberspace have likewise grown from their original manifestations as supporting capabilities into warfighting arenas in their own right.

THE FOUNDATIONS OF AIRPOWER

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Airpower provides the Nation and the joint force with unique and valuable capabilities. **Airmen should understand the intellectual foundations behind airpower and articulate its proper application at all levels of conflict; translate the benefits of airpower into meaningful objectives and desired effects; and influence the overall operational planning effort from inception to whatever post-conflict operations are required.**

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. Airpower's speed, range, flexibility, and versatility are its outstanding attributes in both space and time. This combination of attributes provides the foundation for the employment concepts of airpower.

> *Upon the outbreak of war the offensive power of the Air Service should be ready for instant use, and the offensive in the air should be assumed immediately. During this period of hostilities offensive aerial operations will exert an important influence upon the future conduct of the campaign. It should be used offensively, primarily to secure the control of the air, and, secondarily, to disrupt and delay enemy communications and ground establishments.*
>
> — Training Regulation No. 440-15, "*Fundamental Principles for the Employment of the Air Service*," 1926

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. Within 36 hours of the deployment order, Air Force F-15s were flying combat air patrols over Saudi Arabia in response to the Iraqi invasion of Kuwait in 1990. More recently, Air Force forces demonstrated that same rapid-response capability by airlifting desperately needed supplies into tsunami-stricken areas of South and Southeast Asia and earthquake-stricken Haiti. 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. Increasingly, US national power and international influence are gauged in terms of what we can or cannot accomplish with this capability.

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. An obvious example is the deterrent role played by the Air Force's nuclear-armed bombers and intercontinental ballistic missiles against the Soviet Union during the Cold War. More recently, B-52 and B-2 bombers have rotated into Guam to provide a ready and visible presence.

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 deterrence to a potential aggressor can be employed immediately to defend or attack should deterrence fail. The shift from deterrent force to combat power is near-instantaneous. From ready deterrent to bombs-on-target is only a question of command and control and flight time.

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. To most observers in the post-Cold War world, the use of military power is politically less acceptable than in previous times. This is true even if we act in a purely humanitarian endeavor or influence a given international political situation with a modest show of force. In international disasters, natural or man-made, from the Berlin Airlift to earthquake relief operations in Pakistan, the Air Force is the only military force in the world which has the airlift and air refueling capability to provide immediate relief supplies and personnel in response to global emergencies. Air Force aircraft delivering relief supplies serve not only to alleviate the immediate situation, but also to provide a visible symbol of the care, concern, and capability of the United States. Through careful building of partnerships, Air Force forces can favorably shape the strategic environment by assessing, advising, training, and assisting host nation air forces in their efforts to counter internal or external threats. The perception of credible US forces underpins many deterrence and assurance strategies. Such activities lead to greater regional stability and security.

Within the broad sweep of history, the benefits of this instrument of military power are relatively new. Up until the latter part of the 20th century, naval forces provided the primary symbol of American military power and resolve; powerful warships making port calls throughout the world were visible symbols of the strength and capability of the United States. Today, airpower plays a very similar role—and not just in those nations with major seaports. In numerous humanitarian operations, Airmen have provided relief, demonstrated resolve, and helped to shape the attitudes of world leaders and their people.

This influence is more than just airplanes. US space-based assets are a non-intrusive method of providing up-to-the-minute warning and information on the maneuver of hostile military forces or other potentially dangerous actions. The United States often shares this information with friendly nations in response to potential adversaries to defuse points of conflict before they result in hostilities. US air, space, and cyberspace capabilities provide the means to alert allies of a potential aggressor's hostile intentions or impending attack when in-country physical presence is unwarranted. They can influence potential adversaries by stripping them of the ability to hide hostile military activity without violating national sovereignty.

Airpower's speed, range, flexibility, precision, and lethality provide a spectrum of employment options with effects that range from tactical to strategic. This range of effects is an important contribution. A surface-centric strategy often seeks its outcome through the destruction of hostile land forces and the occupation of territory.

However, destruction of hostile land forces may be only a tactical or operational objective and may not achieve the desired strategic outcome. Further, territorial occupation, with its attendant large cultural footprint, may not be feasible or politically acceptable. Sea power, with its ability to project force and disrupt the economic lifeline of a maritime-capable adversary, also provides the potential for strategic results. However, slow surface speeds can constrain its capability to respond rapidly from one theater to another. In addition, it may be extremely vulnerable in littoral regions. Often, in such circumstances, the political risks outweigh the actual military risks.

Airpower, on the other hand, has been successfully used to influence strategic political outcomes in many world crises since the Berlin Airlift of 1948. Throughout the Cold War, and continuing under various international arms control agreements, Air Force assets have been used to observe and verify compliance, leveraging our ability to negotiate and influence diplomatically. If force becomes necessary, Air Force assets can secure strategic outcomes at any time by overflying surface forces and thus bypassing geographical boundaries, or striking with precision at the critical vulnerabilities within an adversary's political, military, and industrial centers of gravity. Even in situations when joint strategy requires large-scale destruction of enemy surface forces, Air Force forces can deliver the bulk of that destruction. It can do these things sooner than can other military forces, and it has been demonstrated that the earlier the application of effects, usually the less total force required. In humanitarian cases, the earlier the relief, the better the effect.

Operating in a seamless medium, there are no natural boundaries to constrain air, space, and cyberspace operations. Through centralized control and decentralized execution of Air Force assets, commanders reap the benefits of airpower throughout the ROMO, wherever most needed at any given time.

Airpower has a degree of versatility not found in any other force. Many aircraft can be employed in a variety of roles and shift rapidly from defense to offense. Aircraft may conduct a close air support mission on one sortie, and then be rearmed and subsequently used to suppress enemy surface-to-surface missile attacks or to interdict enemy supply routes on the next. In time-sensitive scenarios, aircraft en route to one target, or air mobility aircraft in support of one mission, can be reassigned new targets or re-missioned as new opportunities emerge. Multirole manned and unmanned platforms may perform intelligence, surveillance, and reconnaissance, command and control, and attack functions all during the same mission, providing more potential versatility per sortie. Finally, aircraft can be repositioned within a theater to provide more responsiveness, while space and cyberspace capabilities can be reprioritized.

Joint campaigns rely upon this versatility. However, many airpower capabilities are limited in number; dividing or parceling out airpower into "penny-packets" violate the tenet of synergy and principle of mass. To preserve unity of effort, joint force commanders normally vest a single air commander with control of all airpower capabilities.

Historically, armies, navies, and air forces massed large numbers of troops, ships, or aircraft to create significant impact on the enemy. Today, the technological impact of precision guided munitions enables a relatively small number of aircraft to directly achieve national as well as military strategy objectives. When combined with stealth technologies, airpower today can provide shock and surprise without unnecessarily exposing friendly forces. To destroy a single target, we no longer need the thousand-plane bomber raids of World War II or the hundreds of sorties of Vietnam. Today's air forces can provide accurate and assured destruction of vital targets with far fewer aircraft, sometimes multiple targets with a single aircraft. Moreover, that capability can be delivered from within the theater or around the globe if necessary. Whether in the skies of Iraq and Afghanistan, delivering United Nations peacekeeping troops to Africa, or monitoring nuclear weapons proliferation and development, Air Force forces have a far-reaching presence and the ability to produce direct and immediate effects.

With those characteristics considered, one should remember that **air, space, and cyberspace superiority are the essential first ingredients in any successful modern military operation.** Military leaders recognize that successful military operations can be conducted only when they have gained the required level of control of the domains above the surface domains. Freedom to conduct land and naval operations is substantially enhanced when friendly forces are assured that the enemy cannot disrupt operations from above.

Control of the air, space, and cyberspace domains is not a goal for its own sake, but rather a prerequisite for all other military operations. Air mastery has allowed American land, naval, and air forces to operate where they want, at their own tempo, while creating the environment for success.

"AIRMINDEDNESS"

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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 United States 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.

> *"[Airmindedness] is a global, strategic mind-set providing perspective through which the battlespace is not constrained by geography, distance, location, or time. The air-mindedness lens enables Airmen to think about conflict in which force-on-force and armies in the field are only one element. It implies the ability to influence the links between adversary materiel and moral strength. Although Airmen rarely claim to target the enemy's will, they perceive a direct connection between his physical capacity and desire to continue the fight."*
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> — Dr. Dale L. Hayden, "Air-Mindedness," *Air & Space Power Journal*, Winter 2008

THE AIRMAN'S PERSPECTIVE

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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.** The first mission of an air force is to defeat or neutralize the enemy air forces so friendly operations on land, sea, in the air, and in space can proceed unhindered, while at the same time one's own military forces and critical vulnerabilities remain safe from air attack.

- **Airpower is an inherently strategic force.** War and peace are decided, organized, planned, supplied, and commanded at the strategic level of war. Air Force forces can hold an enemy's strategic centers of gravity and critical vulnerabilities directly at risk immediately and continuously. Airpower also has great strategic capability for non-lethal strategic influence, as in humanitarian relief and building partnership activities.

- **Airpower can exploit the principles of mass and maneuver simultaneously to a far greater extent than surface forces.** There are no natural lateral boundaries to prevent air, space, and cyberspace capabilities from quickly concentrating their power (physically or in terms of delivered effects) at any point, even when starting from widely dispersed locations. Airpower dominates the fourth dimension—time—and compresses the tempo of events to produce physical and psychological shock.

- **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. They can be employed in support of national, combined/joint, or other component objectives. They can be integrated with surface power or employed independently.

- **Air Force forces are less culturally intrusive in many scenarios.** Surface forces are composed of many people and vehicles which, when arrayed for operations, cover a significant area. Thus, their presence may be very visible to local populations and may create resentment during certain types of stability operations and in counterinsurgency operations. Air Force forces, operating from bases over the horizon or from just a few bases in-country, have a smaller footprint for the effects they provide. Space and cyberspace forces have a negligible in-theater footprint relative to the capabilities they provide.

- **Airpower's inherent speed, range, and flexibility combine to make it one of the most versatile components of military power.** Its versatility allows it to be rapidly employed against strategic, operational, and tactical objectives simultaneously. The versatility of airpower derives not only from the inherent characteristics of air forces themselves, but also from the manner in which they are organized and controlled.

- **Airpower results from the effective integration of capabilities, people, weapons, bases, logistics, and all supporting infrastructure.** No one aspect of air, space, and cyberspace capabilities should be treated in isolation since each element is essential and interdependent. Ultimately, the Air Force depends on the performance of the people who operate, command, and sustain air, space, and cyberspace forces.

- **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.** One of the most important aspects of the Air Force has proved to be its ability to move anywhere in the world quickly and then rapidly begin operations. However, the need for mobility should be balanced against the need to operate at the deployment site. The availability and operability of suitable bases can be the dominant factor in employment planning and execution.

- **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. Thus, Airmen tend to take a broader view of war, because the capabilities they command have effects at broader levels of war. Airmen apply airpower through the tenet of centralized control and decentralized execution.

CHAPTER THREE: THE RANGE OF MILITARY OPERATIONS

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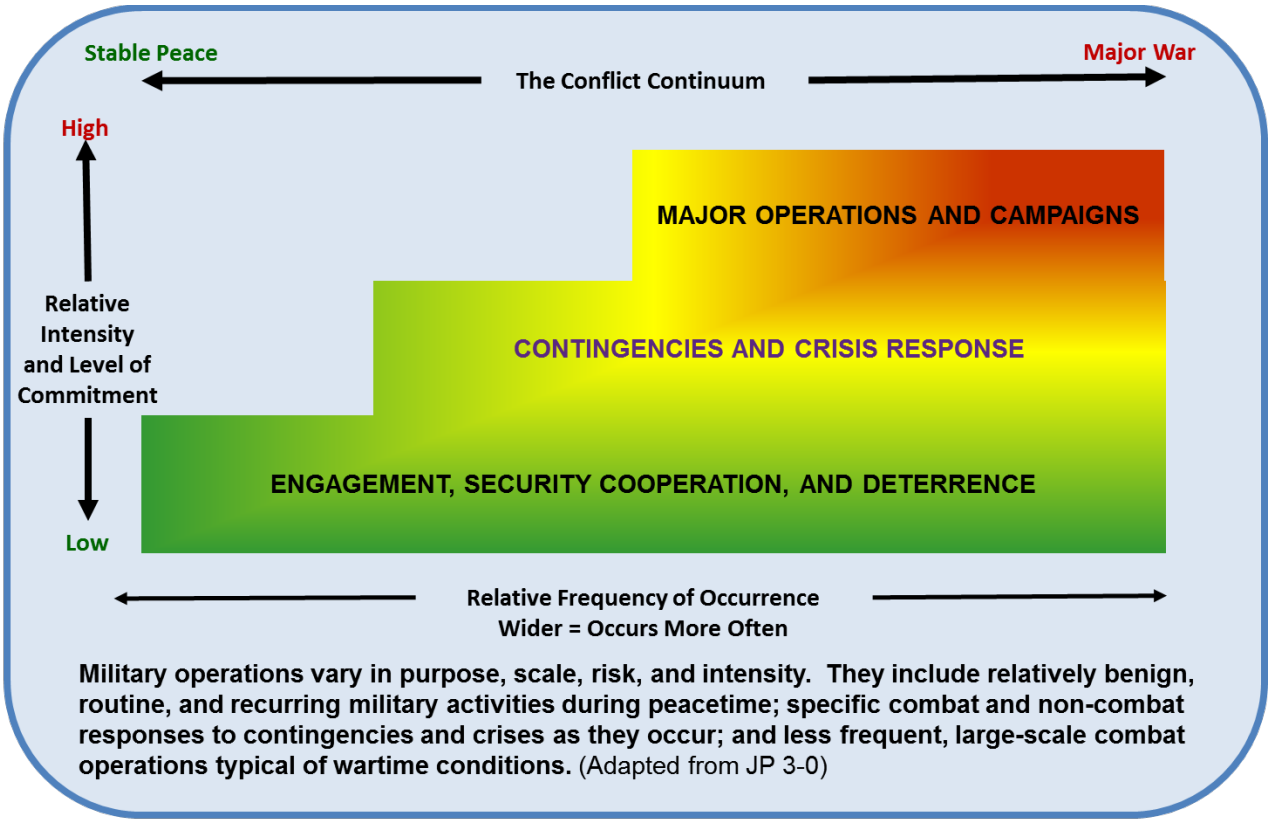
Every art has its rules and maxims. One must study them: theory facilitates practice. The lifetime of one man is not long enough to enable him to acquire perfect knowledge and experience. Theory helps to supplement it; it provides a youth with premature experience and makes him skillful also through the mistakes of others. In the profession of war the rules of the art are never violated without drawing punishment from the enemy, who is delighted to find us at fault.

— Frederick the Great

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.



The Range of Military Operations

For detailed discussion on the ROMO, see Annex 3-0, *Operations and Planning*, and Joint Publication 1, *Doctrine for the Armed Forces of the United States*.

Related discussion includes the following topics:

- A discussion of the Clausewitzian nature of war.
- An overview of the relationship between traditional and irregular war.
- An overview of the role of culture.
- A review of the strategic, operational, and tactical levels of war.
- An introduction of steady state operations.

THE NATURE OF WAR

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Because war underpins the reason for the Air Force's existence, an understanding of doctrine should also include an understanding of war. The ultimate objective of force preparation is their employment as instruments of national power to deter or win wars. Therefore, Airmen should understand the nature and consequences of war.

War is a violent struggle between rival parties to attain competing objectives. War is just one means used by nation-states, sub-national groups, or supranational groups to achieve disputed objectives. War has been a basic aspect of human affairs throughout history. The modern Western tendency to view war as an aberration in human affairs, only occasionally necessary as an operation with limited aims or an all-out campaign to destroy a clearly recognized evil, often distorts our understanding of warfare and its purposes. Warfare is ingrained in the very nature of certain cultures. While for nation states, war is an instrument of policy aiming at political objectives; it is also, even within this context, a phenomenon involving the full range of human emotions and irrationalities. War has a dynamic of its own, often fueled by anger, fear, revenge, and hatred. Thus, the resort to violence rarely remains for long tied to cold, clear political objectives; it can—and has—moved in unexpected directions.

Military professionals operate within an environment that cannot be fully replicated in training. The arena in which military professionals operate is a deadly one. Not only are they attempting, as General George Patton stated, to "make the other poor bastard die for his country," the enemy is attempting to do the same to us. Consequently, war is an arena characterized by extraordinary fear, pain, uncertainty, and suffering.

Three enduring truths describe the nature of war. Despite technological advances and the best of plans and intentions, war will never be as straightforward in execution as planned, nor free of unintended consequences. The particular characteristics usually change from conflict to conflict, but the nature of war remains eternal.

- **War is an instrument of policy.** Victory in war is not measured by casualties inflicted, battles won or lost, number of tanks destroyed, or territory occupied, but by the achievement of (or failure to achieve) policy objectives or the cultural objectives of the actors involved (including nation states and non- or supra-state entities). More than any other factor, these objectives—one's own and those of the enemy—shape the scope, intensity, and duration of war. To support US national policy objectives, military objectives and operations should be coordinated and orchestrated with nonmilitary and partner nation instruments of power. Prussian

philosopher of war Carl von Clausewitz emphasized that war is a continuation of the policies of nations, but not all belligerents in war are organized nation states.

- **War is a complex and chaotic human endeavor.** Human impulses and human frailties shape war's nature—it is not deterministic. Uncertainty and unpredictability—what many call the "fog of war"—combine with danger, physical stress, and human fallibility to produce what Clausewitz called "friction," which makes even simple operations unexpectedly and sometimes even insurmountably difficult.

- **War is a clash of opposing wills.** War is collision of two or more living forces**.** War is not waged against an inanimate or static object, but against a living, calculating, interactively complex, and adaptive opponent. The enemy often does not think as we think and often holds different values, motivations, and priorities than ours. Victory results from creating advantages against a thinking adversary bent on creating his own advantages. This produces a dynamic interplay of action and reaction. While physical factors are crucial in war, the will of the people and the character of their leaders are also critical components of war. Allied and enemy resolve—the determination to force one's will on one side and to resist on the other—can be the decisive element.

Success in war requires mastery of the art of war as well as the science of war. Warfare is one of the most complex of human activities. Success depends more on intellectual superiority, morale, and determination than it does on numerical and technological superiority. Success thus demands an intricate combination of science (that which can be measured, studied, and controlled) and art (creativity, flexibility, intuition, and the ability to adapt). Sound doctrine, good leadership, effective organization, moral values, and realistic training can lessen the effects of uncertainty, unpredictability, and unreliability that are always present in war.

TRADITIONAL AND IRREGULAR WAR

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The United States' overwhelming dominance in recent traditional wars has made it highly unlikely that adversaries, especially those state and non-state actors with less-robust military capabilities, will choose to fight the United States in traditional, force-on-force engagements. Thus, irregular forms of warfare have become attractive, if not the most preferred option for adversaries such as terrorists, insurgents, criminal networks, and non-friendly states to effectively challenge US interests and national security. Irregular warfare (IW) presents different challenges to our military and to the Air Force.

- **Traditional warfare** is characterized as "**a violent struggle for domination between nation-states or coalitions and alliances of nation-states.**[1]" This confrontation typically involves force-on-force military operations in which adversaries employ a variety of conventional military capabilities against each other in the air, land, maritime, space, and cyberspace domains. The objective may be to convince or coerce key military or political decision makers, defeat an adversary's armed forces, destroy an adversary's war-making capacity, or seize or retain territory in order to force a change in an adversary's government or policies.

- **Irregular warfare** is defined as "**a violent struggle among state and non-state actors for legitimacy and influence over the relevant populations**." IW favors indirect and asymmetric approaches, though it may employ the full range of military and other capabilities to erode an adversary's power, influence, and will.

Both IW and traditional warfare seek to resolve conflict by compelling change in adversarial behavior. However, they differ significantly in both strategy and conduct. **Traditional warfare focuses on dominance over an adversary's ability to sustain its war fighting capability**. **IW focuses on population-centric approaches that affect actors, behaviors, relationships, and stability in the area or region of interest.** Therefore, IW requires a different level of operational thought and threat comprehension.

IW is not a lesser-included form of traditional warfare. Rather, IW encompasses a variety of operations where the characteristics are significantly different from traditional war. There are principally five activities or operations that are undertaken in sequence, in parallel, or in blended form in a coherent campaign to address irregular threats:

[1] Joint doctrine does not formally define traditional war. However, Joint Publication 1 contains this characterization.

counterterrorism, unconventional warfare, foreign internal defense, counterinsurgency, and stability operations.

Traditional warfare and IW are not mutually exclusive; both forms of warfare may be present in a given conflict. Airmen should understand that the character of war may often change in the course of a conflict. This is especially true in IW where the conflict is often protracted and varies in intensity. Traditional warfare can rapidly evolve into an irregular war and vice versa, requiring the military force to adapt from one form to the other.

Refer to Annex 3-2, *Irregular Warfare*, for detailed discussion on IW.

THE ROLE OF CULTURE

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The role of culture in establishing the terms of conflict is another vital component that has increased in importance in recent operations. War among Western powers has always been seen as an adjunct to politics and commerce, and often as a dangerous distraction from them. The rewards of war are physical; psychological reinforcement comes predominantly from war's spoils, not from war itself. In general, this view has led Western powers to try to force resolution as quickly and "cheaply" as practicable (in all but comparatively rare civil and religious wars), to seek decisive engagement with the enemy when possible, and to focus warfare upon defeat of the enemy's fielded military forces. This was true even during Industrial Age conflicts, where the total moral and physical power of the nation-state was mobilized for war. This is the cultural legacy that has most heavily influenced the modern use of airpower.

People in other cultures often view things differently, and Airmen should be sensitive to these differences. In a number of non-Western societies around the globe, the cultural motivation for war is more deeply felt, causing them to fight in ways and for reasons that may seem strange to Americans. Some adhere to a warrior ethos, in which the act of waging war provides its own important psychological reinforcements. Some do not separate church, state, and popular culture in the Western manner, but see religion, politics, warfare, and even trade as part of a seamless whole. Thus, the wars they wage may take on the single-mindedness and ferocity of religious or civil wars.

When one is attempting to change minds, rather than blow them away, local beliefs and attitudes assume high strategic importance.

— Colin S. Gray, *The Airpower Advantage in Future Warfare*

US commanders should consider these factors when devising strategies to deal with adversaries from such cultures. They should seek to understand how the adversary thinks and not "mirror-image," placing a premium on regional and cultural awareness and language capabilities of our advisors. For example, during the Vietnam War the United States assumed that North Vietnamese motivations, priorities, and interests were similar to our own. This incorrect assumption significantly hampered the process of devising a winning strategy and prolonged the war. The United States should also carefully plan

for stability and other operations that follow major combat, and constantly keep the conflict's ultimate end state in mind during combat operations, considering all possible means for creating effects and achieving objectives, not just those conventionally used for destruction of fielded forces.

LEVELS OF WAR

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Warfare is typically divided into three levels: strategic, operational, and tactical. These divisions have arisen because traditional war constrained forces to engage force-on-force, on the surface, at the tactical level, allowing effects to aggregate up from that level to the level of campaigns and other major operations, and finally to the level directly affecting an adversary's ability to wage war altogether. However, Airmen should not define a given level by the specific weapons used, or on the targets attacked, but on the level of desired effects one wishes to create. A given aircraft, dropping a given weapon, could conduct a "tactical," "operational," or "strategic" mission, depending on the planned results. Given airpower's inherent flexibility, any tactical mission with a given aircraft dropping given weapons can deliver a mix of intended effects, at all levels, from tactical to strategic.

Effects at the **strategic level of war** impair the adversary's ability to carry out war or hostilities in general. Strategic effects should neutralize the adversary's centers of gravity. At this level, the United States determines national or multinational (alliance or coalition) security objectives and guidance and uses all national resources to achieve objectives and desired end states. These national objectives in turn provide the direction for developing overall military objectives, which in turn are used to develop the military objectives and strategy for each theater or operation. Strategy is aimed at outcomes, thus strategic ends define this level. In some circumstances, there may be value in distinguishing between the nation's strategy as a whole and what might be termed the "theater-strategic" level, at which particular combatant commanders determine and direct the overall outcomes of major operations (or "wars") taking place within their particular areas of responsibility, explicitly tying these "theater-strategic" aims to overarching national strategy and policy. In general terms, **the strategic level of war addresses the issues of WHY and WITH WHAT we will fight and WHY the enemy fights against us.**

The **operational level of war** lies between the strategic and tactical levels. At this level, campaigns and major operations are designed, planned, conducted, sustained, assessed, and adapted to accomplish strategic goals within theaters or areas of operations. These activities imply a broader dimension of time or space than do tactics; they orchestrate tactical successes to achieve objectives at higher levels. The decision-making products at this level of planning identify required forces and resources balanced against operational risk. Operational effects such as air superiority, space superiority, cyberspace superiority, defeat of enemy surface forces, isolation of enemy forces in the battlespace, and disruption or destruction of enemy leadership functions

are the means with which the operational commander supports the overall strategy. Operations involve the integration of tactical military missions and engagements to achieve strategic ends. Planning at **the operational level of war determines WHAT we will affect, with WHAT courses of action, in WHAT order, for WHAT duration, and with WHAT RESOURCES.**

At the lowest end of the spectrum lies the **tactical level of war**, where individual battles and engagements are fought. While resulting effects may be described as operational or strategic, military *actions* occur almost entirely at the tactical level. Thus, even a global strike mission intended to produce a direct strategic effect on an adversary COG is ultimately a tactical action. To the Airman, the distinction between this level and higher levels of war is fairly clear-cut; Airmen tend not to fight large-scale battles (as surface forces use the term) but focus at the tactical level on individual engagements and "missions." The tactical level of air, space, and cyberspace warfare deals with how forces are employed, and the specifics of how engagements are conducted. Tactics are concerned with the unique employment of force, so application defines this level. In short, **the tactical level of war deals with HOW we fight.**

STEADY-STATE OPERATIONS

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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 Capabilities Plan*, which introduced a campaign planning methodology for steady-state operations. As a result, combatant commands now develop and execute steady-state campaign plans and commanders, Air Force forces (COMAFFORs), develop and execute steady-state campaign support plans. Both plans "operationalize" a commander's strategy. Even though fighting and winning the nation's wars remains the primary justification for standing and capable military forces, these same forces share in the responsibility to shape the operational environment, deter aggression, and prevent conflict. Airmen should be as proficient in steady-state operations as they are in conducting contingency and crisis operations.

The military engagement, security cooperation, and deterrence portion of the ROMO is increasingly referred to in DOD publications as the "steady state." Although DOD has not formally defined this term, the Air Force describes it as "a stable condition involving continuous and recurring operations and activities with simultaneous absence of major military, crisis response, and contingency operations. The steady state is characterized by shaping operations and activities at a relatively low level of intensity, urgency, and commitment of military forces."

The steady state is synonymous with shaping, and is designed to influence the environment in order to prevent and deter future conflict; mitigate operational risks associated with combat; and strengthen United States and partner capabilities to respond to major operations, campaigns, and contingencies. From the Airman's perspective, the focus of steady-state operations is to support the combatant commander's (CCDR's) steady-state campaign plan.

The term "steady state" also provides context and relevance for the many Airmen who conduct operations on a daily basis, not just during crises. Such Airmen include air mobility personnel performing intertheater airlift; space and cyberspace operators in the performance of global requirements; missileers and bomber crews on nuclear alert; Air National Guardsmen performing air defense alert; and intelligence, surveillance, and reconnaissance operators maintaining worldwide situational awareness. The daily

contributions of these and other Airmen are just as important as the contributions of Airmen in periods of crisis.

Refer to Annex 3-0, *Operations and Planning*, for discussion of Air Force planning, execution, and assessment in support of steady-state operations.

CHAPTER FOUR: THE PRINCIPLES OF JOINT OPERATIONS

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The military student does not seek to learn from history the minutiae of method and technique. In every age these are influenced by the characteristics of weapons currently available and the means at hand for maneuvering, supplying, and controlling combat forces. But research does bring to light those fundamental principles, and their combinations and applications, which, in the past, have produced success.

— General Douglas MacArthur

The role of the Air Force is to defend the United States and protect its interests through airpower, guided by the principles of joint operations and the tenets of airpower. Airmen should understand these fundamental beliefs as they apply to operations across all domains, not just air, space, and cyberspace. This section introduces these principles, with links to full discussion of each item.

THE PRINCIPLES OF JOINT OPERATIONS

In conducting contemporary operations, commanders generally consider 13 broad principles collectively known as "the principles of joint operations." They combine the long-standing principles of war with four additional principles of operations[1] developed through experience in irregular warfare. Both sets of principles are described below.

THE PRINCIPLES OF WAR

Throughout the history of conflict, military leaders have noted certain principles that tended to produce military victory. Known as the principles of war, they are those aspects of warfare that are universally true and relevant. As members of the joint team, Airmen should appreciate how these principles apply to all forces, but should most fully

[1] Joint doctrine recognizes three additional principles. The Air Force recognizes Unity of Effort as a fourth additional principle to better highlight its importance.

understand them as they pertain to Air Force forces. Airpower, no matter which Service operates the systems and no matter which type of platform is used, provides unique capabilities.

Valid principles, despite how deeply they are held, are no substitute for sound, professional judgment; however, ignoring them completely assumes unnecessary risk. The complexity of war in general, and the unique character of each war in particular, preclude commanders from using these principles as a checklist to guarantee victory. Rather, they serve as valuable guides to evaluate potential courses of action. The principles are independent, but tightly fused in application. No one principle should be considered without due consideration of the others. These principles are not all-inclusive; the art of developing airpower strategies depends upon the Airman's ability to view these principles from a three-dimensional perspective and integrate their application accordingly. The principles of war, combined with the additional tenets of airpower discussed elsewhere, provide the basis for a sound and enduring doctrine for the air, space, and cyberspace forces of America's joint force.

The principles of war are:

- ✪ Unity of Command
- ✪ Objective
- ✪ Offensive
- ✪ Mass
- ✪ Maneuver
- ✪ Economy of Force
- ✪ Security
- ✪ Surprise
- ✪ Simplicity

ADDITIONAL PRINCIPLES OF OPERATIONS

In addition to the traditionally-held principles of war, an additional set of principles has been developed as a result of experience in contingency operations. These were first cast as "principles of military operations other than war" and later as "the political dimension of smaller-scale contingencies." A distinguishing characteristic of such operations has been the degree to which political objectives influence operations and tactics. (Note that joint doctrine does not contain unity of effort as an additional principle.)

These additional principles are:

- ✪ Unity of Effort
- ✪ Restraint
- ✪ Perseverance
- ✪ Legitimacy

UNITY OF COMMAND

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"Unity of command" is one of the principles of war.

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. Airpower's operational-level perspective calls for unity of command to gain the most effective and efficient application. Coordination may be achieved by cooperation; it is, however, best achieved by vesting a single commander with the authority and the capability to direct all force employment in pursuit of a common objective. In many operations, the wide-ranging interagency and nongovernmental organizations involved may dilute unity of command. Effective information-sharing arrangements may preserve unity of effort to ensure common focus and mutually supporting actions.

Unity of command is vital in employing airpower. Airpower is the product of multiple capabilities, and centralized control is essential to effectively fuse these capabilities and provide unity of command.

OBJECTIVE

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"Objective" is one of the principles of war.

The principle of objective is to direct military operations toward a defined and attainable objective that contributes to strategic, operational, and tactical aims. In application, this principle refers to unity of effort in purpose, space, and time. In a broad sense, this principle holds that political and military goals should be complementary and clearly articulated. A clear National Military Strategy provides focus for defining campaign or theater objectives. At the operational level, campaign or theater objectives determine military priorities.

> *Air operations, like any other military operations, are governed by the same fundamental principles that have governed warfare in the past. The selection of the objectives against which air operations are to be directed is thus of vital importance. Air operations must be pushed with energy and dispatch. Every opportunity must be seized to take full advantage of the element of surprise. Since the replacement of the personnel and equipment of air forces is both slow and costly, economy of force is specially important. Whereas it is always unwise to fritter away military forces, it is dangerous in the case of air forces. Air forces should accordingly be concentrated against the primary objective, the one most advantageous in the situation, and not dispersed or dissipated in minor or secondary operations.*
>
> — Training Regulation 440-15, "*Employment of the Air Forces of the Army*," 1935

The objective is important due to the flexibility and versatility of airpower. From the outset, airpower can pursue tactical, operational, or strategic objectives, in any combination, or all three simultaneously. By integrating the potential offered by air, space, and cyberspace capabilities, Airmen can overcome the challenges imposed by distance and time. From an Airman's perspective, then, the principle of objective shapes priorities to allow airpower to concentrate on theater or campaign priorities and seeks to avoid the siphoning of force elements to fragmented objectives.

OFFENSIVE

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“Offensive” is one of the principles of war.

The purpose of an offensive action is to seize, retain, and exploit the initiative. The offensive aim is to act rather than react and to dictate the time, place, purpose, scope, intensity, and pace of operations. The initiative should be seized as soon as possible. The principle of the offensive holds that offensive action, or initiative, provides the means for joint forces to dictate operations. Once seized, the initiative should be retained and fully exploited.

This principle is particularly significant to airpower because it is best used as an offensive weapon. While defense may be dictated by the combat situation, success in war is generally attained only while on the offensive. Even highly successful defensive air campaigns such as the World War II Battle of Britain were based upon selective offensive engagements.

The speed and range of attacking airpower gives it a significant offensive advantage over other forces. In an air attack, for example, the defender often requires more forces to defend a given geospatial area than the attacker requires to strike a set of specific targets. The integration of air, space, and cyberspace capabilities enhances the advantages of speed, range and persistence found in airpower.

Although all military forces have offensive capabilities, airpower’s ability to mass and maneuver, and its ability to operate independently or simultaneously at the tactical, operational, and/or strategic levels of war, provides joint force commanders (JFCs) a resource with global reach to directly and rapidly seize the initiative. Whether deploying forces and supplies into a region, conducting combat operations, or maintaining information assurance, airpower provides the JFC the means to take the offensive. Through prompt and sustained offensive actions designed to attain operational and strategic objectives, airpower causes the enemy to react rather than act, denies them the offensive, and shapes the remainder of the conflict.

MASS

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"Mass" is one of the principles of war.

The purpose of mass is to concentrate the effects of combat power at the most advantageous place and time to achieve decisive results. Concentration of military power is a fundamental consideration in all military operations. At the operational level of war, this principle suggests that superior, concentrated combat power is used to achieve decisive results.

Airpower is singularly able to launch an attack from widely dispersed locations and mass combat power at the objective, whether that objective is a single physical location or a widely dispersed enemy system or systems. From an Airman's perspective, mass is not based solely on the quantity of forces and materiel committed. Airpower achieves mass through effectiveness of attack, not just overwhelming numbers. Contemporary airpower has altered the concept of massed forces. The speed, range, and flexibility of airpower—complemented by the accuracy and lethality of precision weapons and advances in information technologies—allow it to achieve mass faster than other forces.

Air Force cyberspace capabilities, often enabled by space systems, allow dispersed forces to collaborate to rapidly find, fix, track, and target fleeting targets and mass a response in new ways. Previously, operators and planners worked in relative proximity within the same theater of operations; today, those same planners and operators leverage distributed capabilities to apply precise effects around the globe.

Airlift and air refueling provide a significant and critical capability to mass lethal and nonlethal forces on a global scale. The capability of airpower to act quickly and mass effects, along with its capability to mass other lethal and nonlethal military power, combine the principle of mass with the principle of maneuver.

MANEUVER

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“Maneuver” is one of the principles of war.

Maneuver places the enemy in a position of disadvantage through the flexible application of combat power in a multidimensional combat space. Airpower’s ability to conduct maneuver is not only a product of its speed and range, but also flows from its flexibility and versatility during the planning and execution of operations. Maneuver, like the principle of offensive, forces the enemy to react, allowing the exploitation of successful friendly operations and reducing friendly vulnerabilities. Airpower maneuver allows engagement anywhere, from any direction, at any time, forcing the adversary to be on guard everywhere.

The principle of maneuver is not limited to simple weapons delivery. **Maneuver may involve the strategic positioning of capabilities that bring potential airpower to bear within striking distance of potential or actual adversaries.** Forward deployment of airpower assets is one example of maneuver that, by its very presence, can reassure allies and deter aggressors. Also, in airlift operations such as SUPPORT HOPE in Rwanda, PROVIDE HOPE in the former Soviet Union, or PROVIDE PROMISE in Bosnia; focused civil-military operations and exercises that support theater security cooperation goals, such as PACIFIC ANGEL; or combat operations such as ALLIED FORCE in Serbia, ENDURING FREEDOM in Afghanistan, or IRAQI FREEDOM in Iraq, airpower has played a critical role in American national security by providing unmatched maneuverability. Whether it involves airlift or attack aircraft, in small or large numbers, the versatility and responsiveness of airpower allow the simultaneous application of mass and maneuver.

ECONOMY OF FORCE

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“Economy of force” is one of the principles of war.

Economy of force is the judicious employment and distribution of forces. Its purpose is to allocate minimum essential resources to secondary efforts. This principle calls for the rational use of force by selecting the best mix of air, space, and cyberspace capabilities. To ensure overwhelming combat power is available, maximum effort should be devoted to primary objectives. At the operational level of war, commanders ensure that any effort made towards secondary objectives does not degrade achievement of the larger operational or strategic objectives. This principle requires Airmen to maintain a broader operational view even as they seek to obtain clearly articulated objectives and priorities.

Economy of force may require a commander to establish a balance in the application of airpower between attacking, defending, delaying, or conducting other operations such as information operations, depending on the importance of the area or the priority of the objective or objectives. Also, priorities may shift rapidly; friendly troops in contact might drive a change in priority from one type of mission (e.g., interdiction) to another (e.g., close air support). Although this principle suggests the use of overwhelming force in one sense, it also recommends guarding against the “overkill” inherent in the use of more force than reasonably necessary. This is particularly relevant when excessive force can diminish the legitimacy and support for an operation.

SECURITY

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"Security" is one of the principles of war.

The purpose of security is to never permit the enemy to acquire unexpected advantage. Friendly forces and their operations should be protected from enemy action that could provide the enemy with unexpected advantage. The lethal consequences of enemy attack make the security of friendly forces a paramount concern.

Critical to security is the understanding that it embraces physical security, operations security, and security of the information environment. Information has always been part of air, land, and sea warfare; now, with the proliferation of advanced communications and computer technologies, it becomes even more central to the outcome of a conflict.

Aircraft are most vulnerable on the ground. Thus, force protection is an integral part of airpower employment. Fixed bases are especially vulnerable as they not only should withstand aerial, ground, and cyberspace attacks, but should also sustain concentrated and prolonged air, space, and cyberspace activities against the enemy.

From an Airman's perspective, **security also may be obtained by staying beyond the enemy's reach, physically and virtually.** Airpower is uniquely suited to capitalize on this through its ability to operate over the horizon. Not only can airpower reach and strike at extended range, but it also can distribute data and analysis as well as command and control across a worldwide span.

Security from physical and electronic enemy intrusion conceals our capabilities and intentions, while allowing friendly forces the freedom to gather information on the adversary—the type of information that creates the opportunity to strike the enemy where least expected. By exploiting the vertical mediums of air and space, Airmen provide security for our nation and friendly forces by detecting enemy actions and determining intentions even in denied areas.

Commanders have an obligation to protect their forces, but the threat and the means for countering it are quite different in contingency operations. The threat varies depending on local circumstances, but the commander must be aware that it always exists. Although US forces have a right to self-defense, Airmen must bear in mind the concepts of necessity and proportionality when exercising that right (as discussed in the standing rules of engagement). **Necessity** exists when a hostile act occurs or when a force

demonstrates hostile intent; use of force is then authorized while the force continues to commit hostile acts or exhibit hostile intent. **Proportionality** means the use of force should be sufficient to respond decisively, and may exceed the means and intensity of the hostile act/intent, but the nature, duration and scope of force should not exceed what is required.

The concepts of necessity and proportionality as applicable to self-defense should not be confused with those of military necessity and proportionality as applicable in the law of armed conflict, which together seek to minimize collateral damage during offensive or defensive operations during armed conflict. Indeed, the defense of friendly forces against enemy attack during armed conflict would not (subject to prevailing ROE) involve the concept of self-defense at all.

SURPRISE

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“Surprise” is one of the principles of war.

Surprise leverages the principle of security by attacking the enemy at a time, place, or in a manner for which they are not prepared. The speed and range of air, space, and cyberspace capabilities, coupled with their flexibility and versatility, allow air forces to achieve surprise more readily than other forces. The final choice of timing and tactics rests with the air component commander because terrain and distance are not inhibiting factors.

Surprise is one of airpower’s strongest advantages. Operation EL DORADO CANYON (the US raid on Libya) and the opening day of the air campaign during Operation DESERT STORM highlight examples where airpower achieved surprise.

Airpower can enhance and empower other forces to achieve surprise as well. The rapid global reach of airpower can enable surface forces to reach foreign destinations quickly, thus seizing the initiative through surprise.

SIMPLICITY

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“Simplicity” is one of the principles of war.

Simplicity calls for avoiding unnecessary complexity in organizing, preparing, planning, and conducting military operations. Simplicity ensures that guidance, plans, and orders are as simple and direct as the objective allows. Simple guidance allows subordinate commanders the freedom to operate creatively within their portion of the operational environment, supporting the concept of decentralized execution. Common equipment, a common understanding of Service and joint doctrine, and familiarity with procedures through joint exercises and training, can help overcome complexity. Straightforward plans, unambiguous organization, and clearly-defined command relationships are central to reducing complexity as well.

UNITY OF EFFORT

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"Unity of effort" is one of the "additional principles of operations."

Often the military is not the sole, or even the lead, agency in contingency operations. Some operations are, by their nature, predominantly military. In most situations, however, the military will likely be one agency of many. As is especially common in stability operations, military forces often find themselves supporting the other instruments of national power. While unity of command is critical within the military forces, most of these operations demand unity of effort among a wide range of agencies to ensure that they coordinate their resources and focus on the same goal.

Unity of effort becomes critical during interagency operations and can best be achieved through consensus building. Whereas the main effort in military planning is on developing courses of action, the main effort in interagency planning should be to develop a shared, detailed understanding of the situation. This allows the various agencies to better understand how they can best apply their respective capabilities and measure success.

RESTRAINT

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"Restraint" is one of the "additional principles of operations."

Restraint is the disciplined application of military force appropriate to the situation. Commanders should recognize that in some types of operations, use of more force than the minimum that is reasonably necessary (even though under or at the maximum permissible) may lead to escalation to a higher intensity conflict; could adversely affect efforts to gain or maintain legitimacy; and may impede the attainment of both short- and long-term goals.

Air component commanders should begin developing a force structure by outlining the necessary capabilities needed for an operation and then follow up by deploying the appropriate "tailored" air, space, and cyberspace force mix. In order to maintain effective security while also exercising restraint, commanders should develop very clear rules on the use of force and rules of engagement (ROE). ROE for contingency operations often are more restrictive, detailed, and sensitive to political concerns than in sustained combat operations. Moreover, these rules may change frequently during operations. For all operations, Airmen should understand that restraint in the use of force is appropriate and more easily justified. However, restraint does not preclude the ability to use armed force, both lethal and nonlethal, when necessary in self-defense.

PERSEVERANCE

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"Perseverance" is one of the "additional principles of operations."

The principle of perseverance encompasses the patient, resolute, and persistent pursuit of national goals and objectives, for as long as necessary to achieve them. Some contingency operations involve a one-time occurrence or a short-term operation to maintain stability until local authorities can take over. Many missions, however, especially peace operations and building partner capacity, require a long-term commitment. The United States should be prepared to stay involved in a region for a protracted time in order to achieve its strategic goals. Complex problems often cannot be solved quickly; if a situation has been building for a long time, it may take the same amount of time or longer to resolve it. With this in mind, objectives should be established for the conditions under which forces may leave, rather than simply by a timetable for departure.

LEGITIMACY

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"Legitimacy" is one of the "additional principles of operations."

In order to reduce the threat to US forces and to enable them to work toward their objective, the United States should be viewed as a legitimate actor in the mission, working towards multi-lateral interests including our own. While legitimacy is principally generated by US political leadership, legitimacy in the eyes of the host nation or target population could be affected more by the actions of the military. One key means of promoting legitimacy for certain types of contingency operations is through robust and effective military public affairs operations. Commanders should work closely with the host-nation government (if, in fact, there is one) at all levels to help preserve and foster the sense of legitimacy of mission.

CHAPTER FIVE: THE TENETS OF AIRPOWER

Last Updated: 27 Feb 2015

The flexibility of an air force is indeed one of its dominant characteristics. … Given centralized control of air forces, this flexibility brings with it an immense power of concentration which is unequaled in any other form of warfare.

— Air Chief Marshal Sir Arthur Tedder

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.**

The tenets of airpower are:

- Centralized Control and Decentralized Execution
- Flexibility and Versatility
- Synergistic Effects
- Persistence
- Concentration
- Priority
- 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.

CENTRALIZED CONTROL AND DECENTRALIZED EXECUTION

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The tenet of centralized control and decentralized execution is critical to effective employment of airpower. Indeed, they are the fundamental organizing principles for airpower, having been proven over decades of experience as the most effective and efficient means of employing it. It enables the principle of mass while maintaining economy of force. **Because of airpower's unique potential to directly affect the strategic and operational levels of war, it should be controlled by a single Airman who maintains the broad, strategic perspective necessary to balance and prioritize the use of a powerful, highly desired yet limited force.** A single air component commander, focused on the broader aspects of an operation, can best balance or mediate urgent demands for tactical support against longer-term strategic and operational requirements. The ability to concentrate the air effort to fulfill the highest priorities for effects and to quickly shift the effort can only be accomplished through centralized control. On the other hand, the flexibility to take advantage of tactical opportunities and to effectively respond to shifting local circumstances can only be achieved through decentralized execution.

This tenet is best appreciated as a general philosophy for the command and control (C2) of airpower. The construct of centralized control is an encapsulation of a hard-learned truth: that control of a valuable yet scarce resource (airpower) should be commanded by a single Airman, not parceled out and hardwired to subordinate surface echelons as it was prior to 1943. Tied to this fundamental truth is the recognition that no single Airman is capable of making all decisions, and should thus empower subordinates to respond in accordance with senior leader intent.

Centralized control should be accomplished by an Airman at the functional component commander level who maintains a broad focus on the joint force commander's (JFC's) objectives to direct, integrate, prioritize, plan, coordinate, and assess the use of air, space, and cyberspace assets across the range of military operations. Centralized control may be manifest at different levels within a combatant command depending on how the air component(s) is (are) organized and the nature of the supporting C2 architecture (functional or geographic). [1] Also, due to the dynamics of the operational environment, control over some capabilities may, over time, shift up or down the command chain according to changes in priorities.

[1] For example, with a geographic architecture, control over some capabilities may be exercised at levels below the COMAFFOR, as discussed in the theater air ground system section in Annex 3-03, *Counterland Operations*.

Centralized control empowers the air component commander to respond to changes in the operational environment and take advantage of fleeting opportunities, and embodies the tenet of flexibility and versatility. Some would rather this be just "centralized planning and direction." From an Airman's perspective, "planning and directing" do not convey all aspects of control implied in "centralized control," which maximizes the flexibility and effectiveness of airpower. Centralized control is thus pivotal to the determination of continuing advantage. **However, it should not become a recipe for micromanagement, stifling the initiative subordinates need to deal with combat's inevitable uncertainties.**

Command and control is a continuum between direct control and total autonomy. Wise commanders should carefully analyze the situation and select the most appropriate method of control of their assigned and attached forces. Centralized execution authority for selected sensitive missions or tasking a unit to directly support another particular unit may be appropriate for a given operation or specific period of time. Nevertheless, the central tenet of centralized control coupled with decentralized execution authority remains the doctrinal gold standard for efficient employment of airpower.

Senior leaders should resist the temptation to make tactical-level decisions that are best left to subordinate commanders and forward decision makers. Communications now enable use of the "thousand mile screwdriver," but the most forward commander or tactical decision maker usually has the best information on the immediate situation. Overuse of the "thousand mile screwdriver" can breed a lack of initiative in the forward commander, with a resultant inability to act in the face of adversary tactics that may, for example, cut off communication with the COMAFFOR and AOC.

In general, once a sortie has been tasked through the air tasking order, a COMAFFOR and AOC staff should not normally get involved in how the mission is executed. While the AOC may have planned most of the enabling details and provided the operational constraints, the operational unit accomplishes the detailed mission planning and selection of tactics necessary to successfully meet mission tasking.

The challenge is most apparent when a decision is made to retask or even re-role a mission. The COMAFFOR balances JFC-directed priorities against an unplanned but higher priority need, such as prosecution of a designated high-value and time-sensitive target. In such instances, the COMAFFOR and AOC may have information not readily available to the mission commander and it will be appropriate to perform much of the mission planning and coordination required to successfully prosecute the target.

Decentralized execution is defined as the "delegation of authority to designated lower-level commanders" and other tactical-level decision makers to achieve effective span of control and to foster disciplined initiative and tactical flexibility. It allows subordinates, all the way down to the tactical level, to exploit situational responsiveness and fleeting opportunities in rapidly changing, fluid situations. The benefits inherent in decentralized execution, however, are maximized only when a commander clearly communicates intent and subordinate commanders frame their actions accordingly.

Centralized control and decentralized execution of airpower provide broad global or theater-wide focus while allowing operational flexibility to meet military objectives. They assure concentration of effort while maintaining economy of force. They exploit airpower's versatility and flexibility to ensure that it remains responsive, survivable, and sustainable.

Execution should be decentralized within a C2 architecture that exploits the ability of front-line decision makers (such as strike package leaders, air battle managers, forward air controllers) to make on-scene decisions during complex, rapidly unfolding operations. Modern communications technology may tempt commanders to take direct control of distant events and override the decisions of forward leaders, even when such control is not operationally warranted. This should be resisted at all costs in all functional components—not just air. Despite impressive gains in data exploitation and automated decision aids, a single person cannot, with confidence, achieve and maintain detailed situational awareness over individual missions when fighting a conflict involving many simultaneous engagements taking place throughout a large area, or over individual missions conducted in locally fluid and complex environments.

There may be some situations where there may be valid reasons for control of specific operations at higher levels, most notably when the JFC (or perhaps even higher authorities) may wish to control strategic effects, even at the sacrifice of tactical efficiency. However, such instances should be rare, as in the short notice prosecution of high-value, time-sensitive targets, or when the operational climate demands tighter control over selected missions due to political sensitivities, such as the potential for collateral damage or mistargeting, or in the case of nuclear employment. In all cases, senior commanders balance overall campaign execution against the pressing need for tactical effectiveness. **As long as a subordinate's decision supports the superior commander's intent and meets campaign objectives, subordinates should be allowed to take the initiative during execution.**

FLEXIBILITY AND VERSATILITY

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Although often used interchangeably, flexibility and versatility are different.

- **Flexibility allows airpower to exploit mass and maneuver simultaneously.** Flexibility allows airpower to shift from one campaign objective to another, quickly and decisively; to "go downtown" on one sortie, then hit fielded enemy forces the next; to re-role assets quickly from a preplanned mission to support an unanticipated need for close air support of friendly troops in contact with enemy forces.

- **Versatility is the ability to employ airpower effectively at the strategic, operational, and tactical levels of war and provide a wide variety of tasks in concert with other joint force elements.** Airpower has the potential to achieve this unmatched synergy through asymmetric and parallel operations. Space and cyberspace capabilities are especially able to simultaneously support multiple taskings around the globe and support tasks at all levels of warfare.

> *Air forces can be switched from one objective to another. They are not committed to any one course of action as an army is, by its bulk, complexity, and relatively low mobility. While their action should be concentrated, it can be quickly concentrated afresh against other objectives, not only in a different place, but of a different kind.*
>
> — B.H. Liddell Hart

SYNERGISTIC EFFECTS

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The proper application of a coordinated force across multiple domains can produce effects that exceed the contributions of forces employed individually. The destruction of a large number of targets through attrition warfare is rarely the key objective in modern war. Instead, the objective is the precise, coordinated application of the various elements of airpower and surface power to bring disproportionate pressure on enemy leaders to comply with our national will (affecting their intent) or to cause functional defeat of the enemy forces (affecting their capability). Airpower's ability to observe adversaries allows joint force commanders to counter enemy movements with unprecedented speed and agility. Airpower is unique in its ability to dictate the tempo and direction of an entire warfighting effort regardless of the scale of the operation.

PERSISTENCE

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Air, space, and cyberspace operations may be conducted continuously against a broad spectrum of targets. **Airpower's exceptional speed and range allow its forces to visit and revisit wide ranges of targets nearly at will.** Airpower does not have to occupy terrain or remain constantly in proximity to areas of operation to bring force upon targets. Space forces in particular hold the ultimate high ground, and as space systems continue to advance and proliferate, they offer the potential for persistent overhead access; unmanned aircraft systems offer similar possibilities from the atmosphere.

Examples of persistent operations might be maintaining a continuous flow of materiel to peacetime distressed areas; Air Force intelligence, surveillance, and reconnaissance capabilities monitoring adversaries to ensure they cannot conduct actions counter to those agreed upon; assuring that targets are kept continually out of commission; or ensuring that resources and facilities are denied an enemy or provided to an ally during a specified time. The end result would be to deny the opponent an opportunity to seize the initiative and to directly accomplish assigned tasks.

Factors such as enemy resilience, effective defenses, or environmental concerns may prevent commanders from quickly attaining their objectives. However, for many situations, airpower provides the most efficient and effective means to attain national objectives. Commanders must persist in the conduct of operations and resist pressures to divert resources to other efforts unless such diversions are vital to attaining theater goals or to survival of an element of the joint force. Given sufficient time, even the most devastating strategic effects can be circumvented by resourceful enemies; the goal is to keep pressure on and not allow the enemy that time.

CONCENTRATION

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One of the most constant and important trends throughout military history has been the effort to concentrate overwhelming power at the decisive time and place. The principles of mass and economy of force deal directly with concentrating overwhelming power at the right time and the right place (or places). **The versatility of airpower with its lethality, speed, and persistence makes it an attractive option for many tasks.** With capabilities as flexible and versatile as airpower, the demand for them often exceeds the available forces and may result in the fragmentation of the integrated airpower effort in attempts to fulfill the many demands of the operation. Depending on the operational situation, such a course of action may court the triple risk of failing to achieve operational-level objectives, delaying or diminishing the attainment of decisive effects, and increasing the attrition rate of air forces—and consequently risking defeat. **Airmen should guard against the inadvertent dilution of airpower effects resulting from high demand.**

PRIORITY

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Commanders should establish clear priorities for the use of airpower. Due to its inherent flexibility and versatility, the demands for airpower may likely exceed available resources. If commanders fail to establish priorities, they can become ineffective. Commanders of all components need to effectively prioritize their requirements for coordinated airpower effects to the joint force commander (JFC), and only then can effective priorities for the use of airpower flow from an informed dialogue between the JFC and the air component commander. The air component commander should assess the possible uses of component forces and their strengths and capabilities to support the overall joint campaign. Limited resources require that airpower be applied where it can make the greatest contribution to the most critical current JFC requirements. The application of airpower should be balanced among its ability to conduct operations at all levels of war, often simultaneously. The principles of mass, offensive, and economy of force, the tenet of concentration, and the Airman's strategic perspective all apply to prioritizing airpower.

BALANCE

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Balance is an essential guideline for air commanders. **Much of the skill of an air component commander is reflected in the dynamic and correct balancing of the principles of joint operations and the tenets of airpower to bring Air Force capabilities together to produce synergistic effects.** An air component commander should balance combat opportunity, necessity, effectiveness, efficiency, and the impact on accomplishing assigned objectives against the associated risk to friendly forces.

An Airman is uniquely—and best—suited to determine the proper theater-wide balance between offensive and defensive air operations, and among strategic, operational, and tactical applications. Air, space, and cyberspace assets are normally available only in finite numbers; thus, balance is a crucial determinant for an air component commander.