

CHAPTER THREE

PRINCIPLES AND TENETS

Every art has its rules and maxims. One must study them: theory facilitates practice. The lifetime of one man is not 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 through the mistakes of others.

—Frederick the Great



The role of the Air Force is to defend the United States and protect its interests through air and space power, guided by the principles of war and the tenets of air and space power. Airmen must understand these fundamental beliefs as they apply to operations in the air, space, and information realms. This chapter presents these principles and tenets.

PRINCIPLES OF WAR

Throughout the history of conflict, military leaders have noted certain principles that tended to produce military victory. From ancient times to today, certain “truths” of warfare have emerged. Known as **the principles of war, they are “those aspects of warfare that are universally true and relevant”** (JP 1). As members of the joint team, airmen should appreciate how these principles apply to all forces, but must fully understand them as they pertain to air and space forces. Air and space forces, no matter which Service operates the systems and no matter which type of platform is used, provide unique capabilities through operations in the third dimension. The principles of war—**unity of command, objective, offensive, mass, maneuver, economy of force, security, surprise, and simplicity**—are guidelines that commanders can use to form and select courses of action and concepts of operation.



Principles of war have governed conflicts since earliest times.

These principles, listed in Figure 3.1, represent generally accepted “truths” which have proven to be effective throughout history. Of course, even **valid principles are no substitute for sound, professional judgment—but to ignore them completely is to assume 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.

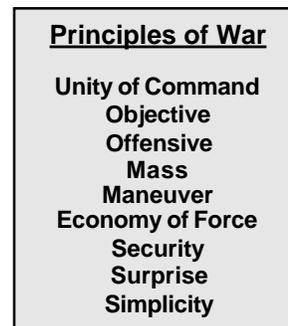


Figure 3.1. Principles of War

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 air and space 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 air and space power discussed later in this chapter, provide the basis for a sound and enduring doctrine for the air and space forces of America’s joint force.

UNITY OF COMMAND

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. Air and space power’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 to direct all force employment in pursuit of a common objective. The essence of successful operations is a coordinated and cooperative effort toward a commonly understood objective. In many operations, the wide-ranging interagency and nongovernmental organization operations involved may dilute unity of command; nevertheless, a unity of effort must be preserved to ensure common focus and mutually supporting actions.

Unity of command is vital in employing air and space forces. Air and space power is the product of multiple capabilities, and centralized command and control is *essential* to effectively fuse these

capabilities. Airmen best understand the entire range of air and space power. The ability of airpower to range on a theater and global scale imposes theater and global responsibilities that can be discharged only through the integrating function of centralized control under an airman. That is the essence of unity of command and air and space power.

Objective

The principle of objective is concerned with **directing 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. Success in military operations demands that all efforts be directed toward the achievement of tactical, operational, and ultimately, strategic, aims. In a broad sense, this principle holds that **political and military goals should be complementary and clearly articulated.** A clear NMS provides focus for defining campaign or theater objectives. At the operational level, campaign or theater objectives determine military priorities. It is important to consider the impact time and persistence have on attaining the objective. Short-term solutions to long-term problems must be avoided when defining the force's objectives.

The objective is important due to the versatility of air and space forces. From the outset, **air and space forces can pursue tactical, operational, or strategic objectives, in any combination, or all three simultaneously.** From an airman's perspective, then, the principle of objective shapes priorities to allow air and space forces to concentrate on theater or campaign priorities and seeks to avoid the siphoning of force elements to fragmented objectives.

Offensive

The purpose of an offensive action is to **seize, retain, and exploit the initiative.** Offensive is to act rather than react and dictates the time, place, purpose, scope, intensity, and pace of operations. The initiative must 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 battlespace operations. Once seized, the initiative should be retained and fully exploited.

This principle is particularly significant to air and space warfare because **air and space power 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.

Air and space forces are inherently offensive at the tactical level—even when employed in operational or strategic defense. Control of air and space is offensive in execution. History has generally shown that a well-planned and executed air attack is extremely difficult to stop. The speed and range of attacking air and space forces give them a significant offensive advantage over surface forces and even *defending* air and space forces. In an air attack, the defender often requires more forces to defend a given geospatial area than the attacker requires to strike a set of specific targets.

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 warfare, provides 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 providing information superiority over an enemy, air forces provide the JFC the means to take the offensive. From the beginning of an operation, air forces can seize the initiative by flying over enemy lines and around massed defenses to attack the enemy directly. Through prompt and sustained offensive actions designed to attain operational and strategic objectives, air forces cause the enemy to react rather than act, deny them the offensive, and shape the remainder of the conflict.

Mass

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, 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. From an airman's perspective, mass is not based solely on the quantity of forces and materiel committed. **Mass is an effect that air and space forces achieve through effectiveness of attack, not just overwhelming numbers**. Today's air and space forces have altered the concept of massed forces. The speed, range, and flexibility of air and space forces—complemented by the accuracy and lethality of precision weapons and advances in information



technologies—allow them to achieve mass faster than surface forces. In the past, hundreds of airplanes attacked one or two major targets each day. Massed bomber raids revisited targets often, intending their attacks to gradually attain cumulative operational- or strategic-level effects over time. Today, a single precision weapon that is targeted, based upon superior battlespace awareness, can often cause the destructive effect that took hundreds of bombs in the past. In an inversion of previous platform-to-target ratios, modern precision munitions now permit a single aircraft to confidently strike several targets. Emerging information warfare (IW) capabilities also present new opportunities to mass effects against critical targets.

Airlift and air refueling provide a significant and critical capability to mass lethal and nonlethal forces on a global scale. The rapid mobility of airlift enabled the airborne assault during Operation JUST CAUSE, which played a pivotal role in massing US forces in Panama. The capability of air forces to act quickly and mass effects, along with their capability to mass other lethal and nonlethal military power, combine the principle of mass with the next principle, maneuver.

Maneuver

Maneuver **places the enemy in a position of disadvantage** through the flexible application of combat power in a multidimensional combat space. Air and space power’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. The ability to quickly integrate a force and to strike directly at an adversary’s strategic or operational centers of gravity is a key theme of air and space power’s maneuver advantage. Air maneuver allows engagement anywhere, from any direction, at any time, forcing the adversary to be on guard everywhere.

Additionally, the principle of maneuver is not limited to simple weapons delivery. Airpower's global awareness, global reach, and global presence enabled the airlift operation in 1994 that provided combat power to deter Iraqi movements into Kuwait.

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.** Consider airlift operations such as SUPPORT HOPE in Rwanda, PROVIDE HOPE in the former USSR, or PROVIDE PROMISE in Bosnia, 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 diplomacy by providing unmatched maneuverability.

Economy of Force

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 and space power. To ensure overwhelming combat power is available, maximum effort should be devoted to primary objectives. At the operational level, commanders must 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 deception 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 excessive force. This is particularly relevant when excessive force can destroy the gaining or maintaining of legitimacy and support for an operation.

While this principle was well developed before the advent of airpower, it highlights precisely the greatest vulnerability of air and space power employment. The misuse or misdirection of air and space power can reduce

its contribution even more than enemy action. Ill-defined objectives can result in the piecemeal application of air and space forces with the resultant loss of decisive effects.

Security

The purpose of security is to **never permit the enemy to acquire unexpected advantage**. Friendly forces and their operations must 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. This principle also enhances our freedom of action by reducing the vulnerability of friendly forces. Gaining or maintaining control of the air, space, and information media provides friendly forces a significant advantage.

Air and space power is most vulnerable on the ground. Thus, force protection is an integral part of air and space power employment. Fixed bases are especially vulnerable as they not only must withstand aerial and ground attacks, but also must sustain concentrated and prolonged air activities against the enemy. This must be a particular focus of operations during peace support or crisis situations, when forces may operate from austere and unimproved locations, in small units, or in crowded urban settings and face threats to security from individuals and groups as well as possible military or para-military units. Security also may be obtained by staying beyond the enemy's reach. Air and space forces are uniquely suited to capitalize on this through their global capabilities. Not only can they reach and strike at extended range, but they also can distribute data and analysis as well as command and control across a worldwide span.

Security from 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 they will least expect it.



Security provides freedom from and to attack.

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

Surprise

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

Surprise is one of air and space power's strongest advantages. On 11 November 1940, Admiral Andrew Cunningham delivered a crushing air attack from the British aircraft carrier HMS *Illustrious* on the Italian naval base of Taranto. While the British lost 2 of 21 attacking aircraft, they left 3 battleships in sinking condition, 2 cruisers badly damaged, and 2 fleet auxiliaries sunk. The Japanese attack at Pearl Harbor, the US raid on Libya, and the opening day of the air campaign during DESERT STORM highlight other examples where airpower achieved resounding surprise.

Air and space forces can enhance and empower surface forces to achieve surprise. The rapid global reach of airpower also allows surface forces to reach foreign destinations quickly, thus seizing the initiative through surprise.

Simplicity

Military operations, especially joint operations, are often complex. Simplicity calls for **avoiding unnecessary complexity in organizing, preparing, planning, and conducting military operations**. This ensures that guidance, plans, and orders are as simple and direct as the objective will allow. Simple guidance allows subordinate commanders the freedom to operate creatively within their battlespace. Common equipment, a common understanding of Service and joint doctrine, and familiarity with procedures through joint exercises and training, can help overcome complexity. Straight-forward plans and unambiguous organizational and command relationships are central to reducing it.

TENETS OF AIR AND SPACE POWER

The application of air and space power 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 specific current understanding of the nature of air and space power. The tenets of air and space power, listed in Figure 3.2, complement the principles of war. **While the principles of war provide general guidance on the application of military forces, the tenets provide more specific considerations for air and space forces.** They reflect the specific lessons of air and space operations over history.



Figure 3.2. Tenets of Air and Space Power

The tenets state that air and space power:

- ✧ Should be centrally controlled and decentrally executed
- ✧ Is flexible and versatile
- ✧ Produces synergistic effects
- ✧ Offers a unique form of persistence
- ✧ Must achieve concentration of purpose
- ✧ Must be prioritized
- ✧ Must be balanced

As with the principles of war, 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 must accept the fact that **war is incredibly complicated and no two operations are identical. Commanders must apply their professional judgment and experience to the principles and tenets as they employ air and space power in a given situation.**

Centralized Control and Decentralized Execution

Centralized control and decentralized execution of air and space power are critical to effective employment of air and space power. Indeed, they are the fundamental organizing principles for air and space power, having been proven over decades of experience as the most effective and efficient means of employing air and space power. Because of air and space power's unique potential to directly affect the strategic and operational levels of war, it must 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 commander, focused on the broader aspects of an operation, can best mediate the competing demands for tactical support against the strategic and operational requirements of the conflict.

Centralized control of air and space power is the planning, direction, prioritization, synchronization, integration, and deconfliction of air and space capabilities to achieve the objectives of the joint force commander. Centralized control of air and space power should be accomplished by an airman at the air component commander level who maintains a broad theater perspective in prioritizing the use of limited air and space assets to attain established objectives in any contingency across the range of operations. Centralized control maximizes the flexibility and effectiveness of air and space power; however, it must not become a recipe for micromanagement, stifling the initiative subordinates need to deal with combat's inevitable uncertainties.

Decentralized execution of air and space power is the delegation of execution authority to responsible and capable lower-level commanders to achieve effective span of control and to foster disciplined initiative, situational responsiveness, and tactical flexibility. It allows subordinates to exploit opportunities in rapidly changing, fluid situations. The benefits inherent in decentralized execution, however, are maximized only when a commander clearly communicates his intent.



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 unequalled in any other form of warfare.

—Air Chief Marshal Sir
Arthur Tedder

During LINEBACKER II in December 1972, B-52s were to provide the main strike effort against targets in Hanoi and Haiphong. B-52s had been employed in the theater since 1965, but mainly against targets in South Vietnam. Although Strategic Air Command (SAC) retained control of the bombers, most of the mission planning was performed in theater by 8th Air Force at Guam. Thus, by the time LINEBACKER II commenced, they had developed tactics and procedures for employing B-52s in the regional threat environment, as was shown during operations in Spring 1972 to stem the North Vietnamese offensive. However, when LINEBACKER II started, complete responsibility for mission planning was handed to SAC headquarters in Nebraska; 8th Air Force planners simply arranged for air refueling and fighter support. The first night's strikes sent the B-52s into Hanoi in three waves, each one a linear string of three-ship cells, all using the same attack azimuth, altitude, and timing, and employing the same post-release turn into headwinds at the precise time the bombers were over the heaviest surface-to-air missile (SAM) defenses. To the amazement of the 8th Air Force planners, these tactics, reminiscent of World War II bombing raids, were again employed on the second and third nights. After heavy losses the third night, and after protests from the theater, mission planning was handed over to 8th Air Force at Guam, although HQ SAC still controlled the targets. In contrast to the earlier stereotyped attacks, subsequent strikes used multi-axis attacks so that all the packages were over the target areas at the same time. This not only reduced the time the bombers were exposed to enemy defenses, but also simplified the planning requirements for the supporting jamming, chaff, refueling, and WILD WEASEL packages. Even though more B-52s were lost during the remainder of LINEBACKER II, the overall loss rate was much lower than the opening nights.



Although the lessons of LINEBACKER II have been and continue to be debated, one element stands out: overcentralization of planning and execution by a staff far removed from the battle can be deleterious. In contrast to the 8th Air Force planners in theater, HQ SAC planners, although thoroughly familiar with nuclear weapons delivery tactics, were unfamiliar with the threat environment and did not have a full appreciation of the conventional weapons tactics available to B-52 crews. This example illustrates the axiom of passing responsibility for planning and execution down to the echelon best suited for the task.

Centralized control and decentralized execution of air and space power provide theater-wide focus while allowing operational flexibility to meet theater objectives. They assure concentration of effort while maintaining economy of force. They exploit air and space power's versatility and flexibility to ensure that air and space forces remain responsive, survivable, and sustainable.

Modern communications technology provides a temptation towards increasingly centralized execution of air and space power. Although several

recent operations have employed some degrees of centralized execution, such command arrangements will not stand up in a fully stressed, dynamic combat environment, and as such should not become the norm for all air operations. Despite impressive gains in data exploitation and automated decision aids, a single person cannot achieve and maintain detailed situational awareness when fighting a conflict involving many simultaneous engagements taking place throughout a large area. A high level of centralized execution results in a rigid campaign unresponsive to local conditions and lacking in tactical flexibility. For this reason, execution should be decentralized within a command and control architecture that exploits the ability of strike package leaders, air battle managers, forward air controllers, and other front-line commanders to make on-scene decisions during complex, rapidly unfolding operations. Nevertheless, in some situations, there may be valid reasons for execution 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.

Flexibility and Versatility

Air and space power is flexible and versatile. Although often used interchangeably, flexibility and versatility are different. **Flexibility** allows air and space forces to exploit mass and maneuver simultaneously. Flexibility allows air and space operations 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 rerole 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 air and space power effectively at the strategic, operational, and tactical levels of warfare. Air and space forces, unlike other military forces, have the potential to achieve this unmatched synergy through asymmetric and parallel operations.

Parallel operations are operations coordinated to occur simultaneously and continuously against a broad spectrum of targets. Used appropriately, parallel operations can generate sufficient force to overwhelm the enemy, resulting in paralysis that provides the leverage to dominate operations in all mediums. Properly planned and executed in parallel attacks, air and space power can attain effects which present the enemy with multiple crises occurring so quickly that there is no way to respond to all or, in some cases, any of them. Such a strategy places maximum stress on both enemy defenses and the enemy as a whole.

Synergistic Effects

Air and space power produces synergistic effects. The proper application of a coordinated force 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 air, space, and surface power to bring disproportionate pressure on enemy leaders to comply with our national will. Air and space power's overwhelming ability to observe adversaries allows us to counter their movements with unprecedented speed and agility. Air and space power is unique in its ability to dictate the tempo and direction of an entire warfighting effort from MOOTW through major conflict.

Persistence

Air and space power offers a unique form of persistence. Air, space, and information operations may be conducted continuously against a broad spectrum of targets. Air and space power's exceptional speed and range allow its forces to visit and revisit wide ranges of targets nearly at will. Air and space power 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 advance and proliferate, they offer the potential for "permanent presence" over any part of the globe; unmanned aerial vehicles (UAVs) are offering similar possibilities from the atmosphere. Examples of persistent operations might be maintaining a continuous flow of materiel to peacetime distressed areas; constantly 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, air and space operations provide the most efficient and effective means to attain national objectives. Commanders must persist in air and space 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,

Strategic air attack is wasted if it is dissipated piecemeal in sporadic attacks between which enemy has an opportunity to readjust defenses or recuperate.

—General H. H. “Hap” Arnold



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

Air and space power must achieve concentration of purpose. The versatility of air and space power makes it an attractive option for almost every combat task. Airmen must guard against the inadvertent dilution of air and space power effects resulting from high demand. 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). With forces as flexible and versatile as air and space forces, the demand for them will often exceed the available forces and may result in the fragmentation of the integrated air and space 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.

Priority

Air and space power must be prioritized. Demands for air and space forces (because of their flexibility and versatility) will likely overwhelm air commanders in future conflicts unless appropriate priorities are established. Only **theater-level** commanders of land and naval components can effectively prioritize their individual air and space support requirements to the JFC, and only then can effective priorities for the use of air and space forces flow from an informed dialogue between the

JFC and the air component commander. The air commander should assess the possible uses of his forces and their strengths and capabilities to support the overall joint campaign, air operations, and the battle at hand. Limited resources require that air and space forces be applied where they can make the greatest contribution to the most critical current JFC requirements. The application of air and space forces must be balanced among their abilities 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 air and space forces.

Balance

Air and space operations must be balanced. Balance is an essential guideline for air commanders. Much of the skill of an air commander is reflected in the dynamic and correct balancing of the principles of war and the tenets of air and space power to bring air and space power together to produce a synergistic effect. An air commander should balance combat opportunity, necessity, effectiveness, efficiency, and the impact on accomplishing assigned objectives against the associated risk to friendly air and space forces. An air commander is uniquely—and best—suited to determine the proper theaterwide balance between offensive and defensive operations, and among strategic, operational, and tactical applications. Commensurate with this capability is the air commander's responsibility to adequately communicate the intended effects of air and space power to the JFC and other component commanders, especially those schooled in surface operations. Technologically sophisticated air and space assets will be available only in finite numbers; thus, balance is a crucial determinant for an air commander.