AIR FORCE DOCTRINE PUBLICATION 3-0.1

COMMAND AND CONTROL

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Air Force Doctrine Publication 3-0.1, Command and Control

Table of Contents

FOREWORD

The most pressing objective for the United States Air Force (USAF) doctrine is to equip the Service with the intellectual tools necessary to prepare and posture for conflict in an era of great power competition. Towards this aim, in 2021 the USAF published its first new capstone doctrine in six years, Air Force Doctrine Publication (AFDP) 1, *The Air Force*. Recognizing the Service's increasingly centralized approach to operations was an ill fit for peer conflict, the most significant contribution of AFDP 1 was the addition of mission command as the central tenet of airpower. The adoption of mission command marked a necessary first step in a chain of progression that is spreading across USAF doctrine.

Initially introduced as the Airman's philosophy for the command and control (C2) of airpower, mission command was later refined in AFDP 1-1, *Mission Command*, as a philosophy of leadership that empowers Airmen to operate in uncertain, complex, and rapidly changing environments through trust, shared awareness, and understanding of commander's intent. While closely tied to C2, this more nuanced description draws on lessons learned from sister Services, whose adoption of mission command predates our own. Consequently, AFDP 1-1 focused on the fundamentals of mission command, principles, and the need for a Service culture that supports its practice.

Continuing this progression, AFDP 3-0.1, *Command and Control*, presents a comprehensive understanding of mission command as it is implemented through the framework of Centralized Command-Distributed Control-Decentralized Execution (CC-DC-DE). The implications of Distributed Control¹ are a dominant focus of this publication and differentiate this revision from previous examinations of C2 in USAF doctrine. Until now, USAF C2 doctrine detailed the role of the commander, Air Force forces (COMAFFOR), discussed force presentation and command relationships (COMREL), and detailed the distinct roles and responsibilities of organizations within an air operations center (AOC). These topics are now addressed in AFDP 3-0, *Operations*, or remain in their respective tactical source documents. In their place, this document presents entirely new content to depict the C2 function through its major elements: a commander that makes decisions, the framework for authority delegation, the activities of the C2 process, and the systems that enable the direction of forces.

By presenting C2 through this model, AFDP 3-0.1 forms a complete picture of mission command in action. It hones our understanding of Distributed Control by addressing the question, "What is distributed, to whom, and for what purpose?" Its answer: 1) authority, 2) subordinate commanders, and 3) to conduct the C2 process. This evolved approach to C2 is applicable to all USAF operations at every echelon of command.

¹ Throughout this publication, "Distributed Control" is capitalized for emphasis.

CHAPTER 1: COMMAND AND CONTROL OVERVIEW

Command and control is the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment

of a mission. C2 is one of the seven joint functions that represent a grouping of capabilities and activities that enable a joint force commander (JFC) to synchronize, integrate, and direct joint operations.² C2 is the central joint function because it affects and connects all other functions. It enables commanders to coordinate and apply the other functions (information, movement and maneuver, intelligence, fires, sustainment, and protection) to achieve objectives and accomplish their mission.



This publication articulates C2 in the context of mission command to enable the USAF to adapt its force presentation in response to great power competition (GPC) and facilitate joint all-domain operations (JADO). It provides a common language and characterization for C2 that is aligned with Distributed Control.

THE COMMAND AND CONTROL FUNCTION

Understanding C2 begins with examining its composition and definition. C2 means something different from the two words that form it. Individually, "command" and "control" describe **authorities** and responsibilities entrusted to a **commander**. In general, command is the authority and responsibility to lead an organization to accomplish a mission, and control is the authority that empowers a commander to employ forces to achieve that mission.

Together, "command and control" denotes the **act** of exercising authorities. Consequently, C2 encompasses a commander who exercises their authority, a method for delegating authorities, the process that translates decisions into actions, and the appropriate systems that enable the direction of forces.

- The commander is the core element of C2. This role is usually filled by the air component commander. The air component commander represents the centralization of command authority under the joint principle of unity of command.
- Authority delegation is guided by the framework of CC-DC-DE.
- The act of C2 is characterized by the C2 process. The C2 process consists of four major activities: planning, preparing, executing, and assessing. The C2 process captures many different processes and cycles that occur within the air component (e.g., the air tasking cycle, targeting cycle, and airlift cycle). Commanders conduct the C2 process to command and control assigned and attached forces and

² For additional information on joint functions, see Joint Publication (JP) 1, Volume 2, *The Joint Force*.

conduct operations.

C2 systems encompass all C2 resources, including the personnel, facilities, equipment, communications, and procedures essential for a commander to C2 forces pursuant to their assigned mission.

THE COMMANDER

The core element of C2 is the commander. Commanders use their authority to make decisions and direct action. For air operations, the air component commander has the authority, capability, and capacity to conduct the C2 process for assigned operations. They balance their time between leading their staffs through the C2 process and providing purpose, direction, and motivation to subordinate commanders and leaders.

THE AIR COMPONENT COMMANDER

The air component commander's operational authorities are delegated from the JFC and generally exercised as both the COMAFFOR over USAF forces and as the functional joint force air component commander (JFACC) over joint air forces made available for tasking. JFCs generally delegate the COMAFFOR operational control (OPCON) and the JFACC tactical control (TACON).

However, the authorities delegated to a JFACC by the JFC are not limited to those specified under the definitions of OPCON and TACON. JFACC's are typically given additional authorities such as airspace control authority (ACA), and responsibilities such as area air defense commander (AADC). Ultimately, the air component commander is delegated authorities by the JFC which makes them the focal point of airpower C2 by leading USAF forces as the COMAFFOR and joint air operations as the JFACC.³

DECISION CYCLE

Commanders drive the C2 process through understanding, visualizing, deciding, and directing in a continuous cycle. The commander uses this cycle to process information developed and refined throughout the C2 activities and subsequently provides decisions and directions that progress the C2 process. The decision cycle presented here is representative of other conceptual Boyd's as Colonel John models. such observeorient-decide-act (OODA) loop. Regardless of the specific model, the purpose of any decision cycle is to make decisions with advantageous speed.



Understand. Understanding is knowledge that has been synthesized and had judgment applied to comprehend the situation's inner relationships, enable decision-making, and drive action. Success in operations demands timely and effective decisions based on

³ For additional information on the air component commander, see JP 3-30, *Joint Air Operations*, and AFDP 3-0, *Operations*.

applying judgment to available information and knowledge. As such, commanders and staffs seek to build and maintain situational understanding throughout an operation.

Visualize. As commanders begin to understand their operational environment (OE), they start visualizing a desired end-state and potential solutions to solve or manage identified problems. Collectively, this is known as commander's visualization—the mental process of developing situational understanding, determining a desired end-state, and envisioning an operational approach by which the force will achieve that end-state. Commanders generally accomplish visualization during design activities.

Decide. Commanders make decisions. Timely decisions and actions are essential for effective C2. Commanders who demonstrate the agility to consistently make appropriate decisions faster than their opponents have a significant advantage by dictating the operational tempo and seizing initiative. Commanders use the inputs from the C2 activities and the other elements of the decision cycle to make decisions and provide direction that supports the C2 process.

Direct. Commanders communicate intent and provide direction to convert decisions into actions. The primary means for communicating direction are plans and orders. Communicating directions contributes to the mission command principle of building shared understanding among subordinates.

During the C2 process, commanders participate in staff work where it is necessary to guide their staffs. They use their situational understanding and commander's visualization to provide guidance from which their staffs produce plans and orders. In deciding when and where to direct subordinates, the key is for commanders to determine where they can best use their limited time to the greatest effect—where their personal intervention will pay the greatest dividend.

Battle Rhythm. Decision cycles occur at different speeds based on the event horizons for their respective operations. A battle rhythm integrates decision cycles together on a single time schedule to support the commander at the required speed.

The air component commander's battle rhythm is a logical arrangement of boards, centers, cells, and working groups or activities with a clearly defined purpose and outcome. The JFC establishes a battle rhythm for joint operations, and the air component commander and subordinate commanders nest their component battle rhythm as appropriate. At the theater-level, the AOC director and Air Force forces (AFFOR) chief of staff (COS) often collaborate to develop a synchronized battle rhythm to provide the commander a timeline for receiving critical information to establish set decision points.⁴ Similarly, subordinate echelons and units of action should create a battle rhythm, managed by the COS, to integrate Air Force Service component or unit staff (A-Staff) activities.

⁴ For additional information on battle rhythm and staff integration, see Appendix D and JP 3-33, *Joint Force Headquarters*.

COMMAND AND CONTROL FRAMEWORK

A C2 framework is the overarching approach to COMREL and authority delegation. The characteristics of the C2 framework influence the act of C2 and shape the structure of C2 systems. **The USAF C2 framework is CC-DC-DE.** It is an aspect of the overarching mission command philosophy.

CENTRALIZED COMMAND

Centralized command gives the commander the responsibility and authority for planning, directing, and coordinating USAF forces for joint operations. It facilitates the development and delivery of all-domain effects requiring broad perspective, coordination, and reach. This promotes effectiveness and preserves flexibility and versatility at the operational level while supporting the joint principle of unity of command. Unity of command means all forces **operate under a single commander** with the requisite authority to direct all forces employed **in pursuit of a common purpose.** The definition of unity of command helps frame centralized command in the USAF and supports the axiom "Airmen work for Airmen and the senior Airman works for the JFC."

While the air component commander may distribute control of USAF forces to subordinate commanders to conduct operations, overall command responsibility of USAF assets remains under a single Airman as expressed in the centralized command aspect of mission command and represented by the air component commander reporting directly to the JFC on matters of airpower.

Centralized command of airpower facilitates the integration and synchronization of global USAF capabilities that may originate from outside a combatant commander's (CCDR's) area of responsibility (AOR). The air component commander usually serves as the integrator for functional USAF forces from combatant commands (CCMDs) without a defined AOR (e.g., United States Transportation Command (USTRANSCOM), United States Strategic Command, United States Cyber Command). Therefore, centralized command requires specified COMREL and authority delegation to clearly define the role of the theater air component commander in the C2 of USAF forces.

Distributed Control Terminology

Colloquially, "control" is often used to describe actions such as a tactical air control party (TACP) managing close air support or an airborne warning and control system (AWACS) aircraft directing aircraft. However, this usage differs from the delegation of authority to commanders, as defined in JP 1, Vol 2, *The Joint Force*. **For operational doctrine, "control" relates to authority, rather than the activity of directing forces.** In this example, the AWACS and TACP are conducting battle management. For additional information on battle management, see the "Execution" topic in Chapter 2.

DISTRIBUTED CONTROL

Distributed Control is the delegation of specified authorities from the air component commander to subordinate commanders to C2 assigned operations (i.e., conduct the C2 process).

Distributed Control is accomplished according to an air component commander's design for C2 and the requirement to operate in contested, degraded, and operationally limited environments. It is not tied to a specific force structure. Instead, the authorities necessary to conduct the C2 process are delegated to subordinate commanders who have the authority, capability, and capacity to communicate, coordinate, and synchronize forces with the superior commander's intent. This reduces the vulnerabilities associated with centralized control while maintaining the air component commander's broad, theater-wide perspective.

Additionally, Distributed Control is not limited to the delegation of OPCON or TACON. It involves distributing the necessary portions of an air component commander's command authority to subordinate commanders to C2 their assigned operations. Therefore, the most effective method for distributing control may be specified in a written order utilizing the missiontype order (MTO) technique.⁵

As the USAF moves from "centralized control" to "Distributed Control" and embraces mission command, Airmen need to proliferate a standard suite of platforms and systems, scalable from the wing- to theater-level, that is interoperable with architectures in use by the joint force to enable commanders and staffs to execute the joint functions their mission requires.⁶



Conditions-based Authorities. Distributed Control may be enduring or temporary to allow execution at multiple echelons. Conditions-based authorities are authorities that are often limited in duration and identified in plans approved by authorized commanders to facilitate execution that meets commander's intent. Failure to provide a subordinate with sufficient authority to act may inadvertently encourage them to operate beyond limitations. Alternatively, providing a subordinate with authority that exceeds situation or mission requirements may result in chaotic, uncoordinated operations. Plans and orders should clearly delineate Distributed Control and conditions-based authorities.

⁵ For additional information on orders, see AFDP 1-1, *Mission Command*, and AFDP 5-0, *Planning*.

⁶ For additional information on C2 systems for Distributed Control, see Chapter 3.

Distributed Control Continuum. Distributed Control exists on a continuum between centralized control and increasingly Distributed Control. In general, the degree of distributed control (i.e., the number of echelons below the theater-level where authority is delegated to conduct the C2 process) is dependent on the OE and the capability and capacity of subordinate echelons to accomplish the entire C2 process. This also means the air component commander requires the necessary situational awareness to determine if subordinate echelons can conduct their assigned operations in the given OE. These factors are represented in the following figure, "Distributed Control Continuum."



Operations in contested, degraded, and operationally limited environments generally support authority delegation for the C2 process to dispersed locations at the lowest level to maintain the initiative. This allows subordinate commanders to respond to changes in the OE and exploit emerging opportunities. However, OEs that are not degraded generally promote retaining C2 authority at the theater-level because the air component commander is usually able to C2 their forces without distributing control. In these situations, the air component commander may choose not to distribute control due to limitations with the C2 capability and capacity of subordinate echelons.

There will always be a need for resilient theater-level communications to support global integration and dynamic force employment. However, relying exclusively on theater-level integration of multi-domain assets presents a vulnerability and targeting opportunity for an adversary. Therefore, distributed C2 capabilities that enable subordinate forces to build all-domain options in accordance with theater air component commander guidance may enable more effective operations in periods of denied or degraded communication with the theater air component commander. Ultimately, the degree of Distributed Control in an air component is determined by the air component commander after considering the authority, capability, and capacity of their subordinate organizations to C2 assigned and attached forces and conduct their assigned operation.

Distributed Control Synopsis

Distributed Control is delegating the authority to C2 operations. It is part of the framework that supports the mission command philosophy to empower Airmen to effectively execute decentralized operations.

- Why: To reduce vulnerabilities during conflict, achieve objectives in uncertain, complex, and rapidly changing environments, and enable commanders to seize the initiative.
- Who: Distributed Control starts with the air component commander and extends to subordinate commanders.
- What: The authority to conduct the C2 process. Classifying these authorities as OPCON or TACON may be too broad or narrow to meet subordinate authority requirements in a degraded environment.
- Where: Authorities are delegated to a commander subordinate to the air component commander. This may occur down to the wing level, or to a middle echelon between the wing and theater air component commander (e.g., an air expeditionary task force, air task force, or combat wing). Regardless of the echelon, the subordinate echelon must be appropriately equipped and resourced.
- When: Distributed Control is accomplished as appropriate, according to an air component commander's COMREL and design for C2. It also depends on the authority, capacity, and capability of subordinate commanders. Currently, Distributed Control is used on a conditional basis, with centralized control through the theater AOC remaining the preferred C2 method. However, future operations may increasingly utilize Distributed Control with the goal of normalizing it as a standard C2 construct.

DECENTRALIZED EXECUTION

Decentralized execution is the delegation of execution authority to subordinate commanders. It is an enduring aspect of air operations and a fundamental aspect of mission command. Commanders enable decentralized execution by empowering subordinates to make decisions on their behalf and adapt tasks to achieve their intent. In decentralized execution, subordinates are acting on the superior commander's authority. The superior commander retains the command responsibility and authority to change the purpose of the subordinate's assigned mission. Subordinates modify their assigned tasks to accomplish their commander's intent.

Decentralized Execution Example

Mission commanders in USAF flying operations represent the epitome of decentralized execution. Their role is to lead a large and usually multi-platform flying mission from tactical planning through execution. While they carry the designation "commander," they do not have command responsibility over the units they are leading. Instead, they act on behalf of the air component commander (through delegated execution authority), who grants them latitude to build and execute the tasks necessary to accomplish the air component commander's designated mission.

While recent combat operations have treated decentralized execution as contracted decisions between the commander and subordinates (i.e., "if this, then you can do that") this is <u>not</u> the intent of decentralized execution under the mission command philosophy. Modern warfare requires a greater amount of latitude for subordinates in execution. Disciplined initiative allows the exploitation of both predictable and unpredicted opportunities. Capitalizing on these often-fleeting opportunities requires commanders to accept prudent risk and empower subordinates with decision authority by setting restraints, constraints, and directing them to act on their behalf. Through decentralized execution, commanders tell subordinates their intent and caveat what they cannot do (restraints), what they must do (constraints), and then expect them to utilize the extent of their authority to achieve mission success.

Decentralized execution is separate and distinct from Distributed Control. For example, decentralized execution empowers C2 nodes to direct aircraft during execution and is often categorized as distributed battle management. These nodes operate using a commander's authority in accordance with the commander's intent. In contrast, Distributed Control delegates authority to subordinate commanders enabling them to C2 assigned operations. Commanders with Distributed Control have more authorities than forces executing decentralized operations.

CHAPTER 2: THE COMMAND AND CONTROL PROCESS

The C2 process is the progressive and iterative series of major C2 activities, led by a commander, which characterize the act of command and control. The C2 process consists of four major C2 activities: planning, preparing, executing, and assessing. The C2 process captures many different processes and cycles that occur within the air component (e.g., the air tasking cycle, targeting cycle, and airlift cycle).

The C2 process provides a common language for understanding command and control and communicates the authorities that subordinate commanders need to realize the CC-DC-DE framework. It models how a commander makes decisions and the major C2 activities the commander is conducting. See the figure below for a visual depiction of the process. In the figure, the commander is central and influential to all activities because they make decisions (through the decision cycle) that drive the process. The C2 process generally flows clockwise starting with planning, but because operations are continuous, each activity occurs both repeatedly and concurrently. All activities are constantly undergoing iterative refinement as new information is fed into the process.



The C2 Process

C2 in the Conduct of Operations. In the air component, the C2 process typically occurs at the operational level of warfare. Therefore, it may be referred to as "operational C2" among Airmen. However, this doctrine avoids the label "operational C2" since the C2 process is irrespective of the level of warfare.

BACKGROUND

The evolution of mission command, Distributed Control, and the role of commanders below the theater air component has matured the understanding of the C2 function and the C2 process. Previously, subordinate commanders relied on centralized C2 from the theater air component commander. However, in future operations, lower echelons may gain increased responsibility for airpower C2 across the joint functions.

The C2 process addresses this issue by presenting a holistic collection of C2 activities that is simple and scalable. It answers the question: "What is being distributed in Distributed Control?" With: "The authority to run the C2 process to conduct assigned operations."

History of the C2 Process

The C2 process is not a new concept. It was previously titled "The Common Operations Framework" in the 2016 version of AFDP 3-0, *Operations and Planning*. Additionally, the sequence of "design, plan, execute, and assess" has been established in USAF doctrine since the 1998 version of Air Force Doctrine Document 2, *Organization and Employment of Aerospace Power*, and the framework of "planning, preparing, executing, and assessing" is currently described as the operations process in US Army doctrine (Army Doctrine Publication [ADP] 5-0, *The Operations Process*).

MAJOR COMMAND AND CONTROL ACTIVITIES

A commander commands and controls operations through the four major activities of the C2 process: planning, preparing, executing, and assessing. These activities are both progressive and continuous.

PLANNING

Planning is the broad term to describe how Airmen address and solve problems. It is generally the first C2 activity conducted by a commander and their staff. The outputs of planning provide foundational guidance for the remainder of the C2 process. The planning activity includes design. Design and planning are discussed separately, but they are inextricably linked. Design is part of planning and planning informs design.⁷

Planning. Planning is a problem-solving methodology to understand a situation, incorporate the desired end-state from design, and lay out effective ways to create the desired future state. Planning at every echelon integrates processes for orderly and coordinated problem-solving and decision-making across the competition continuum. Planning should incorporate the delegation of authorities necessary to execute operations. During preparation and execution, iterative planning adapts to address

⁷ For additional information on planning and design, see AFDP 5-0, *Planning*, JP 5-0, *Joint Planning*, JP 3-30, *Joint Air Operations*, and *Air Force Tactics*, *Techniques*, *and Procedures* (*AFTTP*) 3-3.AOC, *Combat Fundamentals Air Operations Center*.

changing conditions in the OE.

Planning is the process through which Airmen tailor the tenets of Airpower to the OE and provide air and cross-domain solutions to achieve national and military objectives. Depending on the desired output, there are several different planning methodologies that are applicable to Airmen. These include the joint planning process (JPP), the joint planning process for air (JPPA), and the Air Force Planning Process (AFPP).

Design. Design is the conception and construction of the framework that underpins planning. The operational design framework involves a continual effort to understand the strategic guidance, understand the OE, define the problem, and develop a description of the broad actions needed to achieve the objective. Design provides and shapes the foundation of C2 for operations, regardless of the level of war. Its principal purpose is to distill clarity from complexity through a broad perspective that deepens understanding and visualizes the problem. Additionally, design clearly identifies the problem and informs the iterative problem-solving process. The single most important element of design is the objective. Therefore, the objective should be determined first to determine why the mission is being conducted. Objectives may be defined by a military end-state, higher echelon intent, or directed by policy or strategy. Design anchors the C2 process to a commander.



"Design does not replace planning, but planning is incomplete without design. The balance between the two varies from operation to operation as well as within each operation. Design helps the commander provide enough structure to an ill-structured problem so that planning can lead to effective action toward strategic objectives [emphasis in original]."

> -General James N. Mattis, USMC (Ret) 26th Secretary of Defense

Design at all levels supports commanders and planners in organizing and understanding the OE as a complex interactive system. Each level of design is guided by higher echelon design and planning activities. It provides context for decision-making and enables commanders to accomplish planning, preparing, executing, and assessing. As a framework, design provides the necessary "front end" to planning, allows focused adaptation in preparation and execution, and serves as the measure for assessment activities. Design underpins planning and anchors the other activities to the overarching analytical framework for the operation. Ultimately, design results in approaches that align activities with the overall strategic plan and provide the initial commander's intent for the operation or mission.⁸

⁸ For additional information on planning as a C2 activity, see AFDP 5-0, *Planning*.

PREPARING

Preparing represents the overlapping activities between planning and execution used to share information, gain consensus, explain tasks, and optimize operations. Effective preparation includes rehearsals or exercises to ensure transition activities are understood, inspections and checks to verify readiness, and timely back-briefs to address lessons learned prior to execution.

Preparing as a Unique Step

Previous categorization of major C2 activities considered preparing sub-activities at the end of planning or the beginning of execution. Numerous lessons learned have identified that the lack of a distinct preparing activity led to planning and execution oversights for the time and resource requirements necessary to execute operations.

Preparing encompasses the **coordinating**, **refining**, **and transitioning** actions necessary to ensure positive communication and successful execution among superior, subordinate, and parallel forces. Preparing ensures a seamless transition from planning to execution by establishing a common operational picture. This enables a smooth handoff from planners to executors, ensuring that all stakeholders are aligned and aware of their roles and responsibilities. Key indicators of a successful transition include:

- Availability of required resources and support.
- Clear understanding of tasks, responsibilities, and timelines.
- S Effective communication and coordination among different units and agencies.
- C Timely and accurate exchange of information between planners and executors.

Coordinating. Coordination is defined as the necessary actions to ensure adequate information exchange that integrates, synchronizes, and deconflicts operations between separate organizations. It involves sharing information to gain consensus, explaining tasks, and optimizing operations. Coordination in advance of execution is critical to ensuring that required support is available. Commanders should share information (both vertically and horizontally) to produce trusting relationships, and secure agreements necessary for efficient multinational and joint operations. Coordination's benefits include minimizing the risk of fratricide through deconfliction and increasing overall understanding of the OE. Coordination does not replace formal approval processes. It is normally used between functions of a supporting staff.

Direct liaison authorized (DIRLAUTH) is used to coordinate with an organization outside of the immediate staff or organization, or between component staffs. Although each component of a joint force develops its own plan as part of the JFC's overall effort, these plans are most successful if they are coordinated among the Service components. Plans should be coordinated with as much time as possible before execution, to ensure all required support is coordinated for the operation. Examples of coordinating actions include sharing Intelligence, Surveillance, and Reconnaissance (ISR) assets with joint force components; coordinating with tanker and airlift units for refueling and transportation support; and synchronizing airspace management with adjacent units.

Refining. Refining is the modification of the planned concept of operations due to changes realized prior to execution. This ensures that the plan remains relevant and effective in response to changing circumstances.

Examples of refining actions include adjusting the air tasking order (ATO) based on changing space or terrestrial weather conditions, refining target lists based on new intelligence, and updating the airspace control plan (ACP) to accommodate additional aircraft.

Transitioning. Transitioning is a process that includes the final activities before execution. Commanders hold rehearsals and exercises to ensure the staff is ready to proceed to execution. Checklists are generated and a battle rhythm is established to support the commander's decision cycle. Inspections verify the readiness of subordinate units to ensure they understand their mission. Finally, lessons learned are communicated as the long-range planners formally hand off their plan to the operation executors. Transition generally ends with an order that puts the plan into action.

EXECUTING

Execution is putting a plan into action while using situational understanding to assess progress and adjust operations as the situation changes. **C2 in execution focuses on activities and decisions to seize and retain the initiative, build, and maintain momentum, and exploit success.** Through C2 in execution, the commander can monitor and adapt operations, as necessary. Therefore, C2 in execution is directly linked to the commander's decision cycle because commanders, staffs, and subordinate commanders focus their efforts on translating decisions into actions. They direct action to apply combat power at decisive points and times to achieve objectives and accomplish missions. Furthermore, executing includes integrating and synchronizing operations based on the changes enacted by subordinate units.

Generation. The first execution activity is usually generation. Generating includes posturing forces aligned with the plan and capable of executing the commander's intent. The actions required to generate airpower happen across a spectrum of organizations and processes ranging from mission generation up through global force management (e.g., global force deployments, time-phased force and deployment data [TPFDD] management, establishing alert status, transloading). Examples of generating actions include posturing squadrons for combat operations, generating sorties, and tasking air defense systems.

Execution marks a fundamental shift in the role of the commander. Whereas the commander is heavily involved in planning and preparing, their role changes during execution to empower subordinates to make decisions on their behalf. This fundamental shift in C2 during execution is key to achieving decentralized execution under the mission command philosophy.

Execution begins upon the direction of the commander. There are many methods that a commander can use to issue an execution order. In general, the air component commander and subordinate echelons may use a MTO technique to clearly communicate commander's intent and empower Airmen to make effective on-scene decisions during complex, rapidly unfolding operations.

Decentralized execution is the fundamental characteristic of operations guided by a mission command philosophy. The imperative for decentralized execution stems from the premise that decisions regarding tactical employment are optimized when made by those closest to the fight. Tactically proficient Airmen, armed with clear commander's intent and a shared understanding of an operation's purpose and wider operational and strategic context, maximize airpower's lethality. History shows that the rapidity of action generated by decentralized execution is the surest method of operating inside the enemy's decision cycle. Decentralized execution promotes effectiveness and resilience at the tactical level.

Battle Management. C2 in execution is battle management—the management of activities within the OE based on the commands, direction, and guidance given by appropriate authority. These activities include the process of directing weapons, sensors, and support, within the commander's defined acceptable level of risk, to achieve the commander's intent. Battle management allows the direct and often real-time monitoring of operations based on commander's intent and the scope of a commander's orders. The results of effective battle management include timely decisions, communicated assessments, and solved problems. Battle management enables decentralized operations through C2 nodes.

Battle Management Example: Global Air Mobility Adjustment

Battle management uses a variety of C2 systems. For air mobility operations, the Global Air Mobility Support System (GAMSS) is the C2 system that enables air mobility operations. During execution, GAMSS C2 nodes perform battle management to meet dynamic changes in the OE.

For example, on 16 April 2010, Iceland's Eyjafjallajökull volcano erupted, spewing an ash cloud that closed much of Europe's airspace. In response, nearly 400 airlift, tanker, and aeromedical evacuation missions battle managed by the 618 AOC were rerouted to ensure the continued delivery of personnel and equipment to support surge operations in Afghanistan and Iraq. In the end, effective C2 in execution rerouted over 600 missions, moved over 17,000 tons of supplies, and transported over 47,000 people to overcome unplanned hazards.

C2 Nodes. C2 nodes are elements of a C2 system that represent people, places, or physical objects that execute decentralized operations. Common examples of C2 nodes include the elements in the theater air control system (TACS) such as mission commanders (MCs), Airborne Warning and Control System (AWACS), forward air controllers (FACs), and battle control centers (BCCs). Nodes may span several levels of

operations and have varying levels of capability. C2 nodes should understand their authorities, roles in decision-making and execution, and relationship to other nodes.

Tactical C2. Some C2 nodes are known as tactical C2 (TAC C2). TAC C2 are the elements conducting battle management at a tactical level, even if those tactical actions have theater-wide effects. Generally, TAC C2 manages specific missions. Missions are essential tasks, together with the purpose, that clearly indicate the action to be taken and the reason for the action. Missions are generally related to the air component in the form of dispatching aircraft to accomplish tasks. Mission execution begins with the decision for mission launch and includes all functions necessary to ensure effective accomplishment.

ASSESSING

Assessment starts when defining tactical tasks and objectives. Assessment is a continual activity where the staff observes the OE and incremental progress toward the end-state(s). Assessment drives changes to plans and strategy. Operational assessments help the commander and staff determine progress toward mission accomplishment. Assessment results enhance the commander's decision-making capability, directing more effective operations, and addressing a constantly evolving OE. A secondary purpose is to maintain alignment with higher headquarters (HHQ) priorities, schemes of maneuver, and operational objectives.

Integrating assessment into planning, preparing, and execution can help commanders and staffs at any echelon to:

- Develop mission success criteria to address specified and essential tasks.
- Compare observed OE conditions to desired objectives and/or end-state conditions.
- Determine validity of key planning facts and assumptions.
- During execution, determine whether the desired effects have been created and whether the objectives are being achieved.
- During execution, assess the effectiveness of allocated resources against objectives, tasks, effects, and mission performance.
- Determine whether an increase, decrease or change to resources is required.
- Identify the risks and barriers to mission accomplishment.
- Identify opportunities to accelerate mission accomplishment.

Fundamental Principles. The assessment activity consists of the following fundamental principles:

Identify information and intelligence requirements. During planning, acquiring a baseline understanding assists in setting objectives and determining thresholds for success and failure.

- Develop or modify the assessment plan. Linking information and intelligence requirements to appropriate measures and indicators and containing a collection plan to gather appropriate data.
- Collect information and intelligence. During execution, forces use the collection plan and defined reporting procedures to gather information about the environment and ongoing operations.
- Conduct periodic or event-based assessments. Commanders and their staffs usually conduct an assessment based on events or at specified intervals during an operation.
- Conduct change reporting. Commanders are especially interested in learning how friendly or enemy behavior has changed from expectations or norms established earlier in prior operations. While many initial reports may prove false or are regarded as outliers, once a pattern of change is reliably perceived or discerned by assessment, it should be highlighted for commanders' attention.
- Provide feedback. Assessment reports inform the commander and other stakeholders about current conditions and communicate progress toward desired objectives and end-states.

Assessment Considerations. Assessment is a continuous process that measures the overall effectiveness of employing capabilities during military operations. It is also the determination of the progress toward accomplishing a task, creating a condition, or achieving an objective. Assessment supports a commander's decision-making process by providing insight into the effectiveness of their strategy and accompanying plans. Many types of assessment exist and may be used to support operations. Still, assessment in this document refers to activities that support the commander's decision-making process. In an effects-based approach, assessment should provide the commander with the answers to these basic questions:

- Are we doing things right (measures of performance)?
- Are we doing the right things (measures of effectiveness)?
- Are we measuring the right things?

The first question addresses the *performance* of planned air operations by assessing the completion of tasks. The second question addresses the level at which the commander's desired *effects* are being observed in the OE and prompts an examination of the *links* between performance and effects. Finally, the third question addresses the assessment process and the importance of understanding how one chooses to measure the links between performance, cause, and effect. When appropriately determined, the answers to these questions should provide the commander with valid information to base decisions about adapting strategy.

While often depicted as a separate stage of the air tasking cycle for conceptual clarity, assessment is interwoven throughout operational design, planning, and execution. The

assessment process should begin as the broad strategy is laid out (including the development of assessment criteria). It continues through detailed planning (with the development of metrics and data sources). Finally, it extends to the evaluation of measures during and after execution. This process is iterative as assessment results influence future strategy and planning.

Assessment consolidates data from many sources and should summarize that data concisely and in context. It should follow a rigorous, defensible analytical process that allows commanders and planners to view details of methods used and results produced. It communicates relevant uncertainty in the data and the associated risks. In short, assessment should allow judgments on a commander's strategy supported by analysis.

APPLYING THE COMMAND AND CONTROL PROCESS

Assigning an operation to a subordinate commander and establishing an appropriate force structure are requisites for conducting the C2 process within the CC-DC-DE framework. The following section provides considerations for applying the C2 process to realize distributed control.

ASSIGNING OPERATIONS AND AUTHORITIES

To distribute control, the air component commander clearly defines and assigns an operation, with authority to conduct the corresponding C2 process, to a subordinate commander. In this context, certain limitations may be imposed by the air component commander to delineate the extent of authority delegated to a subordinate commander. Since the C2 process is conducted for a specific operation, there may be instances where a subordinate unit has Distributed Control for some operations while the air component commander retains control of others. The vignette on page 21 provides an example of distributing control to a subordinate echelon with a specific operation with an associated operational area. In this case, the 7440th Composite Wing (CW) commander was directed to open a second front in the Gulf War and accomplish several clearly defined tasks. The mechanism for transmitting commander's intent and authorities to the 7440 CW was an order.

An **order** is a communication, written, oral, or by signal, which conveys instructions from a superior to a subordinate. Orders that delegate authority to conduct the C2 process should focus on the purpose of the operation rather than details of how to perform assigned tasks. Furthermore, they should specify delegated authorities that are enduring, temporary, or conditions-based.⁹

FORCE STRUCTURE

There is no mandatory structure for realizing CC-DC-DE in operations. However, there are established USAF organizations that facilitate C2 through the CC-DC-DE framework. The most relevant USAF structure is the air expeditionary task force (AETF). When established, AETFs may fill the role of a Service component command or as a subordinate Service command, generally below the CCMD-level. AETFs are scalable,

⁹ For additional information on orders, see AFDP 5-0, *Planning*.

tailorable organizations with three elements: a single, clearly designated commander, appropriate C2 mechanisms, and tailored and fully supported forces. AETFs provide JFCs with a task-organized and integrated package with the appropriate balance of force sustainment, C2, and force protection.¹⁰

An air component commander may delegate an AETF commander specific operational authorities (derived from their specified command relationship) that are sufficient to conduct the C2 process for their assigned or attached forces. This model supports operations within the framework of CC-DC-DE because the theater air component commander maintains centralized command through their specified command relationship (OPCON established by the CCDR), and the AETF operates with Distributed Control as a sub-theater echelon. Subsequently, the tactical echelon commanders are delegated execution authority to enable decentralized operations.

Sub-Theater Force Presentation Terminology

The USAF is actively iterating through terminology to describe levels of sub-theater command. In the following figures, the level below the theater is referred to as the sub-theater or "middle" echelon. Another commonly used term is the "3rd echelon." Regardless of naming convention, the intent is to describe force structure below the CCMD level.

Distributed Control may be replicated across several sub-theater or "middle" echelons. During normal operations, AETF commanders, while conducting the C2 process for their assigned operations, continuously communicate, coordinate, and synchronize their operations with the theater air component commander and horizontally with other AETFs. The theater air component commander is able to reprioritize and adjust the C2 activities of the AETFs as necessary to meet the overall CCMD mission.

In a contested, degraded, or operationally limited environment, the AETF has the necessary authority to C2 its forces when disconnected from the theater air component commander. By delegating sufficient operational authorities and exercising them prior to the degraded environment, the air component can continue effective air operations. See the following "Distributed Control Examples" for a depiction of how an AETF may conduct the C2 process at an echelon below the theater air component level.

¹⁰ For additional information on AETFs, see AFDP 3-0, *Operations*.



Distributed Control Example 1 of 3



Distributed Control Example 2 of 3



Distributed Control Example 3 of 3

JOINT TASK FORCE PROVEN FORCE: A Historical Example of Distributed Control

An air component commander may choose to exercise Distributed Control through an air task force (ATF) or combat wing. As units of action advance their C2 capabilities with empowered commanders, operations centers, and robust staffs, they may gain the capacity to conduct the C2 process for their assigned forces. The following example from Joint Task Force (JTF) Proven Force highlights how a combat wing or ATF may operate with Distributed Control.

During the Gulf War of 1990-1991, the 7440th Composite Wing (CW) (Provisional), the combat arm of JTF Proven Force, was staffed to support combat operations and composed of airframes capable of strike, suppression of enemy air defenses, electronic warfare, surveillance and reconnaissance, counterair, refueling, and rescue. Resourced with the necessary organic capabilities, the wing was able to launch its own strike packages without assistance from US Air Forces Central (CENTAF).



CENTAF provided the wing an order to open a second Iraqi front whenever possible. The order included three broad tasks: 1) deny sanctuary to the Iraqi Air Force by attacking Iraq's northern air bases, 2) tie down Iraqi ground forces near the Turkish border, and 3) attack nuclear, biological, and chemical facilities in northern Iraq. Because some of the wing's aircraft lacked the range to attack south of Baghdad, the wing was assigned a large area of responsibility in northern Iraq. However, CENTAF retained command authority over the wing's operational plans as well as the authority to task the wing by exception.

The wing commander, Brig Gen Downer, operated in accordance with commander's intent, but the method of accomplishing the three broad tasks was left to him. The wing issued its squadrons orders and allowed mission commanders to build strike packages. The 7440th produced its own air tasking order (ATO) and flew 50-60 combat sorties per day in two or three waves at General Downer's discretion. CENTAF occasionally tasked the wing by exception, otherwise, General Horner empowered General Downer to effectively "fight" with his wing.

Ultimately, the 7440 CW had the authority, capability, and capacity to conduct the entire C2 process. Gen Downer and the 7440 CW planned, prepared, executed, and assessed operations with distributed authority from the CENTAF commander. JTF Proven Force represents a practical example of a decentralized operation conducted through the mission command philosophy and framework.

-Derived from the *Gulf War Air Power Survey* and a thesis presented to the USAF's School of Advanced Airpower Studies by Major Michael E. Fischer

CHAPTER 3: COMMAND AND CONTROL SYSTEMS

A C2 system is the personnel, facilities, equipment, communications, and procedures essential for a commander to plan, direct, and C2 operations of forces pursuant to the missions assigned. This chapter discusses C2 systems in terms of two major elements: the organization of C2 personnel, facilities, and equipment (e.g., AFFOR staff, AOC staff, wing A-Staff, and TACS) and the technology that enables effective communication and decision-making. Due to mission requirements and numerous variables, the components and organization of a C2 system vary. However, airpower employment requires four scalable elements:

- An air control system with C2 nodes (e.g., facilities, equipment, communications).
- Service echelon structure to provide combat power to the nodes (e.g., procedures).
- Sufficient staff for the air component commander (e.g., personnel).
- Robust technological systems to facilitate communications, information sharing, processing, analysis, and management.

In general, people, processes, and effective use of available technology enable successful C2 for military operations. Due to these qualities, C2 systems are often the most visible element of the C2 function and may be confused as being C2 instead of an element that supports C2.¹¹ Ultimately, the USAF requires an agile and resilient architecture to effectively C2 assigned operations.

THEATER AFFOR STAFF AND AOC STAFF

In their role as the COMAFFOR, the air component commander meets Service support responsibilities to the JFC by utilizing their OPCON and administrative authorities to C2 subordinate Service component echelons. The structure of the subordinate Service echelons is highly dependent on the purpose of the force, duration of the mission, and presentation level (theater or sub-theater). Historically, the common practice was assigning forces at the theater-level to the theater air component commander. Therefore, the role of the subordinate echelons was to provide administrative functions and organize, train, and equip (OT&E) forces. However, under a Distributed Control construct, the role of subordinate command echelons will likely increase to include C2 authorities over USAF capabilities.¹²

AFFOR AND AOC STAFF

At the theater or sub-theater level, the appointed air component commander requires an appropriately sized and configured C2 system to effectively C2 USAF forces and joint air forces made available for tasking.

¹¹ For additional information on specific C2 procedures, see AFTTP 3-3.AOC, *Combat Fundamentals-AOC*.

¹² For additional information on Service component organization, see AFDP 3-0, Operations.

At the theater-level, this C2 system typically includes an AOC for operational employment responsibilities (as the theater JFACC), as well as an air component Service staff (AFFOR staff) for both administrative and long-range strategic responsibilities (as the theater COMAFFOR). The dual-hatted nature of the theater air component commander may force the AOC and AFFOR staff to fully integrate to cover the totality of the theater air component commander's responsibilities (i.e., as a component major command [C-MAJCOM] or component numbered air force [C-NAF] commander). As the COMAFFOR, the theater air component commander and their AFFOR staff provide airpower to the TACS by conducting C2 over the subordinate air echelons. In their role as the theater JFACC, the air component commander and their AFFOR staff integrate with the AOC staff to C2 the employment of airpower.

Division of workload and responsibilities between the AOC and theater AFFOR staff depend upon the requirements of the theater air component commander, mission requirements, and resources available. In general, the AOC plans for and employs the forces provided, while the AFFOR staff is focused on long-range theater strategy and the Service component's responsibility to OT&E the USAF forces that will be employed under CCDR orders and direction.

THEATER AFFOR STAFF ORGANIZATION

The differing mission requirements of any given operation may dictate different task emphasis and staff arrangements. Very large or complex operations, for example, may require all staff directorates. In some cases, senior component liaison elements may not be needed, while some of the required support may be obtained through reachback. For very small or limited operations, a full AFFOR staff may not be required. As a rule of thumb, the size and span of the AFFOR staff should normally be held to the smallest number of divisions necessary to manage the demands of the operation, in some cases, the air component commander may combine some leadership positions (e.g., A3/5). Other operations may employ an AFFOR staff split into forward and rear elements, using reachback to maintain unity of effort. In each case, based on regional requirements, the air component commander determines the size, shape, and location of the AFFOR staff, AOC, and liaisons to best support the operation.

Command Section. The command section is normally composed of the air component commander, deputy commander, COS, command chief master sergeant, executive assistant, and appropriate administrative support personnel. Within the command section, the COS coordinates and directs the daily activities of the AFFOR staff, approves actions, orders, and plans, as authorized by the air component commander, and ensures air component commander decisions and concepts are implemented by directing and assigning staff responsibilities.

Personal Staff. The air component commander has several staff activities and functions that normally operate outside the AFFOR staff directorates. These activities and functions fulfill specific responsibilities usually related to providing close, personal advice or services to the commander, or assisting the commander and the component staff with technical, administrative, strategic, operational, or tactical matters. These activities may include the commander's legal advisor, political advisor, public affairs advisor, inspector general, protocol advisor, historian, chaplain, and advisors or directors for

counterintelligence and special investigations, financial management, force protection, air mobility operations, cyberspace operations, medical, knowledge operations management, and safety. Some of these functions may also provide the air component commander with capabilities beyond strictly functional ones. For example, public affairs and cyberspace operations are Information Warfare (IW) forces, providing the commander with the ability to leverage capabilities to achieve information advantage, preserve decision advantage, and create effects through Operations in the Information Environment (OIE). Based on the needs of the operation and the requirements of the AFFOR staff, some of these activities may be located within the AFFOR staff directorates.

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

Manpower, Personnel, and Services (A1). The director of manpower, personnel, and services is the principal staff assistant to the air component commander for total force accountability, personnel policy and procedures, the establishment and documentation of manpower requirements, organizational structures, mortuary affairs, food and force beddown operations, the coordination of exchange services, and the provision of quality-of-life programs to enable and sustain forces assigned and attached.

Intelligence, Surveillance, and Reconnaissance (A2). The director of ISR is the principal staff assistant for policy and guidance for all Air Force ISR operational architectures, personnel, systems, training, and intelligence preparation of the operational environment (IPOE). The A2 provides intelligence support to forces within the assigned area of operations. The A2 does not normally direct ISR collection assets when an ISR division is resident in the AOC, this is normally directed by the AOC's ISR division chief.

Operations (A3). The director of operations serves as the principal staff assistant in the direction and C2 of all assigned and attached Air Force forces. When OPCON of Air Force units is formally transferred to the air component commander, the A3 ensures they can perform tasked missions. This includes monitoring unit deployments and beddown locations, combat readiness, mission rehearsals, force protection, and training activities. The A3 also provides terrestrial and space weather support to forces within the assigned AO. Finally, the A3 is the focal point for executing component operations outside the purview of the AOC.

Logistics (A4). The director of logistics is the principal staff assistant for logistics and sustainment support. The A4 staff is a broad, multi-disciplined organization, generally comprised of logistics plans, munitions, fuels, vehicle management, materiel management, maintenance, host nation support, contracting, distribution, and combat logistics support. On some AFFOR staffs, the director of logistics also serves as the advisor for civil engineer installation management, security forces, fire emergency services, explosive ordinance disposal, emergency management, agile combat support, planning for commercial support, integrated defense, weapons system security, antiterrorism, force protection, and the senior maintenance officer.

Plans and Requirements (A5). The director of plans and requirements serves as the principal staff assistant for all consolidated planning functions. In coordination with the A4, the A5 conducts comprehensive force-level movement and execution planning throughout the campaign. This involves preparation and subsequent refinement of the force flow, beddown, and redeployment in the TPFDD. The A5 is the focal point for planning not under the purview of the AOC, including the campaign support plan and security cooperation country plans. This planning is normally preceded by the development of a strategy. The A5 is also the focal point for the operational assessment of such plans. In addition, the A5 leads in the development of the organizational structure and COMREL for the Air Force component within the framework of the joint operation. The A5 normally publishes the Air Force component operations order to support the JFC's campaign.

Communications (A6). The director of communications is the principal staff assistant for communications electronics and certain information capabilities. This includes establishing the theater communications and automated systems architecture to support operational and command requirements.

Installations and Mission Support (A7). Current AFFOR staffs no longer include the A7 but have incorporated the duties under the A4 and Air Force installation and mission support. However, CCMD joint staffs still retain this directorate as the J7. Should the air component commander create such a directorate, duties include being a primary advisor for installations, mission support, force protection, explosive ordnance disposal, civil engineering, firefighting, emergency management, chemical, biological, radiological, and nuclear passive defense and response, contracting, and all cross-functional expeditionary combat support.

Strategic Plans and Programs (A8). The director of strategic plans and programs provides comprehensive advice on all aspects of strategic planning and programming. The A8 also conducts program assessment and provides coordinated resource inputs to the supporting Air Force major command's program objective memorandum processes.

Studies, Analyses, Assessments, and Lessons Learned (A9). The director of studies, analyses, assessments, and lessons learned, collects, documents, analyzes, and reports data necessary to understand and improve the effectiveness and efficiency of Air Force operations and contingency planning.

Strategic Deterrence and Nuclear Integration (A10). The director of strategic deterrence and nuclear integration is the primary advisor for strategic deterrence, conventional/nuclear integration, and Air Force nuclear enterprise matters. This includes nuclear force structure, readiness, sustainability, and vulnerability data, as well as nuclear command, control and communications, and nuclear weapons employment.

AOC ORGANIZATION¹³

The baseline AOC organization includes an AOC commander, five divisions (strategy, combat plans, combat operations, ISR, and air mobility), and multiple support and specialty teams. Each integrates numerous disciplines in a cross-functional team

¹³ The AOC is considered part of the TACS. The organization is presented here due to the close integration with the AFFOR staff.

approach to planning and execution. Liaisons from other Service and functional components may be present to represent the full range of joint air, space, and cyberspace capabilities made available to the air component commander. The following provides a summary of the major elements of an AOC.¹⁴

AOC Commander. The AOC commander is charged with effectively managing air component operations and establishing the AOC battle rhythm. The AOC commander develops and directs processes to design, plan, coordinate, allocate, task, execute, and assess air component operations in the area of operations or joint operations area based on JFC and air component commander guidance. The AOC commander commands the AOC and should be prepared to direct a joint AOC when designated.

Air Mobility Division/A3M (AMD). The AMD plans, coordinates, tasks, and executes the intra-theater air mobility mission. The AMD is normally comprised of four core teams: the airlift control team, the air refueling control team, the air mobility control team, and the aeromedical evacuation control team. A fifth team, the air mobility support team may also be established if required. Major products include airlift apportionment plans and air refueling (AR) inputs to the AOC's AOD, master air attack plan (MAAP), ATO, airspace control order (ACO), and special instructions (SPINS). The AMD coordinates with the theater deployment distribution operations center and the 618 AOC. The AMD also coordinates closely with the director of mobility forces (DIRMOBFOR), who serves as an air mobility functional advisor to the air component commander.¹⁵

Intelligence, Surveillance, & Reconnaissance Division/A32 (ISRD). The ISR division, in conjunction with the other AOC divisions, plans and executes airborne ISR operations and provides combat ISR support to air component planning, execution, and assessment activities. The ISRD has four core teams: the analysis, correlation, and fusion team; the targeting and tactical assessment team; the ISR operations team; and the processing, exploitation, and dissemination management team. Major products include: the reconnaissance, surveillance, and target acquisition annex to the ATO (or the ISR collection plan); updated IPOE; air component target nomination list; and intelligence summaries.

Combat Operations Division/A33 (COD). The COD monitors and executes current operations. The COD is also the focal point for monitoring the execution of joint and combined operations, such as time-sensitive targeting, theater missile defense, joint suppression of enemy air defense supported by theater forces, and the joint air attack team. The COD is normally task-organized into four functionally oriented core teams: offensive operations, defensive operations, senior intelligence duty officer team, and interface control team, as well as weather representatives. The division's main products are daily ATO, ACO, and cyberspace tasking order (CTO) changes, and changes to other

¹⁴ For additional information on the processes, roles, and responsibilities of the AOC staff, see AFTTP 3-3.AOC, *Combat Fundamentals-AOC*.

¹⁵ Theater AOCs do not always have a DIRMOBFOR. Once the CCMD does a request for forces, and USTRANSCOM tasks Air Mobility Command to provide one, they are appointed to the JFACC's staff as an air mobility functional advisor to coordinate with the AMD for inclusion of the inter-theater airflow, provided by 618 AOC or other CCMDs, into the ATO.

plans and orders, as required.

Combat Plans Division/A34 (CPD). The CPD applies operational art to develop detailed execution plans for air component operations. The CPD is normally task-organized into four functionally oriented core teams: the targeting effects team, the MAAP team, the ATO production team, which also produces cyberspace tasking orders (CTO), as applicable, and the C2 planning team. The division's key products are an area air defense plan (AADP), ACP, ATO, CTO, ACO, SPINS, and joint integrated prioritized target list.

Strategy Division/A35 (SRD). The SRD concentrates on long-range design and planning of air component operations to achieve JFC objectives by developing, refining, disseminating, and assessing progress toward achieving the air component commander component strategy. The SRD is normally task-organized into three functionally oriented core teams: the strategy plans team, the strategy guidance team, and the operational assessment team. IW planners may be attached to the SRD to coordinate with other AOC divisions. Alternatively, IW planners may report directly to the AOC commander as part of a specialty team. In some cases, IW planners may be matrixed to support the SRD or other teams but report to a functional authority. For example, public affairs (a principal IW capability) are typically aligned under the commander's special staff but may provide individuals as needed to support OIE and other operational planning efforts.

THEATER STAFF STRUCTURES

Mission requirements, manning, and rank structure differences between the various C-MAJCOMs and C-NAFs do not readily support a "one size fits all" structure for the air component commander's C2 organization. In general, the AOC and AFFOR staffs are either integrated into a single staff or kept as separate staffs.

AOC AND AFFOR INTEGRATED INTO A SINGLE STAFF

Under this construct the AOC commander works for the A3, where the core element of the air component staff is the AFFOR staff. The AOC retains its organization and is part of the A3 staff. To improve staff-to-staff coordination with the JFC's staff and the other components, the AOC divisions are also identified with an appropriate A3 staff number (e.g., COD is also designated as A33). This construct is illustrated in the figure, "AOC as Part of AFFOR/Air Component A3." This construct may improve integration between air component staff and the AOC and provide easier cross-component staff-to-staff integration. While providing synergies, this structure also requires the A3 and joint/combined AOC staffs to have clearly defined roles and responsibilities.

AOC AND THEATER AFFOR STAFF AS SEPARATE ORGANIZATIONS

In this construct, the AOC and Air Force Service component staff are separate organizations, each reporting directly to the air component commander. This construct is illustrated in the figure, "AOC and AFFOR Staff as Different Organizations." This construct provides manpower focused at appropriate levels for the AFFOR staff and the AOC and provides a redundant capability for additional taskings (e.g., sub-theater Service component command, Joint Task Force (JTF) headquarters). The structure enables parallel operations between the separate air component commanders and AOC staffs,

separating responsibilities and simultaneously accomplishing OT&E and combat operations, respectively. While providing more flexibility in the different Service and joint roles of the air component commander, this structure requires more personnel, requires that cross-component staff-to-staff channels have robust interaction, and requires that internal staff integration be clearly defined.





WING A-STAFF STRUCTURE

Distributed Control constructs may use a wing A-Staff structure to facilitate integration with wing, component, and joint OCs. This structure represents best practices from the AFFOR and AOC staff to provide commanders with a model for wing A-Staffs.

Generally, wing A-Staffs mirror the AFFOR staff and include the following positions. A1 through A6 should be separate directorates and are generally not combined. A7 through A10 are optional directorates that may be combined with another directorate at the discretion of the wing commander.

Chief of Staff. The COS coordinates, prioritizes, and promulgates the wing commander's direction for the daily activities of the wing staff. The COS provides staff support to the wing commander to execute wing operations. The COS also provides the A-Staff with intent, guidance, and direction to execute given tasks, and is responsible for the operations, health, and welfare of the A-staff. They are the primary integrators of staff activities. The COS may have administrative command responsibilities and duties for the A-Staff via G-series orders at the wing commander's discretion.

Deputy Chief of Staff (DCOS). The DCOS reports to and supports the COS on daily duties and responsibilities for staff operations in garrison and while deployed. The DCOS performs duties as the COS in the absence of the incumbent.

Manpower, Personnel, and Services (A1). The director of manpower, personnel, and services is the wing's A1 and serves as the lead planner for manpower, personnel, and services matters, with a primary focus on planning and reporting expeditionary readiness.

Intelligence, Surveillance, and Reconnaissance (A2). The director of ISR is the wing's A2/senior intelligence officer (SIO) and serves as the principal advisor to the wing commander and staff on all ISR planning, direction, collection, processing, exploitation, analysis, and production. The A2/SIO also oversees the dissemination and integration capabilities and limitations at the wing level. The A2/SIO is responsible for wing-wide intelligence including subordinate groups, force elements, and squadrons to ensure the wing is ready for its assigned operations. The A2/SIO has responsibility for overall OT&E efforts, priorities, guidance, and intelligence security matters, as well as the development of all intelligence airmen through functional organizational placement within the wing.

Operations (A3). The director of operations is the wing's A3 and serves as the primary staff advisor for wing operational forces. The A3 ensures wing units, both attached and permanently assigned, can perform wing missions to achieve effects as tasked by the commander and HHQ. This includes wing execution in concert with other wing staff and wing operations center (WOC) personnel, monitoring unit deployments/beddown locations, and ensuring combat readiness.

Logistics, Engineering, and Force Protection (A4). The director of logistics, engineering, and force protection is the wing A4 and serves as a primary staff advisor to synchronize logistics, sustainment, force protection, and combat support planning and processes across the wing.

Plans and Programs (A5). The director of plans and programs is the wing's A5 and serves as the primary staff advisor for the development of wing plans and the wing's support to HHQ engagement activities. The A5 works in close coordination with appropriate staff entities to ensure comprehensive planning during all phases of operations. The A5 director is the primary advisor to the wing commander for requirements identification and prioritization.

Communications (A6). The director of communications is the wing's A6 and serves as the staff advisor that coordinates and represents cyberspace domain capabilities for wing-level objectives and mission requirements with HHQ, mission partners, the A-staff, and local organizations.

Installations and Mission Support (A7). A7 directorates are not usually used. A7 duties are usually absorbed by the A4.

Strategic Plans and Programs (A8). The director of strategic plans and programs, when present, is the wing's A8 and is responsible for developing programs and supporting the development and execution of the wing plans and HHQ operation plans and orders. The A8 should identify and prioritize capability gaps and advocate for doctrine, organization, training, materiel, leadership and education, personnel, facilities, and policy solutions to fulfill wing operational requirements.

Studies, Analyses, Assessments, and Lessons Learned (A9). The director of studies, analyses, assessments, and lessons learned, when present, is the wing's A9 and leads the integrated analysis and assessment of all-domain operations across the WOC and wing staff.

Strategic Deterrence and Nuclear Integration (A10). The director of strategic deterrence and nuclear integration, when present, is the wing's A10 and is responsible for supporting the execution of wing nuclear C2 responsibilities. Wings with a nuclear mission may create an A10 directorate and should coordinate with the HHQ A10 regarding roles and tasks.

A-STAFF CONSIDERATIONS

Integration. The primary integrator of staff activities is the COS and the method for integration is a battle rhythm. An effective battle rhythm requires the COS's active management and the staff's meeting discipline. The COS should establish a deliberate battle rhythm control process and structure that achieves and maintains effective decision support for the commander and builds a staff's shared understanding.¹⁶

The A-Staff is generally not a stand-alone unit. However, the wing commander may task the COS with administrative command responsibilities and duties for the A-Staff via G-series orders.

A-Staff directors are not usually commanders for their organizations. Similarly, commanders should not fill A-Staff roles (i.e., a squadron commander should not also serve as the A4).

¹⁶ For additional information integrating staff activities, see Appendix D.

Wing A-Staff members should not serve in dual roles that span both Line and Staff functions. For instance, an officer serving as the A-Staff COD chief should not simultaneously be a squadron operations officer with responsibilities for executing Line operations or supervisory duties related to Line functions. A-Staff members may be attached to squadrons, but their A-Staff role should be their primary responsibility.

Two-digit Directorates. Generally, HHQs will direct two and three-digit directorates and divisions. Wing commanders may determine which four-digit divisions or branches (e.g., A5XE) to include under each two-digit directorate. Divisions and branches create a balance between specialization and integration that positions directorates to operate efficiently, adapt to changes, and achieve objectives. The nature and number of divisions should depend on the specific needs, goals, and size of the organization and should be determined based on the following considerations:

- Clear Accountability. Dividing roles and responsibilities among different divisions aids directors in establishing clear lines of accountability for the performance of routine and emergent tasks and functions.
- Clear Communication Channels. Having structured divisions ensures that there are established channels for communication, both within the division and between different divisions and directorates.
- Functional Specialization. Divisions focus on specific functions or areas of expertise, such as the delineation between A33 Current Operations and A35 Future Operations.
- Leadership Development. Divisions offer leadership and career development opportunities. Experience Airmen gain within their division supports the development of necessary skills and experience for future leadership and staff opportunities.
- Operational Efficiency. Divisions can streamline operations by concentrating related tasks and responsibilities within a singular entity. This minimizes bureaucratic delays, as specialized teams can operate without consistently deferring to other parts of the organization.
- Resource Allocation. Divisions allow for more precise resource allocation. Directorates can allocate resources (e.g., funds, personnel, and equipment) to specific divisions based on their unique needs and the importance of their function to the organization's overall mission.

THEATER AIR CONTROL SYSTEM

At the theater-level, an air component commander conducts C2 over the operational employment of both service and provided joint airpower through the TACS. The TACS is the USAF's mechanism for planning and executing air operations. It is scalable and tailorable to meet the needs of theater commanders to execute any assigned mission across the competition continuum and in all threat environments.

The TACS is the component of the C2 system through which the air component commander executes operational <u>employment</u> (JFACC role) of assigned and attached air forces. It provides the air component commander with the means to achieve Distributed Control and decentralized execution of air operations. TACS elements may be employed in garrison, deployed for contingencies, or deployed to augment theater-specific systems. Though they may be configured differently across various theaters, basic functions performed by the TACS are the same. The air component commander/airspace control authority/AADC executes the ATO, ACP, ACOs, and the AADP via the TACS. As an organic USAF system, the TACS remains under the OPCON of the air component commander.

The TACS, in combination with other Service airspace control elements and systems, constitute the theater airground system (TAGS) which executes operations for the JFC through an AOC. Each Service component of a joint force employs its respective element of the TAGS. In multinational commands, the name and function of certain TACS elements may differ, but multinational air components have similar capabilities.¹⁷

The TACS provides the air component commander with an overarching means to C2 counterair operations. It includes the personnel, procedures, and equipment necessary to plan, direct, battle manage, coordinate, and assess air operations. The TACS can be tailored to support contingencies of any size.

The TACS is composed of dedicated C2 elements, dynamic TACS elements, and supporting systems. Dedicated TACS elements include both airborne and ground units whose primary mission is battle management. Dynamic TACS elements are any other weapon system or entity that has a primary role other than C2, but that may, with appropriate certification and



The AOC is the senior element within the TACS. The TACS also includes subordinate ground and airborne elements and is directly involved in the C2 and air battle management of most air missions. Collectively, the TACS has the capability to plan, direct, integrate, and battle manage all air and cyberspace forces assigned, attached, or made available for tasking; monitor the actions of both friendly and enemy forces; and plan, direct, coordinate, and battle manage air defense and airspace control.

The entire TACS is necessary for the air component commander's effective C2 of airpower.

¹⁷ For additional information on the TACS, see AFPD 3-52, *Airspace Control*, AFTTP 3-2.17, *Multi-Service Tactics, Techniques, and Procedures (MTTP) for the Theater Air-Ground System*, and AFTTP 3-3.TACS, *Combat Fundamentals-TACS*.

delegated authority, augment, or substitute for dedicated TACS elements. Support systems include those organic or opportunistic surveillance, communications, and decision-making capabilities that improve, extend, or expand the capabilities of the TACS.

TACS is divided into ground and airborne elements that describe the environment from which each node operates, not the domain from which they provide C2. In joint operations, the TACS may be combined with other service or functional component C2 elements to form the TAGS. All elements should coordinate continuously to eliminate duplication of effort and ensure adequate commitment of assigned weapons against threats.

The Role of Operations Centers

Currently, the AOC is the hub of airpower employment. It consolidates the people and technology required to run the C2 process at the theater air component level. This construct prefers centralizing theater airpower and operating through supporting relationships for sub-theater JTFs, rather than attaching individual air components.

Similarly, subordinate echelons within the USAF Service component lack the necessary support mechanisms and resources to run separate C2 processes, making it challenging to exercise Distributed Control. To overcome this, the creation of smaller operations centers (OCs) is crucial. These OCs, like the AOC at the theater-level, will need to run the C2 process to conduct C2 for assigned operations, whether as a service component to a JTF or a subordinate echelon to the theater air component commander.

The development of smaller scale OCs, such as the WOC, is underway and future exercises may explore the creation of an operations center at a middle echelon. Both the WOC and AETF OCs should enable Distributed Control within the component, and potentially distribute control of air forces under an air component commander assigned to a JTF.

THEATER AIR CONTROL SYSTEM GROUND ELEMENTS

Air Operations Center. The AOC is the senior element and primary C2 node of the TACS. It is where centralized planning, preparation, execution, and assessment of assigned air and cyberspace forces occur.

Both the AFFOR staff and the AOC perform warfighting functions and should work together to fulfill air component responsibilities to the JFC. An AOC, along with subordinate C2 elements, should be tailored to the requirements of the mission.

An AOC should be capable of performing the following tasks:

- Develop the component strategy and requisite planning products.
- S Task, execute, and assess day-to-day component operations.

- **O** Plan and execute ISR tasks appropriate to assigned missions.
- Conduct operational assessment.
- Secute air mobility operations.
- Overlop and coordinate the ACP and AADP.
- C2 theater air and missile defense.

AOCs and their subordinate C2 elements may be geographically or functionally oriented. To bring all the USAF's capabilities together for a given operation or activity, the AOCs work together in a mutually supporting command arrangement, with one AOC designated as the primary AOC.¹⁸

Joint Air Component Coordination Element (JACCE). The air component commander may establish a JACCE to facilitate JFACC coordination with other component commanders or the JFC. The JACCE acts as the air component commander's primary representative to the JFC or other component commander and facilitates coordination with their staffs. It performs a coordinating function and should communicate the host commander's decisions and interests to the air component commander. Likewise, they communicate the air component commander's intent, capabilities, restraints, and perspective to the host commander. The JACCE does not perform C2 functions or function as a C2 node. Unless specifically delegated by the air component commander, the JACCE has no authority to direct or execute operations. The JACCE may provide plans, operations, intelligence, airspace management, logistics, and air mobility expertise, as needed. In multinational operations, the JACCE may also function as the air component commander's representative to a host nation. To do so, the JFC should authorize DIRLAUTH for air operations coordination between the air component commander and host nation.

Control and Reporting Center (CRC). The CRC is the airspace control and surveillance radar facility directly subordinate to the AOC. The CRC may be assigned an airspace control sector by the ACA and manages the functions of all USAF surface radars deployed within that sector. The CRC's primary mission is to provide airspace management and airspace control, including aircraft detection, tracking, and identification. The CRC also issues scramble or airborne orders, performs data link management functions, and manages air and missile defense activities within its sector. Additionally, the CRC provides C2 liaison, mission control, combat search and rescue (CSAR) support, aircraft threat warning, and coordinates air defense artillery (ADA) through a collocated ADA fire control officer. The CRC may further delegate control of surveillance areas to subordinate radar units or AWACS aircraft within its sector. CRC modernization makes the CRC tailorable and scalable for rapid mobility. CRC configurations enable persistent operations with full manning or short-duration episodic support with minimal manning.

¹⁸ For additional information on internal AOC structure and procedures, see Department of the Air Force Manual (DAFMAN) 13-1AOC, Volume 3, *Operational Procedures-Air Operations Center (AOC)*.

When assigned as a regional air defense commander (RADC) or sector air defense commander (SADC), the CRC establishes operating procedures for initial assignment of airborne targets to ADA and fighters, ensuring defensive assets are employed in mutually supporting roles. The AADC may delegate engagement authority to the CRC as part of RADC or SADC responsibilities. In a combat identification (CID)-constrained environment, the CRC may be the lowest tactical level with engagement authority for enemy air and missile threats.

Emerging Doctrine-Wing Operations Center

WOC concepts continue to develop and emerge. As the WOC evolves, it will likely constitute a TACS C2 element configured to C2 ground-based air defense (GBAD) capabilities in defense of main operating bases and forward operating bases against adversary cruise missiles and air threats. As the USAF identifies baseline sensors and effectors, and theaters build air base defense capabilities, emerging GBAD capabilities will be fielded to integrate WOCs into the AADP and empower RADC/SADCs to employ active defense systems. This new mission area for the USAF will necessitate development of new tactics, techniques, procedures, and employment considerations. These emerging capabilities will leverage advanced battle management system contributions in support of joint all-domain C2.

Battle Control Center. The BCC is a ground-based fixed element of the TACS, comprised of four major systems: a C2 processing and display system-Battle Control System-Fixed, primary and secondary radar capabilities, flight-plan processing and identification systems, and communication and data link connectivity. The BCC fuses all-source sensor and intelligence data into a common tactical picture and disseminates tactical warning and attack assessment information to the appropriate users and decision-makers. It can perform all tasks that facilitate the full spectrum of airpower including ATO execution, airspace management and integration, surveillance and CID, and data link management. The BCC can find, fix, track, and target airborne threats and exchange air picture data with other C2 systems and combat aircraft (to include aerospace control alert fighters on the ground in scramble status) through tactical data link (TDL) systems.

Currently, the USAF employs four BCCs, located in New York, Washington, Alaska, and Hawaii, as the primary TAC C2 nodes for homeland defense and defense support of civil authorities for the Commander, North American Aerospace Defense Command, US Northern Command, and US Indo-Pacific Command. Under the future construct, the USAF is developing additional BCCs that support CCDRs that may be located outside a CCDR's AO. For example, the future BCC at Robins AFB, GA will provide battle management for US Central Command. BCCs operate continuously to provide wide-area surveillance, early warning, battle management, target detection and tracking, and non-lethal warning and weapons control functions. In the event of lost connectivity, BCCs can operate autonomously and provide immediate mutual support and redundancy if another BCC becomes inoperative.¹⁹

¹⁹ For additional information on BCCs, see AFTTP 3-3.TACS, *Combat Fundamentals-TACS*.

Air Support Operations Center (ASOC). As part of the TACS ground element, the ASOC is responsible for planning, coordinating, controlling, and executing air operations that directly support ground combat forces. The ASOC can also affect counterair operations through coordination for SEAD missions, management of some airspace control measures, close air support (CAS), and others. The ASOC is usually collocated with the senior Army tactical echelon and coordinates operations with the permanently assigned tactical air control party (TACP), Army fires cell, and the AOC.

Tactical Air Control Parties. The TACP is a subordinate operational component of the TACS designed to provide air liaison to land forces and for the control of aircraft. TACP are organized into expeditionary air support operations groups (ASOG) or air support operations squadrons (ASOS) that are aligned with their respective Army corps, divisions, or brigades. The TACP has two primary missions: advise ground commanders on the capabilities and limitations of air operations and provide the primary terminal attack control of CAS. TACP coordinate airspace coordination measures, fire support coordination measures, and deconflict aircraft with other fire support.²⁰

Emerging Doctrine-ACIT/ISET

The Air Force is exploring the employment of TACP outside of land or maritime areas of operation to extend TACS communications architecture into contested environments. Examples of C2 elements employed in this manner may include the agile control and integration team (ACIT) and integrated sensing and effects team (ISET).

ACIT. The ACIT is a ground-based USAF C2 element comprised of TACP, functioning on behalf of the JFACC, and may combine with other C2 entities or elements. It relies on rapid deployment capabilities to create localized and dispersed nodes, providing limited command of airspace pockets and control (positive or procedural) for integration of joint fires across multiple domains in support of the air scheme of maneuver.

ISET. The ISET is a TACP team that integrates with joint service or partner nations capable of employing at the forward edge of the battle area. It provides a tactical advantage through advanced sensing grids, establishes, or expands ground-based C2 mesh networks, and provides procedural control of net-enabled weapons, aircraft, and long-range precision fires.

Air Liaison Officer (ALO). The ALO is the senior TACP member attached to a ground unit who functions as the primary advisor to the ground commander on air power. An ALO is an expert in the capabilities and limitations of air operations. The ALO plans and executes CAS in accordance with the ground commander's guidance and intent. At the battalion (BN) level, the senior member of the TACP is called the BN ALO, a specially trained and experienced non-commissioned officer. Additionally, ALOs may be certified

²⁰ For additional information on TACP, see AFDP 3-03, *Counterland Operations*.

and qualified to serve in the JTAC role. The JTAC is a Service member, who, most often from a forward position, directs the action of combat aircraft engaged in CAS and other offensive air operations. The JTAC provides the ground commander recommendations on the use of CAS and its integration with ground maneuver.

THEATER AIR CONTROL SYSTEM AIRBORNE ELEMENTS

Airborne Warning and Air Control System. The AWACS provides the TACS with a flexible and capable airborne radar platform. It provides battle management and is normally among the first systems to arrive in theater during contingency operations. Through voice and data connectivity, AWACS issues threat warnings, directs aircraft on counterair missions, manages air refueling, provides a common tactical picture, and coordinates CSAR efforts. AWACS can detect and identify hostile airborne and surface-to-air missile (SAM) threats and assign weapon systems to engage enemy targets.

AWACS may carry an airborne battle staff or airborne command element authorized to redirect forces under the authority of the JFACC and AADC. When employed with an airborne command element, AWACS can scramble and divert aircraft conducting counterair operations and recommend changes in air defense warning conditions. The AWACS can perform many, but not all, CRC functions.

Battlefield Airborne Communications Node (BACN). The BACN platform supports TACS elements' ability to unify and disseminate information by ensuring robust and reliable communications between C2 elements and tactical assets. BACN provides communications capability and waveform conversions where terrestrial services are restricted or unavailable through three core service categories: TDLs, voice services, and Internet Protocol services.

DYNAMIC ELEMENTS

Dynamic TACS elements are any other weapon system or entity that has a primary role other than C2, but that may, with appropriate certification and delegated authority, augment, or substitute for dedicated TACS elements. Support systems include those organic or opportunistic surveillance, communications, and decision-making capabilities that improve, extend, or expand the capabilities of the TACS.

Mission Commander. The MC is an individual designated through the ATO process and delegated appropriate authorities for the execution of a JFACC designated mission. Their role is to lead a large Air Force flying mission from tactical planning through execution. They are typically not unit commanders and are operating with delegated decision authorities from the JFACC (i.e., NOT control or command authority).

Airborne Non-kinetic Mission Commander "CROW." CROWs provide airborne coordination with the AOC on pre-approved and dynamic EA targets. They maintain awareness on the status of airborne collection assets and manage the tactical execution of non-kinetic effects in the battlespace.

Forward Air Controller (Airborne) (FAC[A]). The FAC(A) is an airborne extension of the TACP and is certified to perform terminal attack control to aircraft providing CAS of land forces. A FAC(A) provides coordination between C2 elements and CAS aircraft, attack briefs, airspace deconfliction, visual reconnaissance and target marking, and joint fire support coordination. FAC(A) operations are integrated with the ground force scheme of maneuver to enable rapid coordination and execution of CAS operations.

Tactical Air Coordinator (Airborne) (TAC[A]). The TAC(A) is an extension of air support C2 elements. The TAC(A) provides a communication relay between the TACP, attack aircraft, and other elements of the TACS. The TAC(A) expedites the CAS aircraft-to-JTAC handoff during "heavy traffic" CAS operations. TAC(A) tasks may include coordination of briefs and attack times, CAS and FAC(A) handoffs to terminal attack controllers, relay updated threats and battle damage assessments to C2 elements, coordination of aircraft and surface fire support, and visual reconnaissance reports.

CONTROL ELEMENT AUTHORITIES, ROLES, AND ORGANIZATIONAL ALIGNMENT

Common Control Authorities. According to the nature of the operation and specific asset or organizational capabilities, the air component commander may delegate all or portions of identification, commit, engagement, and airspace control authorities to the CRC, AWACS, and BCC to dynamically execute commander's guidance and intent. These entities are not certified to perform ATC services. The BCC may be delegated data link control authority.

Common Roles and Alignment. The CRC and AWACS can accept delegated responsibility to execute missions and tasks for offensive and defensive air operations. The CRC and AWACS may be delegated RADC or SADC responsibilities and are a key C2 element for defensive counter-air operations. The CRC, AWACS, and BCC are under the operational C2 of the air component commander and vertically integrated with the AOC. They may be employed alone or horizontally integrated.

COMMAND AND CONTROL TECHNOLOGY

People, processes, and effective use of available technology enable successful C2 for military operations.

Technology elements tend to dominate C2 discourse because advanced technology characterizes American warfare. Technology attributes are important and must be understood before C2 can be conducted effectively. Personnel, technology, and processes must all come together to efficiently execute the C2 function.

JP 6-0, *Joint Communications*, states "joint communications provide connectivity throughout the operational area, from the strategic to tactical levels, which is vital to plan, conduct, and sustain military operations." It also must ensure the continuous, automated flow and processing of information. The joint C2 system must be interoperable, reliable, mobile, disciplined, survivable, and sustainable. These principles provide the foundation on which the Services build their systems and are applied during the planning and execution of military operations. The C2 system provides the JFC with the ability to manage the flow and processing of information. It supports the JFC's decision-making

process and provides him/her with the capability to achieve the desired effects during joint operations.

In accordance with guidelines and direction from the Secretary of Defense (SecDef), each military department or Service, as appropriate, has the following common functions and responsibilities pertaining to joint operations:

- To provide flexibility, as required, to meet changing situations and diversified operations with minimum disruption or delay.
- To provide interoperable and compatible C2 systems, warfighters, and reserves of equipment and supplies for the effective prosecution of war and to plan for the expansion of peacetime communications to meet the needs of war.
- To OT&E its C2 systems personnel and provide interoperable and compatible C2 systems equipment for joint operations.
- To install, operate, and maintain assigned facilities of the Defense Information Systems Network, including the capability of meeting the provisions of applicable standards.
- To maintain mobile, transportable C2 system assets, which are under the authority of the Chairman, Joint Chiefs of Staff, in a high state of readiness.
- The Services must provide C2 systems that can support joint operations. This is established as part of their mission to train and equip personnel and forces to be employed by the JFC. When forces are deployed for a contingency, it is too late to discover that C2 systems do not meet the characteristics discussed below. Failure to achieve joint standards among C2 systems will result in system degradation, if not mission failure. Coalition C2 system characteristics and requirements must also be considered during system procurement and contingency planning.

TECHNOLOGICAL SUPPORT

People, processes, and technology enable successful C2 for military operations. Technological C2 systems provide the commander with the ability to manage the flow and processing of information. It supports the commander's decision cycle and enables them to achieve the desired effects during operations.

Leveraging information-sharing technology is critical to enable battle management through air component C2 nodes. During Operations IRAQI FREEDOM and ENDURING FREEDOM, satellite communications, airborne battle management platforms, and ISR system feeds were merged into a common operating picture at the AOC. This provided the air component commander with superior situational awareness over a technologically inferior adversary.

Unfortunately, future adversaries, with their competing capabilities, will likely narrow or erase our overwhelming technological advantage. Therefore, USAF ISR and OE data sensing and sharing systems will remain critical to commanders. Information sharing through tactical data links and emerging battle management systems will remain critical

for situational awareness at the tactical level because sharing data creates a more detailed operational picture. In turn, maturation of sensor-agnostic sensing networks will improve data quality and continue to refine the OE.

Tied to the ability to share data is the ability to sense and make sense of a complex OE faster and better. Artificial intelligence (AI), with the help of machine learning (ML), offers the promise of collating, fusing, and analyzing data flows to provide higher quality actionable information at the speed necessary for victory.

Core tasks, such as network defense and defensive cyber operations, will remain critical in GPC. The USAF is developing C2 communications systems and networks that will be able to proactively maneuver between channel and spectrum, protect themselves from attack, resist disruptions through defensive maneuvers, and achieve seamless C2 node interoperability.

Effective C2 requires processed, refined, and actionable information that must be quickly, securely, and reliably made available to C2 nodes to achieve a shared understanding of the OE and common operating picture. The Advanced Battle Management System (ABMS), and potential overarching capabilities such as the Department of the Air Force (DAF) Battle Network, will enable timely and superior decision-making by delivering warfighters information when and where they need it. These technological advancements aspire to simultaneous sensing and sense-making of vast data arrays across multiple domains. To achieve this goal, highly mobile battle management nodes and similar modular or scalable battle management nodes (e.g., tactical operations center-light-enabled CRC and TACP) and ACITs, should share situational awareness and high-resolution OE understanding that was typically only enjoyed in the AOC. This dispersed situational awareness will be a lynchpin to Distributed Control and re-emphasize that assured communications will remain foundational to effective C2.

JOINT ALL-DOMAIN COMMAND AND CONTROL (JADC2)

JADC2 is a Department of Defense (DoD) initiative aimed at developing a unified C2 system that integrates and coordinates operations across all domains (air, land, sea, space, and cyber). JADC2 enables the joint force to operate at the speed of relevance, leveraging advanced technologies such as AI, ML, and cloud computing to rapidly sense, decide, and act in response to emerging threats. All-domain C2 also requires integration and synchronization with allies and partners, leading to combined JADC2 (CJADC2).

JADC2 includes the art and science of decision-making to rapidly translate decisions into action and leverage capabilities across all domains, with mission partners, to achieve operational and informational advantage in both competition and conflict. It is the natural extension of C2 across domains and functional components and is essential for JADO. The USAF's vision for JADC2 connects distributed sensors, shooters, and data across all domains, to all forces, to enable mission command for the scaled, coordinated exercise of authority to integrate planning and ensure the convergence of effects across a dynamic battlespace.

To actualize JADC2, C2 constructs, processes, and systems compress decision-making cycles and facilitate the convergence of effects across domains to enable globally integrated operations. Elements of JADC2 include a sensing grid, advanced networking, decision-making, and effects delivery. These elements provide the capability to observe the environment, share information to make sense of the environment, enhance decision-making, and converge effects to overwhelm an adversary.

JADC2 requires efficient management of resources and sophisticated information gathering, processing, and sharing across domains. JADC2 tools and methods enable information advantage and decision superiority. Where available, analytic modeling and simulation tools should be employed to support and enhance commander decision-making and inform strategy choices (e.g., apportionment).

To ensure convergence of effects, the planning process for the ATO should expand to support joint all-domain planning and execution. JADC2 will orchestrate this convergence through an integrated tasking order (ITO) employing assigned, attached, and supporting forces, capabilities, and effects. The ITO should incorporate and synchronize capabilities across components and domains to allow for mutual support and convergence of forces or effects. Knowledge of joint force capabilities, a common lexicon, common data standards, and the ability to communicate across echelons enables DAF forces to integrate across domains.

Human-Machine Teaming. A key component of JADC2 is the incorporation of human-machine teaming to leverage the benefits of emerging technology. Human-machine teaming, as part of the technological element of C2 systems, optimizes a commander's decision cycle and influences the major C2 activities by increasing the speed and accuracy of decision-quality data. Aspects of human-machine teaming include machine-to-machine communication and predictive modeling. Employing these systems effectively requires a framework for understanding their employment. Commanders should understand and balance the benefits and risks of human-machine relationships. Human-machine teaming may aid all forms of military decision-making. However, commanders and operators should exercise appropriate levels of human judgment, especially for decisions regarding the use of force. To build appropriate levels of understanding, trust, and skepticism with their machines, Airmen should train as part of human-machine teams.



INTEROPERABILITY

Interoperability is the ability of C2 systems to exchange information, allowing warfighters to operate effectively together. Interoperability is best achieved by adhering to technology and process standards that allow information flow. The focus on multinational operations continues to challenge us, particularly in security issues and technology gaps. Every effort should be made to share the needed information efficiently among the multinational forces participating in an operation.

To achieve interoperability, the DoD has established the Joint Technical Architecture (JTA) and the Communications Systems Support (CSS) architectural framework. The framework implements a standard DoD architecture that provides the needed structure while systems are in the developmental and system engineering phases of acquisition. The JTA identifies a common set of mandatory standards for USAF C2 systems, ensuring interoperability with joint and combined systems.

RELIABILITY AND REDUNDANCY

Redundant C2 systems provide the ability for alternative C2 systems to continue operations in the event of failure or damage to the primary system. C2 system redundancy begins with planning, balancing the goal of mission success against natural failures. High-value C2 systems that are difficult to back up, such as the AOC, are good candidates for redundancy planning.

COMMUNICATIONS CAPABILITY

Commanders must have access to information to exercise the Air Force's distinctive capabilities. Commanders must be provided with tools for decision-making through effective C2, exploitation, and protection of information regardless of form or function. The objective of communications and information services is to create a global and transparent interface to C2 centers and to provide users with the information necessary to carry out the mission.

USEABLE DATA FOR DECISION-MAKING

Commanders must have actionable information that has been sorted and processed. Today's information systems can process massive amounts of data and forward that data in near-real time. During a contingency, a commander usually cannot sort through a vast amount of data. The commander's staff must analyze and sift through the data to forward information the commander actually needs to enable a decision. Ultimately, data science, including ML and other kinds of artificial intelligence, can aid in data analysis and help the commander find key insights.

KEY NETWORKS

C2 throughout the DoD relies on a series of networks to provide conduits for the rapid exchange of information among nodes. The networks are provided under the aegis of the Defense Information Systems Agency (DISA) or the Defense Intelligence Agency (DIA), but individual network facilities are furnished, installed, operated, and maintained by one or another of the Service or functional components. For network facilities to be

interoperable, they must adhere to protocol and performance standards established by DISA or DIA.

Cloud Computing and Cybersecurity. Cloud computing has revolutionized the way military operations are supported, providing on-demand access to a shared pool of computing resources. Cloud services enable rapid scalability, improved collaboration, and enhanced cybersecurity. Cybersecurity is critical to ensuring the integrity and confidentiality of C2 systems and data. Advanced threat detection and response capabilities, such as AI-powered cybersecurity systems, are essential to protecting against increasingly sophisticated cyber threats.

5G and Beyond. The advent of 5G networks and beyond has transformed the way military communications are conducted. 5G networks offer faster data rates, lower latency, and greater connectivity, enabling advanced capabilities such as augmented and virtual reality, autonomous systems, and enhanced situational awareness.

Tactical Digital Information Links and Gateways. Tactical digital information links (TADILs) are standardized communication links, approved by the Joint Chiefs of Staff, suitable for the transmission of digital information. All Services, including the Air Force, use these links to support their doctrinal requirements to exchange data and information quickly and in a readily recognizable format. Link 16 has been designated as the primary data link for use in the combat air forces.

Installation Mapping and Visualization for C2 Operations. Commanders and planners use a common installation picture for mission success. Installations represent the underlying platform for USAF missions. Installation operations also require disciplined creation, management, and sharing of critical georeferenced information through modern mapping processes. The USAF's GeoBase program satisfies this critical need across the installation mission spectrum, providing a data service that can be simultaneously accessed and exploited on Air Force networks by any number of base and HHQ organizations.

In conclusion, technology plays a critical role in enabling effective C2 for military operations. The integration of advanced technologies, such as ABMS, JADC2, AI, ML, cloud computing, and 5G networks, has transformed the way military operations are planned, executed, and sustained. The importance of interoperability, reliability, and cybersecurity cannot be overstated, as they are essential to ensuring the success of military operations.

APPENDIX A: COMMAND AND CONTROL TERMINOLOGY

COMMAND

Command is the authority that a commander in the armed forces lawfully exercises over subordinates by virtue of rank or assignment. Command is exercised in both the administrative and operational branches of the chain of command (e.g., a MAJCOM commander is in the administrative branch, a joint force functional component commander is in the operational branch). Some commanders are dual-hatted. They command through both the operational and administrative branches (e.g., Commander, Pacific Air Forces (COMPACAF) is a commander in the administrative branch [MAJCOM] and a commander in the operational branch [COMAFFOR]). This doctrine focuses on the operational branch of the chain of command and refers to command as it relates to the joint force structure.

CONTROL

Control is authority exercised by a commander over part of the activities of subordinates or other organizations.²¹ The delegation of specified elements of command authority may be referred to as delegating control authority. This exchange is limited to commanders because it is the delegation of authority in a commander-to-commander relationship.

In the operational branch and joint force structure, control authorities are often classified by COMREL which defines specific authorities that empower subordinate commanders to complete their assigned mission. The primary relationships are combatant command (COCOM), OPCON, TACON, and support. Each relationship has authorities that are inherent in the preceding level (i.e., TACON is inherent in OPCON, and OPCON is inherent in COCOM). COCOM is the overarching authority granted to CCDRs and cannot be delegated. The figure "Command Relationships Synopsis for JP 1 Volume 2, *The Joint Force*" depicts the hierarchical nature of COMREL. A further discussion of COMREL is presented in the next section.

COMREL such as OPCON and TACON describe varying levels of authority that may be delegated to subordinate commanders. However, **commanders are not limited to these specific relationships. In general, any degree (including the full amount) of OPCON authority may be delegated to a subordinate commander.** Similarly, there may be authorities not described in OPCON or TACON (because they are often unnecessarily broad, or too narrowly focused on the assignment of forces) to fully capture the type and scope of authority required by subordinate USAF commanders.

²¹ For the full joint definition of control, see JP 1, Volume 2, *The Joint Force*.



Command Relationships Synopsis from JP 1 Volume 2, *The Joint Force*

COMMANDERS

In the operational branch, commanders possess both command authority and control authority. For example, Air Force Instruction 1-2 states that "in addition to leading people to accomplish an assigned mission, commanders have the lawful authority and responsibility to promote and safeguard the morale, physical well-being, and the general welfare of persons under their command." These command responsibilities are not related to directly accomplishing a mission and the authority to exercise them is by virtue of assignment. To accomplish their assigned mission, the same commander may be delegated OPCON from their superior commander to organize and employ their forces. This is an example of delegated control authority. The delegation of control authority empowers a subordinate commander to employ forces. Therefore, commanders have both command authorities AND control authorities that enable them to lead their units to accomplish their assigned missions.

COMMAND RELATIONSHIPS

Organizations require clear and effective COMREL and authorities. A working understanding of terminology is essential to understanding the relationships among

components and the responsibilities inherent in organizations.²²

COMBATANT COMMAND

COCOM is a command authority, codified in Title 10, United States Code, Section 164, is defined as "nontransferable command authority, which cannot be delegated, of a combatant commander to perform those functions of command over assigned forces involving organizing and employing commands and forces; assigning tasks; designating objectives; and giving authoritative direction over all aspects of military operations, joint training, and logistics necessary to accomplish the missions assigned to the command." COCOM can never be delegated, but many of the authorities that come with it (OPCON, TACON) can be delegated to subordinate commanders.

COCOM is exercised by CCDRs as directed by the President or the SecDef. In turn, COCOM authorities should be exercised through the commanders of subordinate organizations such as subordinate JFCs and Service or functional component commanders. COCOM provides full authority to organize and employ commands and forces as the CCDR considers necessary to accomplish assigned missions.

OPERATIONAL CONTROL

OPCON is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. A CCDR can delegate OPCON to a subordinate commander. It does not include authoritative direction for logistics or matters of administration, discipline, internal organization, or unit training.

OPCON should be exercised through subordinate commanders, such as subordinate JFCs and Service or functional component commanders. Normally, the JFC exercises OPCON of assigned and attached Air Force forces through the COMAFFOR.

TACTICAL CONTROL

TACON is the authority over forces that is limited to the detailed direction and control of movements or maneuvers within the operational area necessary to accomplish missions or tasks assigned.

TACON may be delegated to and exercised by commanders at any echelon at or below the level of CCMD. TACON provides sufficient authority for controlling and directing the application of force or tactical use of combat support assets within the assigned mission or task. TACON does not provide organizational authority or authoritative direction for administrative and logistic support.

²² For additional information on command relationships, see JP 1 Volume 2, *The Joint Force*.

ADMINISTRATIVE CONTROL

Administrative control (ADCON) is defined as the direction or exercise of authority over subordinate or other organizations with respect to administration and support. This includes the organization of Service forces, control of resources and equipment, personnel management, unit logistics, individual and unit training, readiness, mobilization, demobilization, discipline, and other matters not included in the operational missions of the subordinate or other organizations.

ADCON is not a warfighting authority like that found in COCOM, OPCON, TACON, or support relationships. Normally the COMAFFOR exercises ADCON over assigned USAF personnel, and at least those elements of ADCON that are necessary to ensure mission accomplishment over those USAF personnel attached to the USAF component command. It is through ADCON that the COMAFFOR provides properly organized, trained, and equipped USAF forces.

SUPPORT

Support is a command relationship that aids, protects, complements, or sustains another force. It is used when neither OPCON nor TACON is appropriate. The SecDef specifies support relationships between CCDRs. The CCDR may establish support relationships between components assigned or attached to the command.

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

General Support. Support given to the supported force as a whole rather than to a particular subdivision thereof.

Mutual Support. Support which units render each other against an enemy because of their assigned tasks, their position relative to each other and to the enemy, and their inherent capabilities.

Direct Support. A mission requiring a force to support another specific force and authorizing it to answer directly to the supported force's request for assistance.

Close Support. That action of the supporting force against targets or objectives that are sufficiently near the supported force as to require detailed integration or coordination of the supporting action with the fire, movement, or other actions of the supported force.

COORDINATING AUTHORITY

Coordinating authority is defined as the commander or individual who has the authority to require consultation between the specific functions or activities involving forces of two or more Services, joint force components, or forces of the same Service or agencies, but does not have the authority to compel agreement. If an essential agreement cannot be obtained, the matter is referred to the appointing authority. Coordinating authority is a consultation relationship, not an authority through which command may be exercised.

DIRECT LIAISON AUTHORIZED

DIRLAUTH is defined as that authority granted by a commander (any level) to a subordinate to directly consult or coordinate an action with a command or agency within or outside of the granting command.

APPENDIX B: DISTRIBUTED CONTROL CONSIDERATIONS

Early understandings of Distributed Control emerged in doctrine prior to the 2021 release of AFDP 1. The 2015 version of "Volume 1, *Basic Doctrine*," described C2 as a continuum "between direct control and total autonomy." This notion of Distributed Control was influenced by recent history, where the theater air component commander typically retained most of the authority given to them by a CCDR. This effectively centralized the decision-making and direction of C2 activities, particularly through the AOC. Unfortunately, disruption or destruction of the command staff and/or AOC therefore poses a significant vulnerability to USAF operations. Recognizing the vulnerability posed by this centralized approach, the USAF aims to distribute decision-making, direction, and conduct of C2 in specified operations to subordinate commanders to ensure survivability and flexibility. The following considerations may help guide commanders through distributing control.

How do commanders ensure that subordinate commanders understand the scope of their delegated authority and the commander's intent?

- Use clear and concise language in written orders and verbal briefings to convey the commander's intent and scope of authority.
- Conduct regular briefings to ensure shared understanding and alignment.
- Establish a common operational picture and share situational awareness to facilitate understanding of the OE.
- Use the MTO technique that provides a clear understanding of the commander's intent, constraints, and restraints.
- Encourage open communication and feedback to clarify misunderstandings or concerns.

What mechanisms are in place to prevent misunderstandings or misinterpretations of delegated authority, and how are they addressed?²³

- Sestablish a clear chain of command and defined decision-making processes to minimize confusion.
- Implement a system of checks-and-balances to ensure that delegated authority is exercised within established boundaries.
- Conduct regular reviews and assessments of delegated authority to identify potential issues or areas for improvement.
- Solution Foster a culture of transparency, accountability, and open communication to encourage reporting of misunderstandings or concerns.

²³ There are no pre-existing mechanisms to address this, the following recommendations should be adopted to help mitigate these potential issues.

- Establish a process for rapidly addressing and resolving conflicts or misunderstandings that arise from delegated authority.
- Conduct back-briefs and receipt-of-orders confirmations with subordinate echelons.

How does the Air Force balance the need for centralized command with the need for Distributed Control and decentralized execution in complex, dynamic operations?

- Implement a hybrid approach that combines centralized command with Distributed Control and decentralized execution, depending on the operational context.
- Establish clear lines of authority and decision-making processes to ensure coordination and synchronization across various levels of command.
- Use advanced technologies, such as human-machine teaming with associated data analytics and AI, to enhance situational awareness and facilitate decentralized decision-making.
- Train and educate commanders and staff to operate effectively in distributed and decentralized C2 structures.
- Develop and exercise contingency plans to adapt to changing operational circumstances.

What role does technology and communication systems play in enabling Distributed Control and decentralized execution, and how do they impact the commander's ability to exercise authority?

- Leverage advanced communication systems, such as satellite communications and tactical networks, to enable real-time information sharing and coordination.
- Implement data analytics and AI-powered tools to enhance situational awareness and facilitate decision-making.
- Utilize C2 systems that enable distributed and decentralized execution, such as the Air Force's ABMS.
- Develop and exercise procedures for operating in a degraded or denied communication environment.

APPENDIX C: COMMAND AND CONTROL ACTIVITY CONSIDERATIONS

The following section provides additional considerations to guide the C2 activities. It accompanies the overarching principles discussed in Chapter 2.

PLANNING CONSIDERATIONS

At subordinate echelons, planners should evaluate how their echelon's planning fits into the overall operational design. Subordinate commanders should leverage HHQ guidance to provide sufficient intent at their echelon of command. This approach should answer the question: "How do we take operational objectives and translate them into tactical tasks?"²⁴

- Design is iterative and drives planning, with an understanding that it is informed by assessment.
- With an understanding of the OE, planners can work backward from military and national end-states/objectives to create lines of effort/lines of operations that achieve desired objectives.
- Planning should include the Airman's perspective. The Airmen's perspective seeks to establish a cohesive and coherent link between objectives, effects, tasks, and actions to ensure all echelons are aligned with strategic objectives and the desired end-state.

PREPARING CONSIDERATIONS

Preparing is a critical component of the C2 process, bridging the gap between planning and execution. It ensures that all stakeholders are aligned, resources are allocated effectively, and plans are refined to achieve the desired outcome. Effective preparation is essential for successful airpower operations. It requires careful attention to detail, effective communication, and a deep understanding of the OE.

- Ensure a seamless transition. Commanders must prioritize coordination and refinement of plans to ensure a seamless transition from planning, preparing, and execution. This involves sharing information, gaining consensus, and optimizing operations among superior, subordinate, and parallel forces. Key indicators of a successful transition include timely and accurate exchange of information, clear understanding of tasks and responsibilities, availability of required resources and support, and effective communication and coordination among different units and agencies.
- Build trust and agreement. Effective preparation relies on building trust and agreements among different units and stakeholders. This is achieved through clear communication channels and protocols, open and transparent information sharing, a culture of mutual respect and cooperation, standardized processes and procedures,

²⁴ For additional design and planning considerations, see AFDP 5-0, *Planning*, and JP 5-0, *Joint Planning*.

and regular coordination meetings and briefings.

- Mitigate challenges. Common challenges during preparation include resource constraints, weather or environmental factors, and changes in the OE. These challenges can be mitigated through thorough risk assessments and contingency planning, developing flexible and adaptable plans, maintaining situational awareness through real-time intelligence and surveillance, prioritizing tasks, allocating resources effectively, and establishing clear decision-making processes and authorities.
- ✿ Refine the plan. Refining the plan is critical to ensuring its relevance and effectiveness in response to changing circumstances. This involves assessing the impact of changes on the overall mission objective, evaluating the feasibility and risks associated with changes, coordinating with affected units and stakeholders, and ensuring that changes are communicated effectively and in a timely manner.
- Create interoperable tools. Interoperability of tools is essential for effective preparation, enabling the seamless exchange of information and coordination across different systems and units. This allows for expedited and accurate data exchanges, enhanced situational awareness, improved decision-making and coordination, and increased speed and agility in response to changing circumstances.
- Distributed Control. During the preparing activity of the C2 process, Distributed Control is exercised by delegating C2 authorities to subordinate commanders, defining the boundaries and limits of their authority, and establishing decision-making processes and protocols. This critical step ensures that subordinate commanders have the necessary autonomy and resources to achieve their objectives. By working out potential issues and delegating C2 authorities during preparation, commanders can ensure that Distributed Control is exercised in a way that is flexible, agile, and responsive to changing circumstances, ultimately leading to more effective and successful operations.
- Decentralize execution. The preparing activity supports decentralized execution by providing clear guidance and intent from HHQ, establishing a common operational picture and shared understanding, enabling subordinate commanders to make decisions within their authority, and facilitating coordination and synchronization across different units and levels of command.
- Account for uncertainty. The preparing activity accounts for uncertainty and adapts to changing circumstances through continuous assessment and monitoring of the OE, maintaining a flexible and adaptable plan, establishing clear decision-making processes and authorities, encouraging open communication and coordination among units and stakeholders, and conducting regular refinement and updating of the plan.

EXECUTION CONSIDERATIONS

Traditionally, the air component commander directs the execution and deconfliction of all air forces and capabilities made available by the JFC. Components and supporting commanders execute and recommend changes as appropriate while adapting to emerging JFC and component requirements. During execution, the air component commander is the command authority for revising tasks of service and joint air forces. C2 systems are used to coordinate and deconflict changes with the appropriate agencies or components. Ground or airborne MCs may be delegated authority to redirect tasks/sorties/missions made available to higher priority tasks or targets, as necessary. It is essential that all affected commanders and forces are notified of redirected missions impacting their planning and execution. Additionally, the following list describes principles for successful execution.

- Commanders apply operational art. In execution, operational art is making decisions before they are obvious or easy while adapting to dynamic change. Commanders should navigate through imperfect information and unclear circumstances, make timely decisions, and issue deliberate orders.
- C2 in execution should be objective-based and effects-focused. Battle management should monitor and adjust tasks and actions to create the desired effects that accomplish assigned objectives.
- Effective C2 in execution is directly related to the time necessary for commanders to make decisions. The speed of the commander's decision cycle must rapidly increase to shorten the time required to conduct the C2 process. War is competitive and it is not absolute speed that matters, but speed relative to the enemy. The aim is to be faster than the enemy, which means interfering with the enemy's C2 and streamlining our own. The speed differential does not necessarily have to be a large one. A small advantage exploited repeatedly can quickly lead to decisive results.
- Commanders execute as planned or rapidly modify. Inherent in execution is deciding whether to execute planned actions (such as phases, branches, and sequels) or to modify the plan based on unforeseen opportunities or threats.
- Decentralized execution permits the flexibility to realize tactical success. This concept supports the inherent flexibility and versatility of airpower, giving commanders the tools to adapt to changing circumstances while remaining focused on operational objectives.
- Effective execution requires leaders trained in independent decision-making, aggressiveness, and risk taking in an environment of mission command. Situations may change rapidly. The commander's envisioned operations from planning may bear little resemblance to actual events in execution. Subordinate commanders need maximum latitude to take advantage of situations and meet the higher commander's intent when the original order no longer applies.
- Commanders fight the enemy, not the plan. A plan provides a reasonable forecast of execution. However, it remains a starting point, not an exact script to follow. Commanders should be mindful of deviations from the plan, but the intent should be to accomplish objectives.

- Execution actions take place within a defined timeframe. This timeframe usually extends from whenever an order is given to execute the governing plan, to the point when the commander has decided that the operation can be terminated.
- Execution encompasses the tasking cycle and commander's battle rhythm. Execution is the deliberate cycle of command, staff, and unit activities to integrate and synchronize current and future operations.

ASSESSING CONSIDERATIONS

The following principles should guide the commander and the staff throughout assessment.²⁵

- Some manual assessment. The commander's information requirements drive operational assessment.
- Involve subordinate commanders. Assessments are more effective when used to support conversations between commanders at different echelons. Operation assessments link echelons of command by identifying the activities and impacts critical to success and sharing the assessment methods used to shape operational decisions. A common understanding of operational priorities allows subordinate commanders to directly communicate their most relevant information.
- Integrate staffs. Staff integration is crucial to planning and executing effective assessments. Integrating perspectives from across the staff should minimize errors that arise from limited focus (i.e., duplication of effort, incorrect identification of causes, or insufficient information to prioritize issues by level of impact).
- Integrate the planning process and battle rhythm. To deliver information at the right time, the operation assessment should be synchronized with the commander's decision cycle. The assessment planning steps occur concurrently with the steps of the AFPP.²⁶ The resulting assessment plan (products or results) should support the command's battle rhythm.
- Utilize external sources of information. Operation assessment should allow the commander and staff to integrate HHQ information that updates the understanding of the OE to reduce risk and plan more effective operations. To this end, commanders and staff should ensure security classifications, foreign disclosure policy, and information sharing systems lend themselves to coordination with joint and coalition partners.
- Build credibility and transparency. Assessment reports should cite all sources of information used to build the report. As much as possible, sources and assessment results should be unbiased. All methods used and limitations in the collection of information and any assumptions used to link evidence to conclusions should be

²⁵ For additional information on assessment in general, see AFTTP 3-2.87, *MTTP for Operation Assessment.*

²⁶ For additional information on AFPP, see AFDP 5-0.

clearly described in the assessment report.

Continuously assess. While an operation assessment product may be developed on a specific schedule, assessment is continuous in any operation. The information collected and analyzed can be used to inform planning, execution, and assessment.

Common Assessment Pitfalls. Significant challenges that staffs must often overcome to enable an effective operation assessment activity include:

- Not integrating assessment into planning and execution from the outset. The most successful staffs are those who routinely integrate and implement assessment activity at the onset of the planning process. Concurrently considering operational assessment during planning supports the development of well-written objectives and associated conditions or effects. Failing to consider how to assess an operation during planning can lead to objectives that are not assessable and tasks that are not tied to or support operational objectives.
- Solution ⇒ Section Section
- Lacking the commander's vision. The commander's understanding of the OE is driven by continual interaction with commanders at all levels, mission partners, and battle space circulation. Staffs should leverage the collection management process and assessment requirements to contribute meaningfully to the commander's understanding of the OE.
- Inadequate facilitation of commander's decision-making. The staff must consider what kinds of decisions the commander will have to make to effectively C2 their forces. Optimally, assessment recommendations should facilitate the commander's ability to provide guidance and direction to subordinates, request additional support, and recommend higher prioritization from HHQ.
- Focusing on measures of performance without developing measures of effectiveness.²⁷
- Lacking advocacy or command interest. Senior staff needs to ensure the commander appreciates the value of assessment to inform decisions and drive operations.
- ✤ Failure to incorporate the operational assessment process. The operation assessment process helps frame the precise definition of tasks, desired effects, objectives, and end-states. It gives the commander's staff a method for selecting the information and intelligence requirements (including the commander's critical

²⁷ For additional information on measures of performance, see AFDP 5-0.

information requirements) that best support decision-making. Staffs should assess the progress of ongoing operations toward the desired end-state.

APPENDIX D: BATTLE RHYTHM ORGANIZATION

The battle rhythm is a routine cycle of command and staff activities intended to synchronize current and future operations in accordance with the commander's decision cycle. The battle rhythm provides the structure for managing the HQ's most important internal resource, the time of the commander and staff personnel. A stable battle rhythm facilitates effective decision-making, efficient staff actions, and management of information across all echelons.

A battle rhythm is essentially a schedule of important events that should also be synchronized with other levels of command. The battle rhythm is commander-centric, and all efforts of the staff must be directed toward support of decision-making. Generally, the battle rhythm consists of a series of meetings, report requirements, and other activities.

TERMS

Battle rhythm: A deliberate, daily schedule of command, staff, and unit activities intended to maximize use of time and synchronize staff actions.

Board: An organized group of individuals within a headquarters, appointed and tasked by the commander (or other authority), that meets with the purpose of gaining guidance or decision.

Cell: A subordinate organization formed around a specific process, capability, or activity within a designated larger organization of a headquarters.

Center: An enduring organization, with a supporting staff, designed to perform a function within a headquarters.

Planning team: A functional element within a headquarters established to solve problems related to a specific task or requirement and which dissolves upon completion of the assigned task.

Working group: An enduring or ad hoc organization within a headquarters consisting of a core functional group and other staff and component representatives whose purpose is to provide analysis on the specific function to users.

Wing A-Staff Battle Rhythm Organizational Teams and Activities

Commanders determine the specific boards, centers, cells, and working groups that are necessary to inform their decision cycle. While many joint and component organizations have established battle rhythm elements, the USAF is actively developing what elements are necessary at the wing level. In general, most organizations require working groups to provide functional analysis, centers to perform enduring functions, and boards to gain guidance or decisions. Wing commanders should tailor these battle rhythm elements to meet the needs of their assigned operations and the associated decision cycle.

BATTLE RHYTHM DEVELOPMENT

There are several critical functions for a battle rhythm, these include, but are not limited to, the following:

- **O** Provide a routine for internal staff interaction and coordination.
- Provide a routine for interaction between the commander, staff, other organizations, and HHQ.
- Synchronize staff organizational activities.
- Facilitate planning by the staff and decision-making by the commander--support the commander's decision cycle.

The battle rhythm can be created in two distinct steps, as shown in the following figure. First, start with a logical arrangement of cross-functional organizations around the commander's decision requirements with decision boards as culminating events. Second, lay out these cross-functional organizations events on a calendar.

Battle Rhythm Development - Step 1: Support Decision-Making



Battle Rhythm Development – Step 2: Battle Rhythm Arrangement



BATTLE RHYTHM MANAGEMENT

Typically, the battle rhythm is managed by the COS. An effective battle rhythm requires active management and staff discipline. The COS should establish a deliberate battle rhythm control process and structure that achieves and maintains effective decision support for the commander and shared understanding among the staff by:

- Establishing a battle rhythm management and change control process that requires proponents for cross-functional staff elements to justify event establishment (i.e., purpose and authority, agenda, proposed membership, event location and timing, required product inputs and outputs) or modification.
- Documenting and routinely evaluating critical path information flows and identifying opportunities to streamline or eliminate unnecessary or redundant events and processes.
- Regularly checking battle rhythm events to ensure the time of the staff, directors, or command group is in support of the commander's decision cycle and/or staff shared understanding. Meeting chairpersons should research and understand techniques for effective meeting discipline, such as establishing a clear agenda that supports processing inputs in support of the commander's decision cycle and selectively limiting attendance to essential personnel.
- Placing accountability on directors for developing effective critical path/information exchange flows with clear inputs and outputs for their respective functions and supporting cross-functional battle rhythm events.
- Maintaining awareness of critical staff positions that are in high demand for event participation. Additionally, directors should not automatically be assigned to participate in every cross-functional battle rhythm event. Instead, event membership should be based on who has the delegated authority to make decisions. For example, some high-demand subject matter experts are important members of events but will likely not be able to support multiple events at the same time.
- Providing discipline in the battle rhythm execution necessary to maintain sufficient unscheduled time. Without a conscious effort to preserve valuable time for both the commander and staff to think and work, the battle rhythm can become overwhelming and counterproductive.

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